International Law Association

Report of the Australian Branch Committee on Deep Sea Mining

I Introduction

Since it was brought into prominence in the General Assembly of the United Nations, much has been written on the subject of deep sea mining. Both inside and outside of the United Nations, numerous committees, legal and technical (including other branch committees of the I.L.A.), have discussed the problems involved in the exploration and exploitation of the mineral resources of the sea bed of the deep oceans. The Australian Committee has, as a result, been able to consider some of the recommendations and conclusions of others during the preparation of its own report. In our view there remain aspects of this important matter which have not been sufficiently adverted to and which we feel are essential to any responsible consideration of the exploration and exploitation of the deep sea bed. We think that at the present stage of developments in this field it is premature to propose any detailed scheme to regulate those activities which will, in time, undoubtedly be carried out on the deep sea bed. Indeed, the present lack of data and information on the deep sea resources makes such a task ill-advised. In this respect we draw attention to the concept of the International Decade of Ocean Exploration which is intended to remedy the dearth of information on the resources and nature of the sea bed. When more data becomes available, this should lead towards a decision on the most appropriate regime to govern the development of the natural resources of the sea bed. The Committee feels that a useful function of the I.L.A. would be to endeavour, as far as possible, to ensure that in the formulation of any scheme which may ultimately be put into operation certain basic principles are observed. The most important of these will be discussed later in this report. In this regard the Committee urges that the Deep Sea Mining Committee of the I.L.A. maintain liaison with Governments and with industry, so that adequate cognizance may be taken of the technical, economic and accounting opinions which are relevant to the exploitability of the sea bed.

It appears that the international discussion of this question is proceeding at two levels. At one level attention is being concentrated on the scope of the Continental Shelf Convention 1958, with particular reference to the provisions therein relating to the spatial extent of the continental shelf and the nature of the coastal State's rights over it. At a second level it is being concentrated on the forms of an international regime to control the exploration and exploitation of the deep sea bed, that is, the sea bed beyond the scope of the Continental

Shelf Convention. It is believed that the two questions are so interrelated both legally and sociologically that any discussion of "deep sea mining" requires discussion of the extent of the continental shelf. This is specially so since much of the motivation underlying proposals for internationalization of the sea bed appears to be directed to cutting down the spatial extent of the continental shelf, either by generating enough pressure to influence State practice in the interpretation of the Convention, or by seeking amendments thereto. A cut-off margin to the continental shelf is thus implicit in all proposals of internationalization, and in particular in the financial calculations upon which the arguments of some of those proposals proceed. Indeed, the extension of the continental shelf to embrace the major part, if not all, of the world's offshore sedimentary formations in which hydrocarbons and many other minerals are to be found, could retain for the coastal States a substantial share of the benefits which are claimed by some to be the rightful heritage of mankind. At the same time it is necessary to comment on the existing law of the sea bed as the Committee sees it.

The Committee considered whether it would serve any useful purpose to make reference to regional questions concerning the exploration and exploitation of the sea bed, and whether these would aid international consideration of a regime for the sea bed. The merit of a regional solution is that it might eliminate rivalry in sea bed activities between neighbouring States and make for their co-operation in the exploitation of the sea bed.

In view of the recommendations contained in section III (b) of this report we feel that, although there are merits in a proposal to develop regional rules of international law and regional organizations to deal with the sea bed, such a concept could react adversely on those it is intended to benefit. A regional solution presupposes either a failure to reach agreement on a worldwide basis, or a positive move by certain States to avoid application of international rules to the deep sea bed within their own region. In certain parts of the world regional rules could be developed which could inhibit proper and long-term development of the resources of the area. This could furthermore specifically exclude land-locked States in a region from access to the deep sea resources of the region. Viewed from the standpoint of the potential explorer the rules to cover deep sea mining should, as far as possible, have universal application since any move to develop rules in isolation could lead to selection of those areas which offer the best financial terms but which are not necessarily, on technical grounds, the best areas to investigate viewed from a truly international aspect. This concept is not, moreover, in accordance with that which appears to be presently accepted in the United Nations.

II The continental shelf

(a) Geographical definitions and legal relationships.—As it was initially adumbrated, the continental shelf doctrine was conceived largely in two-dimensional terms, as a lateral projection of the coast for a specific distance, importing the subsoil by virtue of this extension.

