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The status of polar ice under international law

ABSTRACT: Ice constitutes physically, but not legally, a separate element of polar regions, alongside with land, water and air. Lack of clear legal regulations in this respect compels the practitioners to apply often inadequate analogies. The specific status of polar permanent and floating ice calls for urgent and comprehensive legal regulation under general international law, the law of the sea and the law of polar regions, on the ground of the principle of Arctic sectors in the Northern Hemisphere and the Antarctic Treaty System in the Southern Hemisphere, with reference to the relatively rich legal doctrine, discussed in detail below.

Key words: Polar regions, ice, law and politics.

Introduction

Ice constitutes an important and specific element of the polar regions, alongside with the three traditional basic elements of any territory, namely: land, water and air, which are found in all other regions of our globe. The huge quantity in which it appears and its considerable durability under the physical conditions prevailing there, prompted lawyers to raise the problem of the status of the polar ice under international law. Though the first attempts to define it date back to the turn of 19th and 20th centuries, the number of publications on that topic is remarkably scarce.¹ The first efforts *de lege ferenda*,

¹ Information on that subject are dispersed in some textbooks of international law and publications on the law of polar regions, while the literature on that topic is limited to few articles, like: Machowski J. 1959. Legal Status of Polar Ice (*in Polish*). — *In: Państwo i Prawo*. 8–9 (162–163): 381–391; Machowski J. 1977. The Legal Status of the Ice Areas of Antarctica. — *In: The Status of Antarctica in the Light of International Law* (translation from Polish edition of 1968), Warsaw, Poland,: 85–109; Mangone G.J. 1987. The Legal Status of Ice in International Law. — *In: Antarctic Challenge III, Proceedings of an Interdisciplinary Symposium, July 7th – 12th 1987*, Berlin: 371–388; Kindt J.W. 1988. Ice-Covered Areas and the Law of the Sea: Issues Involving Resource Exploitation and the Antarctic Environment. — *In: Brooklyn Journal of*

aimed at the formulation of relevant legal regulations were made much later. They started barely two decades ago and are now in the early stage of drafting.

In order to define properly the status of polar ice, it is necessary to approach it comprehensively in all its aspects, taking into account its: 1 – scientific importance, 2 – economic importance, 3 – ecological importance and finally 4 – political importance.

Scientific importance of ice is manifested in the results of extensive studies and research undertaken at national and international levels², providing the lawyers with necessary definitions, classification, systematization and terminology, which are essential for the accurate formulation of legal instruments. To suggest a legal regime for ice one must examine first its physical properties, for the relevant laws must be based on the best available scientific evidence.³

For the purpose of our limited legal considerations, the most important is the distinction of polar ice as to its origin and as to its nature. As regards their

International Law. XIV.; 27–44; Kindt J.W. 1988. A Regime for Ice-Covered Areas: The Antarctic and Issues Involving Resource Exploitation and the Environment. – *In*: The Antarctic Legal Regime (eds. Ch.C. Joyner and S. Chopra), Dordrecht: 187–217; Graham G.F. 1977. Ice in International Law. – *In*: Law of the Sea, Thessaloniki.; 489.

² Ice is the subject of international scientific cooperation. A number of international organizations, such as International Commission on Ice and Snow in the pre-war period, International Conference on Permafrost (Washington D.C., USA) and International Antarctic Glaciological Project (Madison, Wisconsin, USA) now, are exclusively concerned with glaciological studies, which were intensified since the International Geophysical Year 1957/58. Particularly intensive research on ice is conducted under the auspices of the Scientific Committee on Antarctic Research (SCAR) which in 1989 has published its plan for a ten-year multidisciplinary international collaborative study of the Antarctic sea-ice zone, including extensive use of ice-buoys and remote sensing techniques, using the new satellites that are due to be launched in the coming decade, and two intensive observation periods – in 1992 (the International Space Year) and 1996 – with over-wintering ship programmes. The sea ice programme which is coordinated with several world research programmes includes also studies of the sea-ice zone biota and cooperates with a Working Group on sea-ice ecology set up by the Scientific Committee on Oceanic Research of ICSU, which is concerned with both polar regions.

³ Ice is solid substance produced by the freezing of water vapour or liquid water. *Ice formation* is any mass of ice that occurs on the Earth's continents or surface waters. Familiar examples include *glaciers*, *icebergs*, *ice shelves*, *pack ice* and *ground ice* associated with *permafrost* i.e. perennially frozen soil found in frigid regions. In the oceanic waters of the polar regions, ice occurs in the form of pack ice and icebergs. Pack ice consists of frozen saltwater that has been broken up and jammed together by wind. Glacier is any large mass of perennial ice that forms on land through the recrystallization of snow and that moves forward under its own weight. Warmer weather conditions promote the calving (breaking off) of icebergs at the seaward edges of glacial masses. These large chunks of ice (some extend several kilometres in length) then drift with the current toward the Equator melting on the way. Ice shelf, thick mass of floating ice that is attached to land formed from and fed by tongues of glaciers extending outward from the land into sheltered waters. It is a phenomenon presently found only in Antarctica, where the largest *ice barrier*, the Ross Ice Shelf, extending into the Ross Sea, is about the size of France. 1991 The New Encyclopaedia Britannica, Vol. 1: 440, Vol. 5: 289, 291, Vol. 6: 229–232; Dobrowolski A.B. 1923. Natural History of Ice.

origin, we distinguish two main groups of ice formations: 1 – ice of the land origin and 2 – ice of the maritime origin. As the result of the different shaping of the two polar regions, in Antarctica ice formations of the land origin predominate, while in the Arctic those of maritime origin.

From the legal point of view, the above classification is of rather secondary importance, yielding to the division into: 1 – permanent ice and 2 – floating ice. This division is recognized by the majority of jurists⁴ engaged in studies on the legal status of polar ice.

Economic importance of the ice results from the fact that it is the object of commercial transactions, which brings it into the sphere of interest of law. In case of polar ice, that interest is limited mainly to the branch of international law.

Technically ice is a mineral, but unlike other conventional mineral deposits it is a renewable resource.⁵ The abundance of ice in polar regions gave rise to various speculations on its economic exploitation and uses, especially as a source of freshwater and cheap energy. Approximately three-quarters of the Earth's freshwater is stored in the enormous ice sheets that cover Antarctica and Greenland and in the smaller ice caps, mountain glaciers, and pediments scattered throughout the rest of the world. Almost 99 percent of glacier ice is concentrated in Antarctica and Greenland. The ice sheet overlaying Antarctica contains approximately 30 000 000 cu. km (7 000 000 cu. mi.) of ice and represents about 90 percent of the world's glacial ice. Icebergs are produced at a rate of approximately 280 cu. km (67 cu. mi.) per year in the Arctic and 1800 cu. km (430 cu. mi.) per year in the Antarctic. Trolltunga, a gigantic Antarctic iceberg, had an area of 4650 sq. km, nearly the size of the state Delaware, and contained enough ice to supply nine times the total yearly water requirements of the United States. Even larger bergs, of up to 34 000 sq. km have been recorded.⁶

The first serious analyses of iceberg utilization for freshwater were „desk studies” that have not yet been tested in the field. There were plans back in 1976 to tow icebergs to the United Kingdom in the event of a drought, but

⁴ Da Costa, a Brazilian jurist introduced a somewhat different classification, namely: a – permanent and immovable ice (*glaces permanentes et immobiles*), b – impermanent ice (*glaces non permanentes*), c – moving ice (*glaces mobiles*). Da Costa J.F. 1958. *Souveraineté sur l'Antarctique*, Paris.: 35.

⁵ It was noted in the Final Report of the Fourth Special Antarctic Treaty Consultative Meeting on Antarctic Resources (Doc. AMR/SCM/88/79 of 2.VI.1988) that mineral resources, as defined in Article 1/6/ of the 1988 Convention on the Regulation of Antarctic Mineral Resource Activities (Doc. AMR/SCM/88/78 of 2.VI.1988) do not include ice. The referred article stated that „mineral resources means all non-living natural non-renewable resources.”

⁶ The Encyclopaedia Britannica *ibid.* (note 3) and McClain E.P. 1978. Eleven Years Chronicle of one of the World's most gigantic Icebergs. – *In* 22/5/ *Mariner's Weather Log*: 328 at 329.

they met with sceptical reception. Earlier still, in 1956, utilization of icebergs in California was contemplated. One writer suggests that the most likely places where such utilization could occur before the end of the century are in the southwestern United States and northwestern Mexico. A French firm was exploiting seriously prospects of towing icebergs from Antarctica to Saudi Arabia. Certainly the First International Conference on Iceberg Utilization, held in 1977 in the United States and sponsored in part by the National Science Foundation, has given a great deal of credibility to a once-bizarre idea. Whether this credibility is justified remains to be proved. Some polar scientists caution against too much optimism on this matter until more research is done on the glaciology of icebergs, with particular attention to the natural demise of bergs in the open ocean. Argentina, Norway and the United Kingdom included plans for such studies during the 1978/79 austral summer in Antarctic waters. Much hope is recently set on the tracking of icebergs by satellite imagery to locate bergs of suitable size for capture and towing. But many economic and technical obstacles will have to be overcome before the exploitation of polar ice becomes a reality. Some experts have calculated that no unprotected iceberg, regardless of size, would survive the journey from Antarctica to low latitudes, because of excessive melting. These same experts believe, however, that an unprotected berg on the order of 2 km long, 0.5 km wide and 200 m thick, towed at a speed of 1 knot could provide a payload of ice to a port in Southern Australia.

Studies and experiments on the technology of towing icebergs were undertaken mainly in connection with the exploitation of oil resources in polar regions and arose from fears that bergs colliding with oil rigs would completely destroy these structures. Even placement of the drilling gear on the sea bottom provides no protection down to a water depth of at least 200 m because icebergs would scour the sea bottom. Towing of icebergs is now a routine practice in Labrador Sea and off West Greenland. However, attempts to transport icebergs of even a moderate size are only in the experimental stage. To avoid the dangers threatening oil drilling in the polar regions, plans were advanced by Imperial Oil Company for creating artificial icebergs of suitable size and shape, made from sand, gravel, clay and silt bound together with ice, similar to permafrost. Such artificial creations, every bit identical with natural icebergs, could be used in polar seas as oil drilling platforms.

There is some theoretical speculation about salinity power *i.e.*, electricity generated with use of the differential in salinity of water immediately around an iceberg and further away. It should be pointed out too, that icebergs and ice floes are already used as airfields for air communications both civil and military. In conclusion of this review of economic uses of polar ice, it should be also mentioned that the pure ice harvested from Alaska glaciers is exported from the United States to Japan.

The economic factor, alongside with environmental considerations, play a crucial role in negotiations on any legal regulation of the uses of polar ice.⁷

Ecological importance of ice was amplified by the dynamic development of scientific exploration, economic exploitation and tourist activities in polar regions. All these activities generate potential dangers to the fragile polar environment, most of which consists of ice formations. Almost 95 percent of the Antarctic continent is covered with a gigantic icecap. Similar are the proportions between ice, water and land in the Arctic, where glaciers cover an area of about 2 million sq. km (more than 10 percent of world glaciers), while most of the northern polar seas are covered year round with ice. Thus, the problem of polar ice protection is tantamount to the protection of polar environment as a whole, including dependent and associated ecosystems. On these premises was based the reasoning of the Fourth Special Antarctic Treaty Consultative Meeting on Antarctic Mineral Resources, when it pointed out in its Final Act „that if harvesting of ice, including icebergs, were to become a possibility in the future there could be impacts on the Antarctic environment and on dependent and associated ecosystems. The Meeting also noted that the harvesting of ice from the coastal region of Antarctica, more particularly if land based facilities were required, could raise some of the environmental and other issues”.⁸

Similar attitude was articulated in Art. 2 of the 1991 Protocol to the Antarctic Treaty, stipulating that „the Parties commit themselves to the comprehensive protection of the Antarctic environment and dependent and associated ecosystems and hereby designate Antarctica as a natural reserve,

⁷ The literature on economic uses of polar ice is relatively scarce. The authors dealing with the subject include besides those mentioned in note 1 int.al.: Burt J.C. 1956. Iceberg Water for California. *Science Digest*: 39; Taylor D.M. 1972. Man-made Permafrost Island for Offshore Drill Sites. *Ocean Industry*: 42; Pharand D. 1973. The Law of the Sea of the Arctic with Special Reference to Canada, Ottawa,: 182–196. Numerous articles on that subject are contained in: Iceberg Utilization, Proceedings of the First International Conference and Workshops on Iceberg Utilization for Fresh Water Production, Weather Modification and Other Applications, held at Iowa State University, 2–6.X.1977, A.A. Hussein ed. 1978, some of them are dealing with legal matters i.e. Burton S.J. Legal/Political Aspects of Antarctic Iceberg Utilization; Bishop, International Law Problems of Acquisition and Transportation of Antarctic Icebergs; Lunquist, 1977. The Iceberg Cometh? International Law Relating to Iceberg Exploitation. — *In*: 17 *Nat.Res.Journal*: Comment, 1979. Iceberg Appropriation and the Antarctic Gordian Knot. — *In*: 9 *California International Law Journal*: 405; Epperson C. 1979. Legal Issues regarding Towing of Icebergs. — *In*: *Law of the Sea: Neglected Issues. Proceedings of the Sea Institute Twelfth Annual Conference*, 23–26.X.1978, Hawaii: 209.; Symmons C.R. 1979. The Maritime Zones of Islands in International Law, Development in International Law, The Hague,: 22–24; Zumberge J.H. 1982. Potential Mineral Resource Availability and Possible Environment Problems in Antarctica. — *In*: *The New Nationalism and the Use of Common Spaces (J.I. Charney ed.)*: 115–154.

⁸ Doc. AMR/SCM/88/79 of 2.VI.1988, p.3 (note 5).

devoted to peace and science”.⁹ It should be noted that most of the designated Antarctic natural reserve consists of ice formation. According to scientific research a serious damage to ecology could be done and the environmental equilibrium could be disturbed, impairing among other the flora, fauna and fishing, if an iceberg was removed to a marine environment other than that from which it came. This in turn, could create legal problems, such as responsibility for harmful activities and liability for damages caused to the environment.

Political and legal importance of polar ice must be considered in the context of international relations and international law in general. Before presenting below all aspects of the status of polar ice in details, it is necessary to point out that any rule regulating it, operates under two opposite legal regimes. In the Arctic under the regime of polar sectors, governed by the principle of exclusive sovereignty of states. In Antarctica, under the regime of the Antarctic Treaty System, based upon the idea of international common spaces, put beyond national jurisdiction. Thus, taking into account these specific political and legal conditions, each case of the status of any polar ice formation ought to be examined individually with regard to its geographical location – in the Northern or Southern Hemisphere. In result, the legal answer in each inquiry might be different, even in cases when physically identical ice formations are examined.

Towards political and legal regulations of the status of polar ice

In contradistinction to the legal doctrine, where studies on the definition of the status of polar ice formations started quite early, the first attempts to formulate binding legal rules in this respect are of much later date. First such efforts were noted in the sphere of the law of the sea. Though negative in form, they were important for the later law-making processes, for they have pointed to the polar ice formations as a specific subject calling for codification.

Although the question of sea areas covered with ice was not dealt with by the Hague Conference on the Codification of International Law (13.III – 12.IV.1930), it stated among other, that: „It is understood that in principle provisions of the present convention are not applicable to shores usually or permanently icebound.”¹⁰ Similar attitude was adopted by the UN Inter-

⁹ Protocol on Environmental Protection to the Antarctic Treaty, opened for signature at Madrid on 4.X.1991, Doc. XI ATSCM 2/3/2 of 3.X.1991.

¹⁰ Conference de Codification, Vol. I, p. 131 and Vol. II, p. 217. Cf. François J.P., Report on the High Seas, UN Doc. 4/CN 4/17 p. 29 and, by the same author, Report on the Regime of the Territorial Sea, UN Doc. 4/CN 4/53, p. 21, also Document of the League of Nations, C.230, M.117, Vol. 2, May 1930, p. 11.

national Law Commission and the Geneva Conference on the Law of the Sea (II – III.1958) which codified the law of the sea in four international conventions.

The Convention on the Law of the Sea signed on 10.XII.1982 in Montego Bay, Jamaica, after nine years of arduous negotiations at the Third UN Conference on the Law of the Sea, resumed the problem of ice covered seas only in a limited scale, with reference to the water and ice pollution. The 1982 Montego Bay Convention, like the previous codifications, gives no guidance to the construction of baselines around ice-bound coasts. The only reference to areas covered by ice is contained in Section 8 of Part XII which deals with the protection and preservation of the marine environment. Art. 234 provides, that costal states have the right to enforce non-discriminatory measures to avoid pollution in ice-covered areas of the exclusive economic zone, where the severe climatic conditions cause hazards for navigation. The article goes on to justify this right because of the severe risks to marine ecology in cold regions. Art. 234 is a *lex specialis* in relation to other provisions of the Convention, especially the general Art. 211 on pollution from vessels, overriding them in the geographical areas to which it relates. The general objective of Art. 234 is to balance the interests of the coastal states in ice-covered areas within the limits of their exclusive economic zones with the general interests of international navigation. But there is still no generally agreed rule for drawing maritime boundaries around ice-bound coasts. Thus, there is no simple answer – in spite of some attempts – and there is little doubt that along any ice-bound coast, different scientists, lawyers, politicians and fishermen would propose different baselines. So far, none of these proposals have been found satisfactory by the law-makers codyfing the rules of the law of the sea.