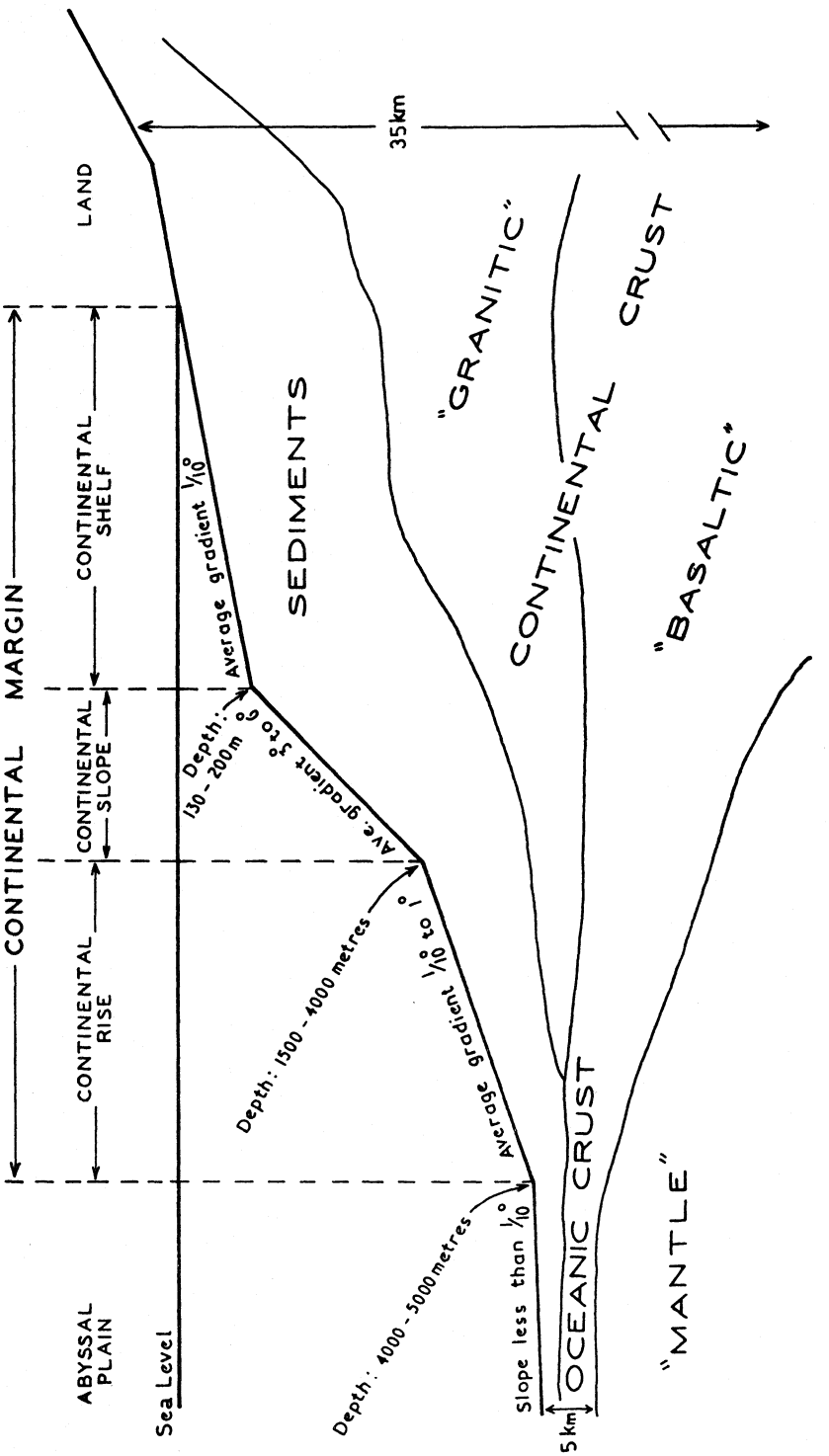
This resulted in some disengagement of the legal doctrine from the geographical concept, and therefore in some distortion of the generating principle. More recently legal theory has tended to conceive of the continental shelf as a three-dimensional entity, and so the tendency has been to restore the legal and geographical equation. This tendency is obvious in the judgments in the *North Sea Continental Shelf Case.* In this case the International Court of Justice held by a majority that the principle of equidistance, which in the Continental Shelf Convention is the criterion for dividing a continental shelf between States, is not a principle of customary international law, so that it does not bind non-parties to the Convention, unless it expresses in any one instance the factors inherent in the natural prolongation of the land. The Court said:—

> "The rights of the coastal State in respect of the area of the continental shelf that constitutes a natural prolongation of its land territory into and under the sea exist *ipso 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."

Because these rights exist by virtue of the twin factors of "sovereignty over the land" and the "natural prolongation" of that land, they are "inherent", and "no special legal process has to be gone through, nor have any special legal acts to be performed" for them to be enjoyed. Their existence can be "declared" but need not be constituted and does not depend upon their being exercised, so that if the coastal State refrains from claiming such rights, no other State may exploit that continental shelf. The Court rephrased its definition when it referred to a "notion of appurtenance", by virtue of which "the right of the coastal State to its continental shelf areas is based on its sovereignty over the land domain, of which the shelf area is the natural prolongation into and under the sea", and again rephrased it when it referred to the "fundamental principle" of the "prolongation or continuation of the land territory or domain, or land sovereignty of the coastal State". This comes very close indeed to rationalizing the continental shelf on the basis of a prolongation of sovereignty, and this inference is reinforced by the reference which follows to the "underlying idea, namely of an extension of something already possessed".

(b) Geological and geophysical considerations—the margins of the continents.—The submerged portion of the continental crust has been termed the *continental margin* (see diagram). It *includes* the *continental shelf,* the *continental slope,* and the *continental rise* or at least that part of it which is underlain by continental rather than oceanic crust. The continental shelf and slope together are often termed the *continental terrace.*

The boundaries between shelf, slope and rise are breaks in slope (declivity), the outer (or lower) edge of the shelf being determined by a marked general increase in the angle of slope and the outer (or lower) edge of the slope by a decrease. The distances of these boundaries from the shoreline vary so that they cannot be used to define


LAND
35km
CONTINENTAL MARGIN
CONTINENTAL SHELF
CONTINENTAL SLOPE
CONTINENTAL RISE
ABYSSAL PLAIN
Sea Level
SEDIMENTS
"GRANITIC"
CONTINENTAL CRUST
"BASALTIC"
Average gradient 1/10°
Depth: 130 - 200m
Ave. gradient 3 to 6°
Depth: 1500 - 4000 metres
1/10 to 1°
Average gradient 1/10°
Depth: 4000 - 5000metres
Slope less than 1/10°
5km
OCEANIC CRUST
"MANTLE"

these boundaries. The depth of water at which the breaks in slope occur is also variable but within limits. This makes agreement on "average" depths at these boundaries feasible. Thus it is widely held that the 200 metre isobath approximates in many places the edge of the continental shelf. The base of the continental slope lies generally below 2000 metres, and the 2500 metre isobath has been shown on recent maps[1] to "approximate in many places the toe of the continental slope". The abyssal plains are generally flat. *Seamounts* are "more or less isolated elevations of the sea floor with a circular or elliptical plan, at least 1 km of relief, comparatively steep slopes, and relatively small summit area".[2] Most of them are believed to be of volcanic origin. *Guyots* are submarine volcanoes with broad, almost level tops at depths of 1-2 km. Until recently, human activity beneath the oceans was confined to the *sea bed*, a surface forming a "natural prolongation" of the land surface, on and above which organic products could be gathered and structures could be erected. It could have been assumed that mining activities beneath the ocean, by analogy with those on land, are simply an extension of utilization of resources from the seabed to its "subsoil". This concept would imply that meaningful boundaries of jurisdiction could be drawn anywhere on the sea floor and extended vertically downward so as to establish boundaries or jurisdiction in respect of mining.

Geological and geophysical exploration of the oceans has revealed facts with which the concept of an indefinite "natural prolongation" of land surfaces and their subsoil and its meaningful divisibility by vertical planes as extensions of horizontal boundaries into the "subsoil" comes into conflict.

Mining is an economic activity based on geological and geophysical properties of the earth's crust. The crust under the continents differs fundamentally from the crust under the ocean basins. "The continental crust is richer in silica and the alkalis and poorer in iron and magnesia than the ocean crust. Although the continental crust averages about 35 kms in thickness compared with about 5 kms for the oceanic crust, its density is less. ... Oceanic crust ... is largely composed of basalt and related rock, and, except near the continental margin where erosional debris may be present, it is generally overlain by no more than a few hundred metres of sediments .... The outer limits of the continental margin in many places are concealed beneath the continental rises ...".[3] It follows that the "natural prolongation" of the continents may extend as far as the continental rise. Its outer limit may be determined by geophysical measurements or by bathymetric measurements. Geophysical data and information are not yet available in sufficient density to plot the outer edges of the continents. Bathymetric

1 V. E. McKelvey and F. F. H. Wang, *World Subsea Mineral Resources*, U.S. Geol. Survey Misc. Geol. Invest. Map 1-632, Washington, D.C. 1969, 17 pp., 4 maps.

2 H. W. Menard, *Marine Geology of the Pacific*, McGraw Hill, New York, 1964.

3 V. E. McKelvey and F. F. H. Wang, op. cit.

data can define them only approximately (as lying in the vicinity of the 2500-metre isobath (see p. 8, *ante*) but 3000 metres or 3500 metres could be suggested alternatively.

(c) The legal limits of the continental shelf.—If the views of the International Court of Justice in the *North Sea Cases* are accepted as being declaratory of the underlying notion contained in art. 1 of the Geneva Convention on the Continental Shelf, that the continental shelf is "an area physically extending the territory of most coastal States", or that it is "the natural prolongation or continuation of the land territory . . . of the coastal State", then the question arises whether the legal cut-off point of the coastal State's "sovereign rights" would correspond with the geographical terminating contour of the continental shelf.

The Court did not indicate how far, in its view, the continental shelf in a legal sense extends. But, if the Court meant to equate the expression "natural prolongation" with the geophysical structure of the continental margin, then the maximum extent to which "sovereign rights" can be pressed would be the base of the continental slope, or even the continental rise. Such sovereign rights do not so extend immediately or inherently beyond the 200-metre isobath. They could only extend pursuant to the "exploitability criterion in art. 1. If, on the other hand, the "exploitability" criterion is not a matter of customary international law, then it would be arguable that, for States which are not parties to the Convention, sovereign rights inhere in coastal States to the full extent of the natural prolongation of their land masses. Such States would not, on this argument, be bound by a 200-metre limitation, and would not need to rely on exploitability in order to manifest sovereign rights over the total area of natural prolongation.

The questions so posed immediately raise problems of definition, since the morphological nature and the limits of the continental shelf in relation to the coastal State from which it stems are matters which can only be determined with any accuracy in the course of time as technology develops to the point of being able to fix the actual boundary. Until this stage is reached, discussion of the deep sea bed, except in depths at which the continental shelf may reasonably be presumed to be non-existent, can only take place in a vacuum, and for this reason a note of caution is urged by the Committee that the fixing of a purely arbitrary limit to the continental shelf should be resisted until more evidence is available on the nature of the outer continental shelf.

The problem posed for legal analysis is that embodied in what has become known as "the exploitability" criterion in art. 1, which reads as follows:—

> "For the purpose of these Articles, the term 'continental shelf' is used as referring (a) to the sea bed and subsoil of the submarine areas adjacent to the coast but outside the area of the territorial sea, to a depth of 200 metres or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas; (b) to the sea bed and subsoil of similar submarine areas adjacent to the coasts of islands."

At least for parties to the Convention, the exercise of a coastal State's "sovereign rights" beyond the 200-metre isobath is dependent on a test of "exploitability" within the meaning of art. 1. The term "admits of" linked to exploitability rather than to exploration tends to import something more than a mere feasibility of recovering natural resources. If it means nothing more than this, then a substantial part of all the continental shelves of the world are already subject to "sovereign rights" and the reference to a 200-metre isobath in art. 1 is meaningless. Any limitation upon the extension of "sovereign rights" over the continental shelf beyond the 200-metre isobath can accordingly only derive from the view that "admits of" implies practicable exploitation rather than abstract potential to exploit. If the legitimate extension of "sovereign rights" to areas beyond the 200-metre isobath had to await proof which only exploration drilling could provide, the stage of exploration would be one of legal vacuum. But since explorers require a guarantee of legal security before making the investment necessary to furnish such proof, a vicious circle is created by this interpretation of art. 1.