The idea of more comprehensive international legal regulations on the uses of polar ice met with aprobation of the law-makers only few years ago. The incentive for taking up such task came in 1988 from the Fourth Special Antarctic Treaty Consultative Meeting on Antarctic Mineral Resources, which in its Final Act excluded ice from the definition of mineral resources. At the same time the Meeting recommended „that the question of harvesting Antarctic ice should be further considered by the Antarctic Consultative Parties.”¹¹

Following that request, the Antarctic Consultative Parties took up the issue of the „Use of Antarctic Ice” at their Fifteenth Meeting in Paris (9 – 20.X.1989) and adopted a relevant Recommendation.¹² Considering that the ice existing in Antarctica represents the world’s largest freshwater reserve, the

¹¹ Notes 5 and 8.

¹² Recommendation XV–21/89 „Use of Antarctic Ice” – *In*: Antarctic Treaty, Final Report of the Fifteenth Antarctic Treaty Consultative Meeting, Paris, 9–10 October 1989, pp. 38 and 113–114.

representatives convened at the Meeting, noted that „technological developments might one day make it possible to utilize icebergs detached from the continent for freshwater requirements, especially in coastal areas.” At the same time they expressed concern that „uncontrolled activities relating to the exploitation of Antarctic icebergs could also have adverse effect on the unique Antarctic environment and its dependent and associated ecosystems” since „sufficient scientific information is not yet available on the environment impact including global climate and weather, which might occur in the event of floating icebergs being used for that purpose.”

Recognizing the desirability that commercial exploitation of Antarctic ice not occur, in any case, prior to examination of the issues posed by such activity, the Contracting Parties to the Antarctic Treaty are fostering international efforts to guarantee the protection of the environment and are giving impetus to the scientific research and cooperation in Antarctica. In this spirit, the representatives taking part in the Meeting, recommended to their Governments that: 1 – they exchange information on the feasibility of commercial exploitation of icebergs, relevant technologies and possible environmental impacts, and 2 – through their national committees, they invite SCAR to provide advice, as appropriate, on the above mentioned matters, and continue to co-ordinate programmes in polar glaciology, biology, oceanography, and meteorology in relation to Antarctic ice.

At the same Paris Meeting, a Declaration on the promotion of international scientific cooperation¹³ was adopted, corresponding with the above Recommendation. In that Declaration, the Governments participating in the Meeting „deeply aware of the role that Antarctica and the Southern Ocean play in interactive physical, chemical and biological processes that regulate the total Earth System” have recognized that „a detailed record of past global climate and atmospheric chemistry extending over hundreds of millenia is preserved within the Antarctic ice sheet, and in the sediments of the Southern Ocean and the Antarctic Continent.” At the same time they warned that „Antarctic ice sheet contains enough water to raise global sea level world wide some 60 metres. Any green-house climate warming which makes even a small change to this volume of ice will have a significant impact on sea level.”

In spite of the provision contained in the Recommendation XV – 21/89, calling for the inclusion of an item on „The Use of Antarctic Ice” on the agenda of the next Consultative Meeting, that problem was neither discussed at the XVI Meeting held in Bonn, Germany (7–18.X.1991), nor included into the provisional agenda of the XVII Meeting scheduled for 11–20.XI.1992 in Venice, Italy. Nonetheless, it may be assumed, that by virtue of the referred

¹³ Rec. XV – 14/89 „Promotion of International Scientific Cooperation: A Declaration.” – *In*: Antarctic Treaty ... (note 12), pp. 33 and 89–91.

recommendation, the problem is pending a follow up action at future Antarctic Treaty Consultative Meetings.¹⁴

Those implementing the relevant recommendations of the Consultative Meetings on the use of Antarctic ice, will have to rely on the results of interdisciplinary scientific investigations on polar ice. In the field of international law, these results are no less significant than in other branches of the science. Some of them are presented below in this paper.

Ice as a separate element of polar regions

In principle, international law is concerned with the regulation of legal relations in four areas and spaces, namely: land, water, air and recently outer space. But in the polar regions we are faced with ice, an element which is neither of them — neither land, nor water. For ice, in contrast to water, is a solid body, which permits of erecting on its surface buildings and of permanent settlement of men.¹⁵ We can see, therefore, that though ice is not land, it opens opportunities similar to those existing on the land. As early, as in the year 1909 a French author put the question: „...would not the durability of the frozen sea in this region (in the Arctic — my note, J.M.) in spite of the ice movements reported by Peary, and the relative stability of their geographical position make from the polar sea a kind of a peculiar territory? Does the legal status of ice differ from the legal status of land and water?”¹⁶

Adversaries of the legal separation of ice areas from land and water claim (Scott, Clute, McKitterick) that after all ice is nothing else but water in a solid state, that is formed by the freezing of water under the influence of low temperatures. Furthermore, they say, ice is not durable at all since when temperature rises it crushes and melts, turning again into water. However, in the case of land we have a very similar situation yet nobody questions that it should be physically or legally distinguished from water and air. It is acknowledged that the crust of our globe came into being as a result of the consolidation first of gaseous substance, and then of a liquid substance, under the influence of the temperature of our planet. As for the durability, the cracking, the caving in of parts of land, of whole islands while we look at them — all this as the result of tectonic movements of the earth's crust — are not at all rare occurrence. This variability of land areas found even its legal

¹⁴ Final Report of the Sixteenth Antarctic Treaty Consultative Meeting, Bonn 7–18 October 1991, p. 36 par. 137 and pp. 354–355.

¹⁵ For instance, during the Russian-Japanese war of 1905, the Russians in winter built a railroad track over the ice on the Baikal Lake, erected on the ice in the middle of the lake a station and transported over this shortened route considerable numbers of men and large quantities of war materials.

¹⁶ *Le pôlé Nord et le droit international*, *Le Temps* of 14.IX.1909.

expression in the right to acquisition of territorial increments.¹⁷ In contrast to land areas, the changes in the outlines of glacial formations in polar regions require sometimes observations lasting a lifetime of whole generations to be perceptible to man. The existence on polar ice areas higher forms of land fauna (mammals: polar bear, fox and other) makes such areas of more akin to land than to water. But, the ice areas are not *sensu stricto* lands. The French jurist Dollot has warned that „one should not identify ice territory with a land territory.”¹⁸ But neither is an ice area a sea. We are faced therefore with a peculiar form of territory, in the legal meaning of this term. Peculiar geographical conditions prevailing in Antarctica moved some of the authors (Fauchille) to assert that this part of the world cannot be classified as a land or maritime area in the legal meaning, because it represents a specific kind of territory (*sui generis*), namely a glacial territory.¹⁹ Although in the beginning this idea found few supporters, now it is more popular in the literature on the law of polar regions.

But the simple recognition of ice as a separate element of the polar regions does not answer yet all the legal questions arising from it. First of all, it is necessary to differentiate the ice-caps and glaciers which cover land areas from ice which covers the sea or is floating on its surface.

In principle, glaciers which cover the lands make a uniform whole with their base and are subjected to the same legal rules which apply to that base. Theoretically, certain legal, not to say political problems might arise from the movements of glaciers. For example, when they move through the boundaries from one into another state, especially when buildings or installations are erected on their surface. But the movements in question are so slow that they create practically no problems requiring urgent legal solutions. Thus, any considerations on this subject would be rather of academic character.

The matter stands quite differently when one considers polar glacial formations covering sea areas. For ice is solid body, while water is liquid. In view of the considerable difference between densities of these two bodies the same legal norms cannot be applied to them, as in case of land ice. Therefore a mechanical extension of all rules of the law of the sea to polar ice-covered sea areas is practically impossible and legally unjustified. For this reason, the authors of consecutive codifications of the law of the sea agreed, that ice-covered sea areas are in principle excluded from their stipulations and their status as a specific problem calls for solution. On the other hand, however, the ice covering polar seas is not in the strict sense of the term a land area, thus norms applicable to land cannot be straight applied to such glacial formations.

¹⁷ Lauterpacht H. — Oppenheim L. 1952 (VII ed.) International Law Chapter XV: 514—518.

¹⁸ Dollot R. 1949. Le droit international des espaces polaires. — *In*: Recueil des Cours, Academie de Droit International, 1949/II, Vol. 75: 138.

¹⁹ Fauchille P. 1925. Traité de droit international public (VIII ed.) Paris, Vol. I, Part 2: Le domaine polaire ou glaciaire, par. 531—538, pp. 651—663.

From the point of view of international law, the crucial issue is the scope of sovereign rights of states over ice areas. So far, legal writers have not been able to reach any consensus on that matter. According to an Australian jurist „some difficulties are due to an attempt to impose general criteria applicable to other forms of territory. So is argued that floating ice should be assimilated to open seas while more or less immovable formations should enjoy a legal status equivalent to polar territory. But ice-shelves comply with both of the suggested tests.”²⁰

In the present dubious situation and the absence of special rules regulating the status of ice, those involved in polar exploitation are faced everyday with practical questions what kind of law to apply in their daily activities in glacial environment? Should it be the law of the sea, or perhaps certain rules pertaining land areas? The legal methods of analogy or precedents proved to be of little help in more complicated situations. As examples let us take a few questions concerning polar ice, which raise doubts of legal nature. For instance, how should the Antarctic ice shelves be treated from the legal point of view — as land territory or as sea area? How the polar stations established on ice floes or icebergs should be treated — as islands or perhaps as ships? What will be the legal status of such installations when the floating ice formation crosses the limits of maritime zones under different legal regimes or even the borderline of Arctic sector and enters another state? The relevant judicial cases show that these are not purely academic questions.

The recent denial to recognize ice legally as a mineral resource²¹ brings us closer than ever to its common acknowledgment as a separate and specific element of the polar environment. A *sui generis* element, one without an exact counterpart in other parts of our globe, and as such, calling for accurate jurisprudential definition of its status and particular legal regime governing it. Past experience in codification of other topics induces us to feel anxiety that the work on a comprehensive set of rules regulating legal relations in polar glacial environment might take some time. Nonetheless the first effective steps in this direction have already been noted.

The legal status of permanent ice areas

At the very outset it is necessary to explain what kind of ice formations we classify as permanent ice area. In this paper, by the term permanent ice (*glaciers firma*) we mean ice covering sea areas but being firmly anchored to land and remarkably stable for their margin (ice barrier). Permanent ice, appearing in

²⁰ Auburn F.M. 1982. Antarctic Law and Politics. London — Canberra: 33. See also: Lakhtine W. 1930. Rights over the Arctic. — *In*: 24 American Journal of International Law: 703 at 712.

²¹ Note 5.

Antarctica in the form of shelf-ice, has most the physical and utilitarian qualities of land and in the opinion of some jurists (Auburn, Cole) should be equated with it. This argument is more convincing than the view that the same rule should apply to continental ice (glacier) and shelf ice because there is no natural boundary between the two (Smedal). Such view is weakened by scientific investigation of the area beneath the ice which permits delineation of the bottom boundaries of an ice-shelf. It is widely accepted that „such a shelf is neither land nor sea but rather a special form of territory *sui generis* and subject to physical appropriation.”²²

Such special status of ice-shelves raises, however, the crucial question: whether permanent ice may become the object of acquisition and sovereignty? Many jurists attempted to answer this question.

French lawyer René Waultrin as long ago as in 1909 wrote: „When ice is totally immobile, which can occur in the neighbourhood of the poles, there is no doubt that acquisition of it is feasible; the ice formed in such climates shares in a certain sense, the longevity of land and may well cease to be *res communis*.”²³

In favour of the feasibility of occupation by man of permanent ice declared himself T.W. Balch, an American jurist who referred to the case of building by Russians of a railroad across the frozen Baikal Lake.²⁴

A similar stand in this matter was taken by Norwegian lawyer Gustav Smedal, who, pointing to the physical resemblance of permanent ice to land rather than to sea, concluded that „serious reasons favour the treatment of the Ross Barrier as land, which can be an object of sovereignty.”²⁵

G.G. Wilson, an American jurist, holds that „if the seaward limits do not change, it would seem that a measure of jurisdiction over permanent ice should be in the adjacent land sovereignty.”²⁶

The French lawyer Louis Rolland considers that a sheet of permanent ice extending from the sea coast toward the open sea should be regarded as an extension of the land area and may be subjected to state sovereignty.²⁷

Generally, the feasibility of the acquisition of permanent ice is challenged by those who disagree in principle with the possibility of the acquisition of ice

²² Auburn, *op. cit.* (note 20): 35

²³ Waultrin (Dollot) R. 1909. Le problème de la souveraineté des pôles. *In: Revue Générale de Droit International Public*, Vol. 16: 655.

²⁴ Balch T.W. 1910. The Arctic and Antarctic Regions and the Law of Nations. — *In: American Journal of International Law*. Vol. 4, No 4: 265–275. Also note 15.

²⁵ Smedal G. 1932. De l'acquisition de souveraineté sur les territoires polaires, Paris: 46. He uses the term „ice barrier” to denote the entire ice-shelf.

²⁶ Wilson G.G. 1939. Jurisdiction and Polar Areas, *International Law Situations*, 1937. — *In: Naval War College*, Washington,: 83.

²⁷ Rolland L. 1904. Alaska, maison de jeu établie sur les glaces au-delà de la limite des eaux territoriales. — *In: Revue Général de Droit International Public*, Vol. 11: 340–341.

areas, and even of any polar areas.²⁸ Some of them, however, taking into account the conditions prevailing in those regions consider that, if one were to admit the possibility of territorial acquisition there, this would have to be accompanied by adequate requirements. For instance, the French lawyer Fauchille is of the opinion that „occupation admissible on the poles is an occupation for exploitation (occupation d'exploitation) and not an occupation for habitation (occupation d'habitation) ... Ice areas not susceptible to any idea of a permanent habitation and requiring a continual change of personnel are, because of this fact alone, by their nature incompatible with individual sovereignty.”²⁹

Another French jurist, Dollot is also in favour of substituting the notion of an occupation for exploitation with regard to ice areas for the notion of an occupation for habitation.³⁰

An analogous position in the matter of the feasibility and prerequisites of the acquisition of polar regions – and this applies equally to ice areas – is taken by Lindley.³¹

In view of the above opinions, a conclusion might be drawn that the establishment of a station on the surface of polar ice, whether permanent or floating one, is a sufficient legal title to advance a claim by the state establishing such station, to jurisdiction or even sovereign rights over the area in question.

A different title to the appropriation of an ice area is suggested by Miller who, basing his arguments on the analogy between the land and the ice areas, formulated the notion of „hinter-ice” as a homologue of „hinterland”.³²

In most international and domestic legal instruments concerning polar regions, reference is usually made to „lands, islands and seas”. There is, however, a general trend to an extensive interpretation of such acts so that they are understood to cover ice formations and ice areas as well. Some of these documents specifically mention ice, as it was done in a Chilean decree,³³ specifying glaciers and pack ice or Art. VI of the 1959 Antarctic Treaty specifying ice shelves. In this connection a question arises, whether that specification alters the status of ice shelves, converting them perhaps legally into land or sea? The answer is negative. The making ice shelves subject to the

²⁸ Bustamante, *Droit international public*, Vol. I: 657–659 and 708; Hall A. and Higgins A.P. 1924. *Treatise on International Law* (5 ed.) par. 30.

²⁹ Fauchille *op. cit.* (note 19): 658. The next conclusion drawn by Fauchille from this view was the demand for the internationalization of these regions.

³⁰ Dollot *op. cit.* (note 18): 138.

³¹ Lindley M.E. 1926. *The Acquisition and Government of Backward Territory in International Law*, London: 6.

³² Miller P.H. 1928. *Political Rights in the Polar Regions*. – *In: Problems of Polar Research*, American Geographical Society, Special Publication No 7, New York: 248.

³³ Decreto Supremo No. 1747, 109 *Boletín de Leyes y Decretos del Gobierno* 2440, Santiago 1940. From the wording of that decree it may be assumed that it had been the intention of the Chilean Government to extend its jurisdiction not only to permanent, but also floating ice formations in Antarctica.

Treaty regime does not convert them to anything, but simply emphasizes the distinctive nature of such formations.³⁴

One of the important – politically, economically and legally – questions, is the unsolved problem of the seaward boundary of permanent ice from which among other the width of the maritime zones should be measured. As earlier mentioned, the codifications of the law of the sea left this question out from their provisions. On the other hand, with the recent inclusion into the law of the sea of the exclusive economic zone, giving the coastal state resource jurisdiction up to 200 miles offshore, the relevance of establishing accurate sea-boundaries increased markedly.