The Committee considers that there has been insufficient recognition given in most discussions of art. 1 to the dilemma facing both Governments and industry, and that clarification, not only of the limits of the exploitability criterion itself, but also of the specific instances in which the criterion may be required, is of first importance.

The Committee feels that any interpretation should be resisted, which implies that the limitations on the exercise of "sovereign rights" over the continental shelf beyond the 200-metre isobath should be based on economic rather than technical feasibility to exploit. We believe that the idea which should be conveyed is that of "extraction" rather than exploitation, and, if any amendment of the Continental Shelf Convention is to be made, the substitution in art. 1 of the phrase "admits of the exploitation . . ." by "admits of the extraction" provides an acceptable solution to the problems adverted to in this report which arise through the use of the term "exploitation". The effect of this would be that the extension of "sovereign rights" over the continental shelf would be limited to those depths at which it may be technically feasible to extract the natural resources belonging to the coastal State.

It is important that a clear distinction be made between the ability to explore by drilling for a natural resource and the ability to extract that resource. It is not intended that the technical ability to explore alone should be the determining factor. For example, in the case of petroleum exploration, although it is presently technically possible to explore and take samples in water depths of up to 18,000 feet, extraction of petroleum is presently possible only in much more limited depths. Major changes in technique will be necessary before extraction of petroleum becomes technically possible in water depths beyond about 1500 feet—for example, diver capability for servicing sub-surface equipment and changes in the marine conductor to permit re-entry of the hole with new drilling bits and to control the well. It is considered

that the main feature of the test which has been advocated should be that it should be technically feasible to produce at a specified depth, on the scale that will enable it to be processed, as distinct from an experimental scale. The disadvantages in advancing economic feasibility as the test are as has been shown earlier that it may not operate with equal fairness between States. Whilst not all coastal States may have the finance or the capability to develop techniques to drill and extract at depth it is intended that the "extraction" test should operate to give all States the right to exercise "sovereign rights" over their continental shelf at the depth at which it may from time to time be determined that extraction is technically feasible.

Since technical development of extraction techniques is likely to remain sufficiently far ahead of the exploration techniques which may economically be utilized by industry, the "extraction" test should enable States to grant exclusive exploration rights to industry sufficiently in advance of the time when exploitability may become a practical and economic possibility.

It does not follow that the "extraction" criterion can validate an extension of "sovereign rights" beyond the morphological structure of the continental margin. Implied in that formula, the Committee believes, is the potentiality to expand "sovereign rights" as far as the continental margin extends, although it is recognized that at the present moment some contour line on the declivity of the continental shelf may be the actual boundary of "sovereign rights". As it becomes technically feasible to extract from the entire continental shelf, the limit of "sovereign rights" becomes the limit of the continental margin itself.

(d) **Australian practice.**—The Australian Government has taken the "exploitability" criterion to imply a flexible and expanding boundary to the coastal State's rights under the sea, and this view was expressed by the Attorney-General in the second reading of the Petroleum (Submerged Lands) Bill. He said:—

> "The outer limit is determined as the point where it is possible with your capacity to go to exploit resources. This capacity will increase with technical advancement and thus the limits advance outwards. The outer limit today may not be the outer limit tomorrow. This presents the draftsmen of an Act such as this with a problem. The Bill was drafted on the basis of application to 'areas'. The device adopted was to draw the series of 'pictureframes' that honourable members will see in the maps contained in the booklet which has been distributed. The legislation makes it clear, and this is recognized by notations on the maps themselves, that the legislation will apply only to so much of the submerged lands within a particular frame as has the character either of territorial sea bed or of continental shelf within the meaning of the convention with its varying limits."

The areas designated vary with respect to both extent and depth, and off New South Wales, for example, go far beyond the continental shelf and embrace Lord Howe Island. Within these areas the petroleum legislation operates in respect of so much of the exploitation of the sea bed as comes within the scope of the Geneva Convention. The idea

of an expanding continental shelf boundary is thus imported into the operation of the legislation.

(e) Australian islands and reefs.—Australia has legislated separately with respect to petroleum activities for two groups of coral islands (see Appendix). The Ashmore and Cartier Islands are situated on the edge of the continental shelf (about 150 miles to the north-west of Australia) and are part of it. The Willis Group and certain other Coral Sea Islands are situated on the "Queensland Plateau". This large area, now being studied by marine geologists and geophysicists, is generally below accepted shelf depth and is separated from the Great Barrier Reef, and thus from the North Queensland continental shelf, by a narrow channel some 1000-1500 metres deep. It could be considered to stand in a similar relationship to the Queensland coast as the part of the North Sea which is "adjacent" to Norway, where a narrow "trough" separates the two areas.

Over the entire length of the Queensland coast, the shallow offshore shelf, which terminates at the Barrier Reef, slopes down to depths of 1000 metres. From Torres Strait at the northern end of Queensland to latitude 18° south (about Townsville) this slope is very steep. South of this latitude the 1000-metre contour extends as far as 120 miles seawards after which the slope again becomes very steep. In the middle, about latitude 17° south, the sea bed rises again offshore to an extensive bank of less than 1000 metres in depth containing several islets and reefs, including the Willis and Coringa islets. This bank rises quite gently out of depths not exceeding 2000 metres and measures about 240 miles by 120 miles. Further south several islets and reefs rise exceedingly steeply from greater depths, each amounting to a super-surface seamount at least 1000 metres high. The extent of the reefs above sea level is of the order of 10 to 15 miles in diameter. One such "seamount" is Cato Island.