Before the World War I the principle of measuring the width of the belt of territorial sea from the farthest edge of the permanent ice has been propounded by Russia. In the Act of 29.V.1911, concerning the regulations for fisheries in the Province of the Amur-basin, the principle in question had been formulated in the rule providing that the twelve-mile width of the belt of costal waters should be measured „from the farthest ebb-line or from the edge of the permanent costal ice.”³⁵

However, this method did not find too many supporters in so far as it concerns sections of continental coastlines, with the exception perhaps of Antarctica, where permanent ice is of exceptional durability and covers the coast with such a thick layer that the coastline of the land is difficult to trace.³⁶

Since the limit of permanent ice does change considerably in certain places with the change of the seasons, a question arises whether the base for measurements should be the summer or the winter ice limit. In the doctrine the farthest limit of the frozen sea is preferred.³⁷

³⁴ Auburn, *op. cit.* (note 20): 135–136.

³⁵ *Svod Ustav* (Collection of Laws), 1911, item 1066. In favour of this method of measuring the width of territorial sea declared himself A.N. Nikolaev, a Russian lawyer, who wrote: „It seems that this way of measuring the territorial sea, *i.e.*, from the edge of the permanent ice, could be adopted now in some regions of the Soviet North.” Nikolaev A.N. 1954. *Problema teritorialnykh vod v mezhdunarodnom prave* (The problem of Territorial Sea in International Law), Moscow: 207.

³⁶ McKitterick T.E.M. 1939. The Validity of Territorial and Other Claims in Polar Regions. – *In: Journal of Comparative Legislation and International Law, Third Series, Vol. XXI; 94* and Gidel G. *Le droit international public de la mer, Vol. 3: 525–531*. Gidel considers that the line of the freezing of waters should not be taken into account when fixing the width of territorial sea. He admits, however, that it would not be fair to deprive a coastal state of a number of benefits deriving, *e.g.*, from fisheries in which it would be not possible to engage if territorial sea is totally or permanently ice-bound, which is quite probable in polar regions.

³⁷ Dollot, *op. cit.* (note 18): 125; Da Costa J.F. 1948. *L'Antarctique et le droit international, Expéditions polaires françaises, Mission Paul-Emile Victor, Expédition antarctique, Série documentaire, Paris,; 113*. Travers does not discern at all permanent and temporary ice areas and declares himself in favour of the farthest freezing line as the starting point for all measurements for „the purpose of enabling the state to exercise a certain control over free navigation in cases requiring a repressive action.” Travers M. *Traité de droit international pénal, Vol. I: 260*.

The principles discussed above, however, did not find much application in drafting the rules of the law of the sea, because traditional or proposed conventional rules do not provide for ice formations, nor do they permit any useful analogy. As a tentative solution it is suggested that there could be a combination of two elements: first, the location of the ice edge, in so far as it is known, at a given date and secondly, an allowance of an arbitrary figure, perhaps 50 miles, for seaward extensions to deal with large losses within the previous ten years. The result would be a geographically fixed line which would prevail for the future regardless of the current location of the margin of the shelf.³⁸

In favour of these suggestions seem to speak some conventional solutions adopted in the Arctic. For example, in the provisions of the treaty signed in Paris on 9.II.1920, regulating the international legal status of the Spistbergen (Svalbard) Archipelago³⁹ the width of territorial sea was fixed irrespective of whether it is ice-bound or not, in spite of the fact that the draft of this treaty, prepared in 1912 in Oslo, provided that territorial sea of Spitsbergen should comprise: „waters and ice areas surrounding the islands up to the width of eight sea miles.”⁴⁰ The same principles were adopted in the convention on the Aaland Islands, signed in Geneva on 20.X.1921⁴¹ and the Soviet-Finnish Peace Treaty signed in Tartu (Dorpat) on 14.X.1920.⁴²

That the problem of fixing legally the seaward boundary of polar permanent ice is not a purely academic question, prove the ever more frequent disputes ending often in the courtroom.

This is evidenced among other by the notorious case reposing in the archives of the Alaskan District Court, in which an American citizen was accused of running an illegal gambling house on the coastal ice. The defence claimed that the gambling house in question was located at a distance more than three miles from the coast, beyond the limits of the territorial sea and, consequently outside the American jurisdiction and the competence of its courts. However, the fact of the temporary territorial connection with the mainland sufficed to the Court to extend its jurisdiction over the area of permanent ice during the time when it was affixed to the Alaska coast.⁴³

Sea ice anchored to the land or shelf has been used for a number of purposes in the Arctic. For example, Eskimos use a 35-mile-long ice bridge to cross Smith Sound separating Danish Greenland from the Canadian Ellesmere Island.⁴⁴ In April 1969 an Eskimo named Tootalik was accused of hunting a female polar

³⁸ Auburn, *op. cit.* (note 20): 36–37.

³⁹ League of Nations, Treaty Series, Vol. 2, p. 7.

⁴⁰ *Revue Général de Droit International Public*, 1913, Vol. 20.

⁴¹ League of Nations, Treaty Series, Vol. 9, p. 211.

⁴² *Ibid.*, Vol. 3, p. 5.

⁴³ Rolland, *op. cit.* (note 27): 340–345.

⁴⁴ Herbert W. 1969. *Accross the Top of the World*: 76.

bear with young contrary to the Game Ordinance (NWT), which applied within the Canadian Northwest Territories. The incident took place on sea-ice more than 7 miles from the coast, and hence apparently outside the Canadian territorial sea, frequently icebound even in summer. As there was no discussion in *Tootalik case* of the precise location of the offence, nor of baselines, internal waters or territorial sea, the asseration of jurisdiction and sovereignty must be taken as applicable to all fast sea-ice of a semi-permanent nature.⁴⁵

Taking the *Alaska gambling house case* and the earlier discussed legal theories as the departure point for their reasoning, some German lawyers reached the conclusion that a coastal state has the right to extend its sovereignty to the adjacent frozen parts of the sea for such purposes and in such scope as its interest require. The sovereign rights of a coastal state apply exclusively to events which touch upon its particular interests, because in principle frozen parts of the sea are stateless. A crime committed there would fall under the jurisdiction of the adjacent state only if the commitment of the crime violates the interests of the state. Contrary to the view of Rolland, the German jurists consider that there is no difference whether one is dealing with a temporary or permanently frozen parts of the coastal sea. As long, as a part of the sea is not frozen, ordinary rules of the law of the sea are applied, including those on territorial sea and high seas. As soon, as permanent ice cover is formed on them, the above presented principles are applicable.⁴⁶

Fauchille considers that subject certain conditions, the very fact of the freezing of the sea creates an adequate legal title to territorial claims.⁴⁷

In the Arctic, the problem of delimitation of state frontiers on ice has arisen in the treaty concluded in 1825 between Great Britain and Russia concerning the boundaries between their American possessions (Canada and Alaska)⁴⁸ and in the Russian-American treaty of 1867 on the sale of Alaska by Russia to the United States.⁴⁹ In both instruments reference was made to „the Frozen Ocean” (la Mer Glaciale). It seems that the intention of the authors of both treaties was to prolong the land boundary line to the ice areas covering the Arctic Ocean, especially since in the course of negotiations the geographical notion and term „Polar Sea” had been intentionally contrasted with the term „Frozen Ocean”, in order to stress the difference between the sea which is not frozen and the ice-bound sea.⁵⁰

⁴⁵ Auburn F.M. 1970. International Law — Sea — Ice — Jurisdiction; *The Tootalik case*, 48 CBR.,: 776—778.

⁴⁶ Hatschek J. and Strupp K. (Eds.) 1925. Wörterbuch des Völkerrechts und der Diplomatie, Berlin — Leipzig, Vol. 2. Meeresteile, zugefrorene,: 35—36.

⁴⁷ Fauchille P. 1893. Le droit de l'état sur la mer territoriale. — In: *Revue Générale de Droit Internationale Public*, Vol. 5: 226.

⁴⁸ Miller P.H., *op. cit.* (note 32): 234—247.

⁴⁹ *Treaties and Conventions Concluded Between the United States of America and Other Powers since July 4, 1776* (rev. ed.) State Department, Washington 1873: 741—743.

⁵⁰ Miller, *op. cit.* (note 48): 246.

In summing up, one must acknowledge that the contemporary international law excludes sea areas covered permanently with ice from the application of the generally binding rules of the law of the sea. At the same time, there is no doubt about the feasibility of acquisition of permanent ice areas, although their legal status and the prerequisites of such acquisition are not yet regulated. On the other hand, technological developments enable now physical appropriation and permanent and effective occupation of such areas, pressing for prompt and adequate legal regulations of the status of permanent ice areas, which are evidently different from the polar land and sea areas, both physically and legally.

The legal status of the floating ice formations

In the present paper, the term „floating ice” is used to denote ice formation freely floating on the surface of water, which in contrast to permanent ice formations have no permanent connection with land. Floating ice may be of maritime origin, in result of the freezing of sea water (pack ice), or of land origin (icebergs), when large parts of glaciers and ice shelves are calving and sliding into the sea. Floating ice formations occur in polar regions in a great variety of shapes and sizes, like ice fields, pressure ice, pack ice, ice floes, icebergs or immense ice „islands”.⁵¹ From among them of particular practical importance are ice floes and icebergs, which are being used both for peaceful and military purposes.⁵² In spite of that, both topics have been missing from the agenda of conferences on the codification of the law of the sea.

The problem of feasibility and prerequisites of appropriation, as well as extension of sovereign rights are the crucial legal questions arising in any considerations on the status of floating ice.

Jurists, with very few exceptions, are sceptical about the idea of the acquisition of polar floating ice formation. Smedal, who favoured the acquisition of permanent ice, wrote that „taking into consideration the character

⁵¹ Note 3. The central part of the Arctic Ocean is covered permanently by large multiyear ice fields 2–10 m thick (the big polar pack), divided by crevasses filled with water or by huge hummocks. In winter the sea ice covers nearly 11 million sq.km, in summer about 8 million sq.km. Much of the Southern Ocean is covered with sea ice during the winter months. At its maximum extent in September, the sea ice covers nearly 19 million sq.km, but by March, the summer melting and the northward dispersal by southerly winds reduces the area of the pack ice to about 2,5 million sq.km. Only about 15 percent of the pack is composed of multiyear ice, the average thickness of the annually produced sea ice is on the order of 1,5 m, but the multiyear ice is two to three times as thick. Jonathan I. Charney (ed.) 1982. *The New Nationalism and the Use of Common Spaces. Issues in Marine Pollution and the Exploitation of Antarctica.*: 118–119.

⁵² Lepotier, Contre-Amiral 1954. *L'importance stratégique du secteur arctique.* — *In: Revue de Défense Nationale*, Vol. 23: 14.

of the ice filling the Arctic Ocean, we are of the opinion that they cannot be an object of sovereignty.”⁵³

A similar stand was taken by McKitterick, who considers that „there is no reason to suppose that the Northern polar ice covering is susceptible to acquisition. It should rather be regarded as a part of high sea, the surface of which is temporarily frozen. Ice on the North Pole is not a permanent ice, but usually in summer it melts and crumbles and tends to drift at seasons of the year, directed by tides and currents occurring in the Arctic Ocean. Because of this, the Russian camp established on the Pole in the summer of 1937 drifted during one week a hundred or more miles toward the American continent. Naturally a territory of such an unstable character cannot create any legal title.”⁵⁴

Dollot states that „pack ice with its channels and islets is not susceptible to appropriation, in spite of the fact that some authors are of a contrary opinion (Hyde and Da Costa) since such an appropriation would have been based only on a momentary stay.”⁵⁵ That view is shared by Auburn, who considers that „difficulties of navigation in pack-ice are more serious in the Arctic than in the Antarctic, and there does not appear to be any reason for accepting that pack-ice on the high seas can be subject to national appropriation”⁵⁶, in spite of the fact that the Chilean Presidential Decree of 1940 covered pack-ice.⁵⁷

Balch declares himself against the possibility of the appropriation of any floating ice because, as he says, polar floating ice is always on the move, thus any occupation „will be insecure and changeable to give to anybody a valid legal title. Therefore, the norms of the law of nations which recognize the freedom of high seas would have a natural application to such a mobile and changeable substance as the ice of the Northern Polar Sea...”⁵⁸

For similar reasons is critical on the idea of appropriation of pack ice O’Connell, who considers that „the question of measurement of the territorial sea from pack ice, or the inclusion of pack ice within the area of national sovereignty, is not as simple as has been supposed, because there is no low-water from which the delimitation is to be made, and, for a certain distance from mark territorial line, the pack ice is so consolidated as really to form part of it, on the other hand, the line of demarcation between pack ice and the ocean not only oscillates but is for certain part of the year indistinguishable. The melting of the ice produces floes which may be more or less concentrated, so that for some distance between the edge of permanent and consolidated ice and permanent ice-free water there is a confused zone in which ordinary maritime

⁵³ Smedal, *op. cit.* (note 25):44.

⁵⁴ McKitterick, *op. cit.* (note 36): 94–95.

⁵⁵ Dollot, *op. cit.* (note 18): 125.

⁵⁶ Auburn, *op. cit.* (note 20): 38.

⁵⁷ Note 33.

⁵⁸ Balch, *op. cit.* (note 24): 256–266.

activity is difficult (...) The inclusion of pack ice in the status of the land only to the extent to which the ice is immobile, would create the difficulty not only of an expanding and retracting frontier, but also of identifying the frontier at any moment."⁵⁹

But the idea of acquisition of floating ice, especially the big size floes and icebergs, has also its adherents. One of them, Waultrin, justifies his position in the following way: „we have to do with icebergs sufficiently extensive to be compared with islands, probably as impermanent as islands of the volcanic origin, but just as these islands regarded to be indefinitely permanent... there is nothing to prevent us to recognize them as a permanent ground, set in a lasting motion perceivable only to those who observe it.”⁶⁰

L.L. Breitfuss holds that „sovereign authority ought to be extended not only over land areas but also in a certain degree to be internationally defined in a more specific way, over the waters covered with ice fields (Eisfeldern) surrounding these lands and islands, and over the air space above this sector.”⁶¹

Lepotier regards the Arctic floating ice as „No Man's Ice”, comparable to the construction of „No Man's Land” in international law. He does not express his opinion, however, as to the feasibility or requirements of its appropriation. But, from his arguments one may draw the conclusion that he admits such possibility, since the term used by him corresponds with the notion of *terra nullius*.⁶²

Lakhtine is linking the status of floating ice with the theory of polar sectors and considers „that floating ice areas should be treated from the legal point of view on a par with polar high sea, while ice formations which are more or less motionless should have the legal status of polar territories. Polar states acquire sovereign rights over such ice formations within the boundaries of their sectors.”⁶³

Another Russian jurist, Korovin, interpreting the decree of the Presidium of the Central Executive Committee of the USSR of 15.IV.1926, on the incorporation of lands and islands situated in the Arctic Ocean into the USSR,⁶⁴ stated that the rights of the Soviet Union in this region extend not only to parts of land and numerous islands dispersed there, but also to the entire polar area „with its floating and permanent ice, inland lakes, straits, etc.”⁶⁵

⁵⁹ O'Connell D.P. 1984. The international law of the sea. Oxford, Vol. 1.; 197–198.

⁶⁰ Waultrin, *op. cit.* (note 23): 655.

⁶¹ Breitfuss L. 1928. Die territoriale Sektoreneinteilung der Arktis in Zusammenhang mit dem transarktischen Luftverkehr. — In: Petermanns Geographische Mitteilungen, Gotha, R. 74, Issue 1/2: 27.

⁶² Lepotier, *op. cit.* (note 52): 11 and 20.

⁶³ Lakhtine, *op. cit.* (note 20): 712.

⁶⁴ *Izvestiya* of 16.IV.1926.

⁶⁵ Sovetskoe Pravo (Soviet Law), 1926, No 3/21/: 46.

This opinion is shared by his countryman Vyshnepolski, who added that at present the Arctic seas cannot be recognized as high seas because of the absence there of navigation in the proper meaning of the word. According to him, actually the Arctic seas are to be regarded as seas *sui generis*, of a peculiar kind, for following three reasons: the absence of normal navigation, the permanent danger for a ship to become ice-bound and the necessity for the adjacent country to intervene in the case of a ship being ice-bound.⁶⁶

The use of icebreakers and in particular the movement of submarines under the ice of the Arctic sea pose the question whether the arguments in favour of the ice being equal to the sea for legal purposes has been strengthened. Whereas in the past navigation in central parts of the Arctic basin was permanently impossible, now it is a fact. According to O'Connell „the fact of itself does not necessarily contradict the argument in favour of sovereignty over ice because the proponents of that point of view have generally argued that the ice should be territorial waters rather than ice.”⁶⁷ Adoption of the above reasoning poses a number of practical questions not only to the law of the sea, on such matters like the innocent passage of warships and submarines on sea surface, but also to the air law on the right of overflight and permission to fly over pack ice.

Although the contemporary law of the sea does neither regulate the legal status of waters permanently covered with ice, nor the status of the floating ice as such, yet applying the method of analogy some authors attempted to deduce general principles in these matters.

Taking into account the views presented above, as well as the practical experiences in the maritime basin of the Arctic Ocean, one ought to recognize the admissibility of acquisition of floating ice as such, irrespective of the legal status of the sea area through which such an ice formation is drifting.