The Ashmore and Cartier Islands are deemed by the Ashmore and Cartier Islands Acceptance Act to form part of the Northern Territory of Australia. The Petroleum (Ashmore and Cartier Islands) Act 1967 extended the Petroleum (Submerged Lands) Act 1967 of the Commonwealth of Australia to the Territory of Ashmore and Cartier and deemed the islands and reefs themselves to be "submerged land" for the purposes of the administration of the petroleum legislation.

The Coral Sea Islands Acts 1969 provides for the government of the Coral Sea Islands for the purpose of further legislation respecting the continental shelf of these islands.

The question of the continental shelves of islands is dealt with in art. 1 of the Geneva Convention:—

> "... the term 'continental shelf' is used as referring ... (b) to the sea bed and subsoil of similar submarine areas adjacent to the coasts of islands."

Here the question that arises is whether the expression "adjacent to" involves the idea of the natural prolongation of the supersurface relief to the terminating point of the geophysical structure. When there are

neighbouring States this may give rise to difficult questions of delimitation, especially when the islands are small.

The question whether the expression "islands" in the Continental Shelf Convention is the same as the expression "islands" in the Convention on the Territorial Sea and Contiguous Zone has not been discussed. It is arguable that the only relevant question is that of political sovereignty over the superjacent feature, in virtue of which the seabed becomes subject to sovereign rights. But it is also arguable that the sea bed must be the natural prolongation of the land mass, and the question arises whether a coral cay is the natural extension of the sea bed rather than vice versa.

Whether an area of islands such as the Queensland Plateau is a prolongation of the shelf adjacent to the continent, notwithstanding its separation from it by an area of deeper water, is a matter of geological (geophysical) argument. Geologically speaking, island-studded platforms or island chains could well be considered as prolongations of the land where the separating trench or trough is (a) of minor extent, (b) of geologically recent origin, and (c) does not form a boundary between geologically distinct areas. The legal significance of similarity of geological structure on a sub-continental scale is, however, questionable.

III The deep sea bed

(a) The present law relating to deep sea bed activities outside the continental shelf.—There have been several instances in history of States acquiring exclusive rights over the living natural resources of the sea bed beyond their territorial waters, and in the *Behring Sea* Arbitration some judicial recognition was given to these as instances of rather than exceptions to international law. However, all these cases concerned areas which are now subsumed under the category of the continental shelf as a legal concept, so that they afford little direct precedent for exclusive rights over the deep sea bed activities.

The Permanent Court of International Justice in the case of the SS "Lotus" took the view that a State may act in absence of a prohibitive rule of international law, and this principle may be applied to activities on the sea bed of the deep ocean. There is no international law principle prohibiting exploration and exploitation of the mineral resources of the deep sea bed, provided reasonable regard is had for the interests of other States in the exercise of their freedoms of the high seas.

There would seem to be two possible modes of utilization of the sea bed.

(i) Structures might be erected on the sea bed so that it could be said that specific spots on the sea bed could be effectively occupied. But the radius of sovereignty from such structures would seem to be minimal and the present international atmosphere is not conducive to the effective creation of exclusive "zones of interest" such as resolved this type of problem on land during the era of colonial development.

(ii) Exploration and even exploitation might occur from ships. But occupation of the sea bed by drilling would seem to be limited to one very small spot; if, by dredging, this spot might move with the ship, so it is difficult to see how an area of sea bed could be staked out by virtue of such an essentially ephemeral activity.

Apart from the exceptional features of seamounts it seems that economic exploration and exploitation of the sea bed may proceed as a manifestation of the freedom of the seas. A *laissez-faire* approach would suggest that such exploitation will then occur as economic interests require, and that on balance the interests of mankind will be accommodated by an accession of riches. The objection is that this accession will accrue to the technologically developed States, which, by hypothesis, are the richer States. Such a philosophy does not appeal to the contemporary mind, and hence the motivation for an international regime for the sea bed, under which the benefits may be distributed to all nations on the basis that the natural resources of the oceans exist for the benefit of all States.

The existing customary international law relating to the sea bed would seem to amount to nothing more than this: that the law to govern exploitation will be the law of the flag of the structure planted on the sea bed or of the ship engaged in exploration and exploitation. Every lawyer knows how international companies can manipulate company law, and how difficult it is to establish for international law purposes the "nationality" of a company, so that it can be identified with a specific nation; and every lawyer knows of the problems of "flags of convenience". Hence it is clear that under the law as it stands at present the international entrepreneur may exploit the sea bed without being legally identified with any of the Powers which may be interested in the future of the sea. Unless an international regime can be devised which eliminates this problem of company manipulation and flag of convenience it is doubtful if the goal outlined above can be achieved. And it can only be attained it would seem, by virtual unanimity on the part of States. Such unanimity could be achieved by the evolution of a customary rule of international law (which will be slow) or by universal ratification (which is unlikely) or it might be attempted by resolution of the General Assembly (which raises the question of the legal significance of resolutions). The most likely answer is that it could be achieved by an international Convention which would set out the principles upon which development of the resources of the sea bed would be based.

(b) The legal regime to govern exploration and exploitation of the deep sea bed.—Already several schemes have been proposed to govern the exploration and exploitation of the mineral resources of the deep sea bed. It is not intended to comment on them in this report as the Committee believes that it would be more helpful to draw attention to certain basic issues. The determination of these is an essential preliminary to drawing up a detailed scheme to implement the policies which will govern development of the sea bed.

In this respect it is first necessary to state the two main principles upon which any further discussion of the subject must be predicated:—
1. That there are areas of the sea bed outside natural jurisdiction.
2. That there is a need for a regime to govern the exploration and exploitation of the resources of the sea bed, and that the resources are to be used "for the benefit of mankind . . . taking into account the special interests and needs of the developing countries".

These two statements raise questions which must be answered before it is possible to enlarge on any scheme designed to allow for the orderly and acceptable development of the international resources of the sea bed.

The first raises the immediately obvious problem of definition, already adverted to in this report. It is sufficient at this stage to repeat the earlier contention of the Committee that there would appear to be no logical reason why technical developments should not allow exploration, and following that, exploitation, to proceed seawards into ever-deepening waters until it reaches the limits of the natural prolongation of the land. Technical, economic and other factors will make it unlikely that explorers will want to "leap-frog" into mid-ocean before the continental shelves and the adjacent margins have been effectively examined, except perhaps in the case of dredging or similar mining techniques. Only the fixing of a boundary line will in due course eliminate uncertainty as to the regime which will apply to continental shelf and deep sea bed exploration activities.

Until the boundary between national and international jurisdiction has been clearly established, there may be a "twilight zone" of varying widths where the applicability of national regulations and any international deep sea mining scheme will be in doubt.

This should not delay consideration of the types of machinery which regulate the development of the resources of the sea bed since the two matters can be examined concurrently. In this context, we doubt that the lack of any scheme is as yet having any inhibiting effect on the development of the deep sea bed mineral resources. Once a scheme is agreed upon, it will be the case that the total extent of its application will depend on a settlement of the limits of the continental shelf. At the same time it should be realized that in certain areas the proximity to the coastal State of the line of demarcation between national and international jurisdiction could affect the attitude of that State towards the regime which might operate only a few miles from its coast.

The second statement raises a point of policy which must not only be resolved before any concise proposals can be formulated, but which will affect to a large extent the way any scheme will emerge. The statement conceals a major principle on which there are likely to be diverging views at both the political and commercial level.

Is it the intention that "mankind" should obtain a share of the minerals actually produced; or is it intended that the customary financial payments (fees, rents, royalty, tax), which in the case of the continental shelf would go to the coastal State, shall be paid to

an international agency, which (after deducting operating expenses) would make available any balance to such countries as it may be determined are eligible to receive financial assistance resulting from the fruits of deep sea mining?

It is clear from the discussions which took place in the United Nations at the end of 1969, and from the resolutions that were voted upon at that time, that there is likely to be much opposition to any scheme that seeks to set up any international body which will have the power to *control* all exploration and exploitation of sea bed mineral resources for the benefit of mankind as a whole. One of the resolutions stated that until a supervisory structure has been set up and approved by the U.N. "states and persons, physical or juridical, are bound to refrain from all activities of *exploitation* of the resources of the sea bed ... beyond the limits of national jurisdiction, and no claim to any part of that area or its resources shall be recognised" (italics supplied). Although this was passed 62 to 22 with 28 abstentions, the U.S.S.R. and other socialist States joined United States, United Kingdom and France in voting against it.

One authority has urged the U.S. State Department to ignore the resolution as non-binding under international law. How, then, from a practical point of view, is the development of the deep sea bed to take place? To date most petroleum and mining activities have been carried out both onshore and offshore by private enterprise, although recent tendencies have been for State-controlled companies to become involved, usually once exploitation has been proved to be a commercial possibility. Certainly the greatest share of the high risks inherent in mineral exploration has been borne by private industry. It is reasonable to suppose, as the search for hydrocarbons and minerals moves seawards down the continental slope towards the deep sea, that this same trend will continue and that established enterprises backed by adequate technical and financial resources will assume the vastly increased risks—risks which no developing country could afford to take. It is likely that these established and integrated companies will be eager to search for resources of the sea bed, only to hand over to the developing nations a significant share of the actual resources which would then compete with the products of the explorers?

Before considering the scheme which the Committee feels would be best suited to govern activities on the sea bed it might be maintained that the right of exploration and exploitation of the sea bed beyond the continental margin should be vested in a body acting on behalf of all mankind. This, however, the Committee regards as impracticable for the following reasons:

While corporations with an international personality operating under the aegis of the United Nations as specialized agencies have performed valuable work in the "social service" sphere (for example, W.H.O., F.A.O.), it is considered that the international climate at the present time is not yet appropriate for the setting up of an international organization which would have production and management powers in terms of the mineral wealth of the sea bed. The technical

expertise and capital funds which would have to be made available in order to carry out the expensive tasks of exploration and exploitation would seem to be more readily available in terms of the structures of national legal systems (whether undertaken by private companies or State-owned institutions). The extent of capital which would have to be allocated by shareholders or States to an international organization for these purposes would probably not be forthcoming, particularly if individual nations were not satisfied with the control structure of the organization. The capital-producing States would of course want the majority directorate. The staffing and equipment of such an organization would also provide major obstacles to the establishment of such an organization.

We believe that at the present stage of developments it is necessary to maintain a flexible attitude towards the type of system that may or may not be suited, but that attention should be focused on the criteria which any system must meet to be acceptable, effective and impartial in operation.

The basic requirements of any scheme can be broadly stated:—

(a) The would-be explorer must be assured of adequate exclusivity of tenure over any area within which he proposed to expend capital on exploration and at the same time must be able to exploit any discovery over an acceptable period of time on terms and conditions which are clearly defined at the outset and which will give him the necessary protection for his investment.