On the other hand, taking the above as the point of departure for further considerations, one ought to reject emphatically any idea according to which the floating ice of land origin, detached from its mother-glacier, carries with it to the sea the national status of the country to which that glacier belongs. Since such floating ice is permanently on the move, mixing with each other and often crossing the boundaries of polar sectors, entering areas under different jurisdiction. If such were accepted, an unbelievable political and legal chaos would have resulted, favouring conditions leading to international disputes.

Floating ice situated precisely on the North Pole would have a very peculiar legal status, which was suggested by Lakhtine who asserts that: „as far as the ownership of the North Pole is concerned, it is necessary to underline that a Pole is the crossing point of the meridians of the five sectors. Both in fact

⁶⁶ Vyshnepolski S.A. 1952. K probleme pravovogo rezhima arkticheskoi oblasti (To the problem of the legal status of the Arctic region). — *In: Sovetskoe Gosudarstvo i Pravo*, No 7: 40.

⁶⁷ O'Connell, *op. cit.* (note 59): 198.

and the law it does not belong to anybody.”⁶⁸ Thus, in spite of the essential differences in legal regimes, the status of ice on the North Pole and on the South Pole would be identical.

The legal status of stations on floating ice surface

Development of new techniques enabled a prolonged and effective occupation of floating ice formations and their manifold uses for peaceful and military purposes. Since 1937 Soviet scientists have been working on drifting ice stations in the Arctic Ocean. After the Second World War they were joined also by Americans. According to some writers „international law should take note of such advances: in particular the possibility of beneficial use may enable ice to be subject to national appropriation.”⁶⁹ Conducting a drilling programme on ice-sea would raise the further issue of the high seas status.⁷⁰ Ice floes are also used as airfields by civil and military aviation. The prolonged presence and manifold activities of dozens of people of different nationalities on the drifting ice stations, raise further problems of civil and criminal jurisdiction on ice areas, in the light of public and private international law.

Taking as the point of departure for further considerations the feasibility of appropriation of floating ice, it seems proper to discuss next the legal status of such occupied ice formations as well as the immovable and movable installations on their surface. At once a number of analogies present themselves. While the status of permanent ice formations suggested certain analogies with land, the status of the appropriated floating ice formations suggests certain analogies with islands and ships.

Even closer analogies present themselves between the status of a station on a floating ice surface and the status of an ice-bound ship drifting with the ice. German authors are of the opinion that „the legal status of the crew of an ice-bound ship does not undergo any fundamental change, and, what is more,

⁶⁸ Lakhtine *op. cit.* (note 20): 717. When the American Peary had returned in 1909 from the North Pole, he sent to the then President of the United States Taft a cable reading as follows: „I have the honor to place the North Pole at your disposal.” In his answer Taft said: „Thank you for your interesting and magnanimous offer, but I do not know what exactly I could do with it.” Waultrin *op. cit.* (note 23): 653. The American jurist Patridge considers that the United States should officially accept, at least partly, the theory of polar sectors, to prevent their potential enemy in the Arctic Ocean to use the floating ice in the vicinity of Alaska for military purposes. Commander Ben Patridge. 1961. *The White Shelf. A Study of Arctic Ice Jurisdiction.* — In: *United States Naval Institute Proceedings*, Vol. 87, No 9 (51—57; Pharand D. 1969. *The Legal Status of Ice Shelves and Ice Islands in the Arctic.* — In: *10 Les Cahiers de Droit*,: 463—475.

⁶⁹ Auburn, *op. cit.* (note 20): 33—34.

⁷⁰ *Ibid.*: 199.

if we make use of the commonly accepted fiction, the ship remains a part of its mother country. As long as its crew remains on board, the adjacent country has no need to be interested, but when the crew descend onto the ice even from the ship itself, when they attempt to act upon environment (e.g. firing shots), then they will become subjected to the laws of the adjacent state, in accordance with the above propounded principles.⁷¹ Parenthetically it is worth reminding at this place about the theory of „temporary occupation of high seas” propounded by some lawyers. A French jurist Hautefenille holds that a state „becomes the owner of the space occupied by its ships and the sovereign of the small part of the high sea on which these ships are at a given moment.”⁷² Bluntschli and de Cussy draw even further going conclusions from this theory: they express the opinion that rights apply not only to the water area on which a ship is at a given moment, but they suggest that these rights should be extended over the surrounding space to a distance of a gunshot by granting to every ship a belt of territorial waters, as possessed by islands.⁷³ Though these theories have met with a strong opposition, yet they played a certain role in the fixing of the so-called zones around certain installations constructed on high seas.⁷⁴ Consequently these theories could as well be useful in the future regulation of the legal status of stations on floating ice. If we adopt the view, that ice is water in a solid state, and the station’s installations on that ice are legally treated like ships, then it might be acceptable that the floating ice in question and a certain zone surrounding it – within negotiable limits – are subjected to the jurisdiction of the state that owns the station.

When a comparison is being made between a station established on floating ice and a ship, it is worth remembering the fiction propounded by some lawyers of the so called „floating territory” (*territoire flottant*). While this theory may raise serious doubts when applied to ships, it could be justified in certain measure when applied to stations on floating ice, which, from the moment of its appropriation, may be regarded as a „floating territory”.

Even more points of similarity will be found when comparing large floating ice formations with islands. The fact that the classical definition does not require that an island should necessarily be reposing permanently on the sea bottom, prompted some lawyers to include into it the so-called „floating islands.”⁷⁵ In support of that view one may quote the judgement of the British

⁷¹ Wörterbuch des Völkerrechts ..., (note 46): 35.

⁷² Hautefenille 1858. *Histoire des origines, des progrès et des variation du droit international maritime*,: 200.

⁷³ Bluntschli 1872. *Das moderne Völkerrecht der civilisierten Staaten*. Nordlingen,: 187; de Cussy 1856. *Phases et causes célèbres du droit maritime des nations*,: 147.

⁷⁴ UN Doc. A/CONF. 13/32,: 24–25 and Art. 5 par. 2 and 3 of the Convention on the Continental Shelf, Geneva, 29.IV.1958.

⁷⁵ At the Geneva Conference for the Codification of the Law of the Sea it has been agreed that the so called „floating islands” are not islands within the meaning of the definition contained in

court in case of the Spanish ship *Anna*, which in 1805 during the British-Spanish war had been seized by the English in the vicinity of a natural floating island drifting in the Mississippi estuary.⁷⁶ In view of such precedent there should be no obstacles in extending *per analogiam* the definition of the island on large floating ice formations, leaving to international law the formulation of conditions for their appropriation. And that brings us to the problem of appropriation of the biggest floating ice formations *i.e.* icebergs, ice floes and so called „ice islands”.

According to the Polish jurist Symonides, who discussed the legal status of icebergs, drawing analogies with various objects of the law of the sea, „their specific situation consists in that they cannot be considered as islands since they are not a land territory and, what is more, are not stationary or permanently fixed to the bottom of the sea but move about constantly changing their location. They also lack the degree of permanence and stability which characterizes a part of land. On the other hand, what distinguishes them from artificial islands is the fact that they are formed in a natural way as parts of ice-fields or glaciers (...) Icebergs give rise to a number of legal questions. Some of them could be solved by analogy with artificial islands. For example, there can be little doubt that icebergs, like artificial islands, do not have nor should have the right to a territorial sea or a contiguous zone. It is disputable, on the other hand, whether safety zones could be established around them (...) As concerns jurisdiction it could be based on personal jurisdiction and the nationality of persons working on them or their national status. In such a case solutions adopted for seagoing vessels could be adopted. A state could thus register icebergs used for navigation. Such ideas do not sound futuristic since the technical means to steer icebergs are already there. This, in turn, creates further problems connected with the liability for damage or collision.”⁷⁷

The problem of the legal status of icebergs has not yet been solved – whether they constitute a *res nullius* or a *res communis*, or perhaps they

the 1958 Convention on the High Sea. According to Art. 121 of the 1982 UN Convention on the Law of the Sea „an island is a naturally formed area of land, surrounded by water, which is above water at high tide.” Some lawyers think that a permanent connection with the bottom of the sea is an essential characteristic of an island. Dahmen W.G. 1935. *Die völkerrechtliche Stellung der Fluginsel*. Köln,: 53–55.

⁷⁶ Before the British tribunal of prizes the United States presented their claim to this ship motivating that it was seized in the United States territorial waters. Lord Stowell recognized the American claim despite the fact that the seizure was made beyond the 3-mile distance from the American continent. His decision was based on the argument that the ship in question has been seized within a 3-mile distance from a small islet formed of silt and willow which detached itself from the banks of the estuary and drifted slowly toward the high sea. Lauterpacht, *op. cit.* (note 17): 517.