(b) The scheme must recognize the interests of other users of the high seas and must regulate to prevent deleterious effects of exploration and exploitation, for example, avoidance of negligent or harmful methods of working which might give rise to pollution. The application of these principles to areas where there is effective control within the area, i.e. areas within national jurisdiction, is not difficult. In international areas the effective enforcement of any rules developed to govern activities over the deep sea bed presents a real difficulty and it is here that the exclusivity of any claim to exploit the natural resources of a specific area of the sea bed would seem mostly to be in jeopardy—particularly should the claim relate to a mineral in acute demand for military purposes.

The essential function of this report is to comment on the existing situation with regard to both the continental shelf and the sea bed and then for the Committee to advance its own views on the regime which it considers most appropriate to govern deep sea mining. The Committee, therefore, takes the view that there should be established an International Deep Sea Mining Agency with the following basic functions:—

(i) the registering of claims by national States to *limited* areas of the sea bed for *specific periods* and for a *stated mineral or minerals*;

(ii) the establishment of a code of conduct to govern all activities which may be carried out on the deep sea bed;

(iii) the publication of claims, notices and data and information made available as a result of exploration on areas subsequently surrendered; and

(iv) the collection of fees, rents and royalty payments for distribution in an agreed manner.

Within the functions catalogued above there are a number of matters on which agreement must be reached in detail. These include:—

(a) area of title which may be registered and maximum number of titles which may be held;

(b) minerals for which title may be granted;

(c) period of tenure;

(d) provision for relinquishment;

(e) work requirements;

(f) financial payments;

(g) conditions of renewal and circumstances under which title would be forfeited;

(h) detailed standards of operating and supervisory procedures.

The Committee feels that whilst claims to areas of the sea bed should be allowed only by national States, from a practical point of view, the actual conduct of operations is likely, as is the case in the majority of operations currently being carried out onshore and over the continental shelf, to continue to be in the hands of industry. In this case operations would be under the direct supervision of the national State which has made the claim and registered this with the agency. In this respect it will be necessary to take care that there is no discrimination against private undertakings. The Committee is aware that very high costs are involved in mining operations and feels that to avoid later disillusionment on the part of those who may expect high rewards it should be fully recognized that financial payments to be made in respect of areas under grant for deep sea mining must be established on strictly economic terms to provide adequate inducement to potential explorers, and that the difficulty and extremely high cost of deep sea operation are likely to delay any significant return to a body such as a Deep Sea Mining Agency for a considerable period. The revenue received by the agency should be made available in a manner established by as wide agreement as possible.

IV Naval and military implications

The Committee feels that a report on deep sea mining would be incomplete without some reference to the naval and military implications of carrying out exploration and exploitation activities on the deep sea bed. At the same time we feel that it is unnecessary at this stage to do more than merely point to some of the difficulties that might arise and to suggest a means of avoiding possible disputes through conflicting uses of the sea bed.

The sea bed and waters surrounding the shores of maritime powers come in for much use by naval forces and there is acceptance that these areas, surface, sub-surface and sea bed are legitimately used

for military purposes. Those nations who only claim jurisdiction over territorial waters of three to 12 miles from the coast could not hope to conduct satisfactory fleet exercises within such limited surface area and generally shallow submarine depths.

The implications of internationalizing the sea bed under the high seas could be profound to those nations which are using, or are planning to use, the sea bed for defence purposes. Some types of purposes in which the sea bed may be involved are indicated below:

(i) *Short term*

(a) Bottom Fixed Acoustic Arrays—used in detecting submerged submarines.

(b) Bottom Anchored Acoustic Arrays—used in certain areas where the actual sea bed may not be well placed for maximum acoustic reception.

(c) Bottom Fixed and Bottom Anchored Mines—used to back up detection arrays.

(d) Bottom Fixed Navigational Aids—operating in a similar way to the present day radio beacons and used for improving the accuracy of submarine navigation.

(e) Man and Material Sea Bed Experiments—carried out further offshore in cases where suitable conditions are not found on the sea bed within territorial waters.

(ii) *Long term*

(a) Fixed or Mobile Missile Launching Stations—can be either static or mobile and may be placed offshore to minimize danger to the parent country in the event of their being attacked.

(b) Submerged Dockyards and Munitions Dumps.

(c) Submarine Command and Control—submerged submarines are currently controlled by national commands and co-ordinated within Allied blocs to minimize submarine collisions.

It would be utopian to believe that States which are using the deep sea bed for military purposes would be prepared to notify any international body such as an International Deep Sea Mining Agency of the existence and whereabouts of their activities. It must, therefore, we feel, be accepted, in order to avoid the risk of collision and disputes arising through conflicting uses of the sea bed, that those States using the sea bed for peaceful purposes (e.g. deep sea mining) must bear the responsibility for reporting the location of all their operations to an international body. This body would publish notices relating to mining operations and it would then become the responsibility of those States involved in naval and other exercises to avoid areas in which deep sea mining operations were being carried out.

The Committee has not overlooked the possibility that instances might occur of States using a deep sea mining operation as a cover for clandestine intelligence activities. This is a practice which can only effectively be prevented by adequate inspection of mining installations by staff of the Deep Sea Mining Agency administering the regime under which such mining activities are being undertaken.

It is clear that in considering any regime to regulate exploration and exploitation of the deep sea bed, proper recognition must be given to claims to use the sea bed for other purposes and satisfactory arrangements should be agreed in advance to permit, as far as possible, the unrestricted use of the sea bed and the superjacent waters.

Appendix

Introducing the Coral Sea Islands Bill of the second reading the Minister for External Territories said:—

"The purpose of this Bill is to provide for the government of certain islands in the Coral Sea.