⁷⁷ Symonides J. 1988. *The New Law of the Sea*. Polish Institute of International Affairs, Warsaw,: 245–246.

belong to a state on the grounds of sovereignty over the territory from which they have originated? According to Symonides, the national status of an uninhabited or unused iceberg, could be defined by the status of the sea whereon it finds itself. Thus, on the territorial waters it would be considered as part of the state territory, on the high seas either *res nullius*, subject appropriation or *res communis*, like the sea itself. It remains unclear, however, what would be its status in the exclusive economic zone, especially after exclusion of ice from the notion of mineral resources. For the time being the list of questions is longer than that of answers, and there are more question marks, if we come to icebergs utilized in some way or another.

In the Arctic, the legal status of floating ice formations must always be referred to the principle of the polar sectors and take into account whether such formation is appropriated in some way or another or unappropriated.⁷⁸

Two major unsolved legal problems related to stations operating on ice formations are jurisdiction and law enforcement. Leaving aside the complex theoretical aspects of these matters, it seems suitable to refer them to some judicial cases.

American station T-3 operated in the Arctic Ocean on Fletcher's Ice Island of an area of approximately 28 sq.mi., 100 feet thick, probably originating from the shelf off Canadian Ellesmere Island. All staff were US nationals. On 16.VII.1970, when the station was drifting about 300 miles from Greenland and 200 miles off Canadian territory, one of the staff named Escamilla killed Lightsey, the station manager. The incident took place at the height of the dispute between the United States and Canada over the Arctic seas pollution, and for this reason, to avoid jurisdictional controversy, Escamilla was taken back to the United States via the American base at Thule in Greenland. He was accused of the involuntary manslaughter, and was eventually acquitted. The prosecution was brought under the special maritime and territorial jurisdiction.⁷⁹

At first instance the District Court held, after argument, that jurisdiction existed. On appeal the Court affirmed the holding of the District Court.

⁷⁸ *Ibid.* 247. According to D. Pharand, *op. cit.* (note 7), icebergs are temporarily used in the Arctic by the US and the USSR military personnel as research stations and for control and monitoring purposes. Sometimes, the status of such icebergs is subject of international disputes. For example, according to *The Times* of 17.VI.1976, Canada claimed that the ice floe 31 miles long and 2 miles wide, drifting about 500 miles southwest from the North Pole, on which the Soviet station „North Pole 22” was installed, be its property, used only temporarily by foreign personnel.

⁷⁹ Section 7, Title 18, US Code. The legislation extending the reach of US criminal law in a special maritime jurisdiction covers the high seas, US vessels and aircraft, US installations on land acquired for the country abroad, and guano islands. Apart from criminal conduct on US ships and aircraft in Antarctic waters and possibly at US stations, it would appear that the statute does not extend to cover Antarctica. Auburn, *op. cit.* (note 20): 186–190; Bilder R.B. 1966. Control of Criminal Conduct in Antarctica. — *In*: 52 Virginia Law Review,; 231 at 254.

Sovereignty over T-3 was not directly in question, because the United States had occupied the ice island since 1952, a State Department official agreeing that there was no US claim. Reliance was placed on President Taft's refusal to acknowledge Peary's claim to the North Pole.⁸⁰ No specific assertion had been made by Canada in respect of T-3, and the Court of Appeal described it as an „unclaimed island of ice.”⁸¹ Canada, however, reserved its position on jurisdiction over the alleged offence, which took place within the Canadian polar sector. It would not object to having the drifting ice formation in question treated as a ship, but only for the purposes of the particular legal proceedings concerned, in order to facilitate the course of justice, and if it were considered necessary for the purposes of the legal proceedings, the Canadian government would waive jurisdiction.⁸² This statement absolved the American Court of the need to examine international law issues and limited it to the interpretation of the US legislation. The question was whether T-3 should be treated as a vessel, thus bringing the situation squarely within the terms of the statute, or perhaps as ice island, seen as a new way of navigating and possibly of occupying the sea. The prosecution, referring to the Federal Code definition, argued that T-3 was not a vessel. Since the special maritime jurisdiction covers only vessels and the high seas, it could not be argued that T-3 was an island. Even if this contention had been accepted, by way of analogy with land territory the prosecution would have had to face the problem that the United States had not claimed T-3. It was also argued that the ice island constituted high seas in frozen form; but it turned out that T-3 was almost entirely formed from glacier ice. In this situation, high seas jurisdiction seemed the most likely approach. If so, the Court heard the case on reasoning contrary to the Canadian position, relying on the polar sector theory for ice-covered areas.

A variant on the high seas argument would have been to base jurisdiction on the United States nationality of all parties involved, but the statute under review in *Escamilla* case did not advert to such a basis of jurisdiction. As argument of last resort could be the contention that only the United States was in a position to apprehend and punish such criminals, but the position taken by Canada suggested otherwise.

Escamilla did not dispel any of the many doubts connected with the legal status of the floating ice and the installations thereon. If the offender and victim had not been the same nationality, the difficulties would have been compounded. A major lesson from *Escamilla*⁸³ is that serious offences can not be

⁸⁰ Note 68.

⁸¹ *US v. Escamilla* 467 F. 2d. 341 at 343 (1972).

⁸² Note from the Canadian Embassy to the Department of State of 5.V.1971.

⁸³ Indictment, *US v. Escamilla*, US DC, Eastern District of Virginia, Alexandria Division, Crim. No 210-70-A, Brief for Appellee, *US v. Escamilla*, A 18-A 19. Also: Pharand D. 1971. State Jurisdiction over Ice Island T-3: The *Escamilla* Case. — *In: 24 Arctic*; 83 at 86; Silverstein E.M. 1971. United States Jurisdiction: Crimes Committed on Ice Islands. *In: 51 Boston University Law Review*; 77 at 81; Cruickshank D.A. 1971. Arctic Ice and International Law: The *Escamilla* Case.

prevented in isolated polar regions including vast ice areas. The absence of adequate legal regulations on the status of polar ice makes confrontation and international conflicts in the polar regions imminent, in particular with the dynamic development of new techniques there.

The discussed issue of jurisdiction and law enforcement on ice territory covers also other than criminal law acts. For instance in 1973 on the same American T-3 station a marriage ceremony was performed by a Royal Canadian Mounted Police Inspector, the bride-groom in the latter instance being a RCMP constable. It should be noted, that the celebration was specifically stated to have been carried out to support sovereign claims.⁸⁴ For such marriages the closest analogy is drawn from merchant ships on the high seas.

Further issues concern property and conduct of legal transactions, as well as legal relations in respect of installations, equipment and other immovables and movables situated on ice territory.

Conclusions

A number of conclusions *de lege ferenda* may be drawn from the above considerations. First — the absence from the legal regimes of both polar regions of comprehensive and unambivalent rules defining the status of ice formations, is their serious deficiency. Secondly — the dynamic development of polar techniques, enabling men's durable presence and expanding activities both on permanent and floating ice surfaces, call for urgent and adequate legal regulations in such branches of law, like international public and private laws, as well as civil and criminal laws. Thirdly — in view of the specific regime of polar regions, all these law-making processes ought to rely on effective international co-operation.

Received July 17, 1992

Revised and accepted August 7, 1992

— *In*: 10 Western Ontario Law Review,; 178 at 190; Holmquist C.O. 1972. The T-3 Incident. — *In*: US Naval Institute Proceedings, September 1972,; 45 at 48; Ronhovde A.G. 1972. Jurisdiction over Ice Island: The Escamilla Case in Retrospect. Washington D.C.: Wilkes D. 1972. Law for Special Environments: Ice Islands and Questions raised by the T-3 Case. — *In*: 16/100/Polar Record,; 23 at 26; Aubry L.W. 1975. Criminal Jurisdiction over Arctic Ice Islands: *United States v. Escamilla*. — *In*: 4 UCLA — Alaska Law Review,; 419 at 437.

⁸⁴ Arctic Patrol includes Wedding, *Christian Science Monitor*, 9.V.1973.

Streszczenie

Lód stanowi pod względem fizycznym – ale nie prawnym – odrębny element obszarów polarnych, obok lądu, wody i powietrza. Brak jasnych przepisów w tym zakresie, zmusza praktyków prawa do uciekania się do nie zawsze fortunnych i na ogół nie spójnych analogii prawnych. Specyficzny charakter polarnych lodów stałych i pływających domaga się pilnych regulacji prawnych w zakresie prawa międzynarodowego, prawa morskiego i innych gałęzi prawa, w ścisłym powiązaniu z prawnym reżimem sektorów polarnych w Arktyce i Systemem Układu Antarktycznego obowiązującego w Antarktyce, z uwzględnieniem stosunkowo bogatej w tym zakresie doktryny prawnej, przedstawionej obszernie w niniejszym artykule.

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