"The islands are situated in the areas described in the first and second paragraphs of the preamble to the Bill. They lie to the east of Queensland between the Great Barrier Reef and the meridian 157 degrees 10 minutes east longitude. One of the islands in the Willis Group has three members of the Commonwealth Bureau of Meteorology stationed on it. The others are all uninhabited. All are very small. Some of the better known are Cato Island, Chilcott Islet in the Coringa Group and the Willis Group.

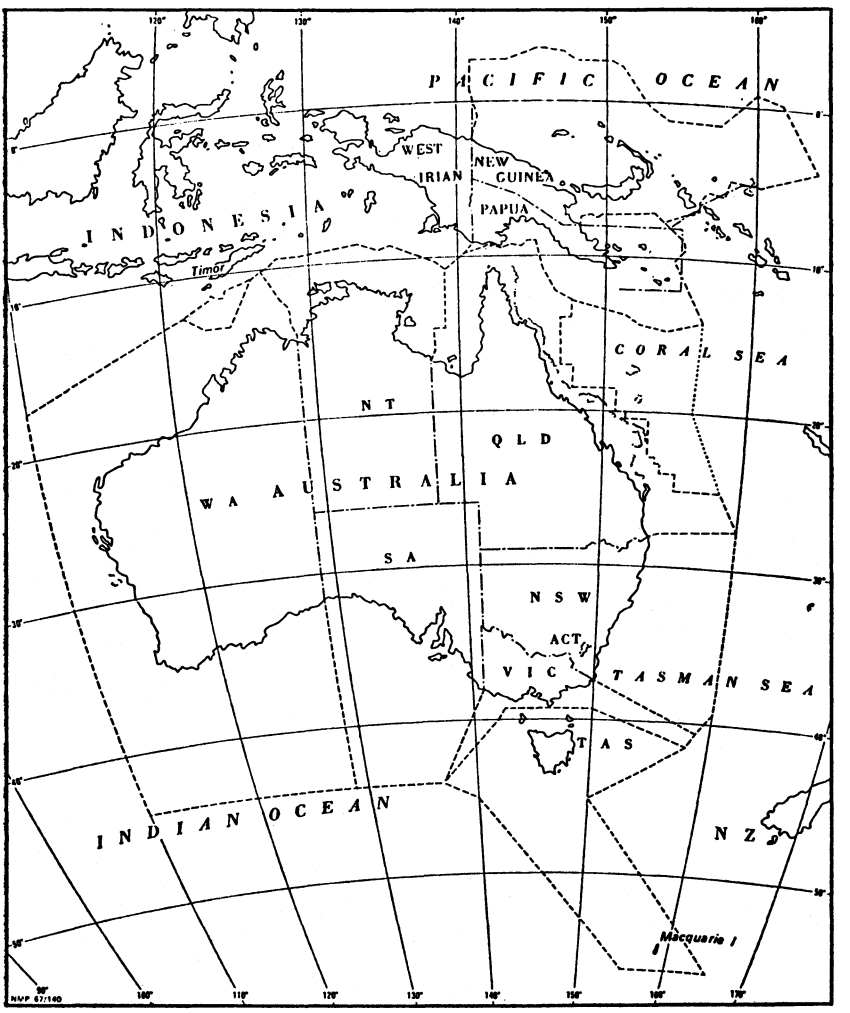
"The islands were acquired by the Commonwealth by acts of sovereignty over a number of years. A lighthouse has been erected on Bougainville Reef and beacons are operating on Frederick Reef and Lihou Reef. A meteorological station has operated in the Willis Group since 1921 and there is an unmanned weather station on Cato Island. They have been regularly visited by R.A.N. vessels. Survey parties from the Division of National Mapping in the Department of National Development have completed a survey of most of the islands.

"When the Petroleum (Submerged Lands) Act was introduced into Parliament in 1967 my colleague the Minister for National Development foreshadowed that at a later stage the offshore petroleum legislation would be extended to these islands in the Coral Sea and to their adjacent submerged lands. This will be the subject of a separate Bill.

"The possibility of exploration for oil on the continental shelf and the increasing range and scope of international fishing enterprises illustrate the desirability of establishing a framework of administration and a system of law in the islands that will be certain and adequate.

"The Bill constitutes the islands a Territory of the Commonwealth by the name of the Coral Sea Islands Territory. It provides for the Governor-General to make Ordinances for the peace, order and good government of the Territory but does not, like the Heard Island and MacDonald Islands Act, apply a set of Australian laws. No one set of Territory laws entirely meets the requirements of the Coral Sea Islands and an Adoption of Laws Ordinance will be made setting out specific legislation which is to apply.

"Any Ordinance made by the Governor-General under the Act shall be laid before each House of the Parliament. Commonwealth Acts will not apply to the Territory unless otherwise specified in an Act.



PETROLEUM (SUBMERGED LANDS) BILL 1967
ADJACENT AREAS

"Provision is also made for the Supreme Court and the Court of Petty Sessions of Norfolk Island to have jurisdiction in relation to the Territory. The Bill will permit these courts to sit in the Territory, in Norfolk Island or in Australia for the despatch of business concerning the Coral Sea Islands Territory.

"Under the Norfolk Island Act Commonwealth Judges may be appointed Judges of the Supreme Court of Norfolk Island. Regulations have been made under that Act permitting Norfolk Island business to be dealt with in Australia. The arrangements proposed for the Coral Sea Islands adopt this principle but extend it to the subordinate court.

"The provisions of the Bill which apply the judicial system of Norfolk Island to the Territory are designed only to make provision for law enforcement in the new Territory and will have no consequential effect on the Territory of Norfolk Island.

"The Bill will establish no administration on these islands. It will, however, provide the means of controlling the activities of those who visit them."