

# TERRITORIAL DIVISION OF THE ARCTIC \*

LEONID BREITFUSS

(Translated from the original German text by M. B. A. Anderson and R.M. Anderson).

The successful airplane flight of the Australian, Sir Hubert Wilkins, and his co-pilot, Lieutenant Eielson, from Point Barrow, Alaska, to Spitzbergen, in April, 1928, was the first event of the year in aviation circles to excite international interest in Arctic problems—an interest which was steadily maintained during the following months by the Nobile expedition and the subsequent disaster to the *Italia*, by the loss of Amundsen and his companions, who had set forth so promptly for the rescue of the Nobile party, and by the airplane flight of Hassell and Cramer *via* Canada to Greenland. The following article by a well known authority on the Eurasiatic Arctic, Dr. Leonid Breitfuss, will be read with thoughtful attention in the light of past and future events in aviation in the Arctic.

When authorizing the publication of his article in English, Dr. Breitfuss writes: "Canada is now the country where there is so much territory to be explored, and where there is the most work to be accomplished in respect to the establishment of geophysical stations, since, as is well known, the magnetic North Pole is situated in Canada, which controls our orientation on the water, on the land and in the air. ...Above all I would urge that the number of weather stations equipped with radio be increased throughout Northern Canada, and that a terrestrial magnetic station be established on Boothia peninsula."

It is to be regretted that at the time of writing his article the accounts of more recent explorations in the Canadian Arctic by Canadians were not available to Dr. Breitfuss. But his conclusions are, nevertheless, most interesting, and will doubtless be read by Canadians with much approval.

M. B. A. Anderson.

WITH the great advance in airship navigation and in that of aviation in general, a new era has opened for Polar exploration. The heroic period of this exploration, those times in which the pioneers crossed the expanses of icy wastes by means of sledges and kayaks, is definitely past. The time has come when, in frenzied tempo, the corners of the Polar zone which have remained unknown up to the present time are being unlocked, and thereby the last white spots on our maps are being removed.

At the same time the newly-discovered Polar lands, as well as those which hitherto have remained unclaimed—the so-called *terrae nullius*—will be divided among the nations.

This is not being hastened by the fact that the districts to which we journeyed in past times, visited only for scientific purposes or for reasons of sport, will now be easy to reach, but because the Arctic now has quite a new significance for us. The Arctic itself,

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THE TERRITORIAL DIVISION OF THE ARCTIC INTO SECTORS IN CONNECTION WITH ANTICIPATED TRANSARCTIC AIR TRAFFIC. *Die territoriale Sektoreinteilung der Arktis im Zusammenhang mit dem zu erwartenden transarktischen Luftverkehr.* Von Dr. Leonid Breitfuss, Berlin. *Petermanns Mitteilungen*, Heft ½. 1928. pp. 23-28. Justus Perthes, Gotha.

because of its geographical location as a connecting link between the West and the East, appears to us as a bridge between the lands in the North Atlantic and the North Pacific. The shortest route leads over the Polar regions along the great circle from Europe and from North America to Peking and to Tokio respectively.

When we survey the history of the exploration of the North Polar lands from the national political standpoint, we see that among all seafaring civilized nations rivalry has burned in respect to the unlocking of the Arctic. These nations, equipped with science and technique, could carry out farther advances toward the North than could the natives of the Arctic—the Eskimos, Samoyedes, Chukchis, and others. Thus the Scandinavian Vikings were the first who discovered the Polar regions of Europe, as well as Spitzbergen (Svalbard), Iceland, Jan Mayen, and Greenland early in the Middle Ages, although the real discovery of Jan Mayen and Spitzbergen is rightly ascribed to the Dutch. Franz Josef Archipelago was discovered by the Austrians. Besides the Russians, the Dutch, English, Norwegians, Swedes, and Americans have worked in the discovery of the Russian Arctic. On the other hand, besides the Americans, the English, Russians, Danes, and Norwegians have worked in the American Arctic. Here too, Germans, French, and Italians have striven in rivalry, but their work was carried out primarily for scientific investigation and not for geographical discoveries. If we should group these lands and islands according to the nationality of their discoverers, we should obtain a very motley picture.

As far as the population of the North Polar cap is concerned, Greenland and the coasts of Eurasia and North America were probably populated by human beings immediately following the withdrawal of the ice at the beginning of the Quarternary period. In Europe there were the Lapps and the Samoyedes, among whom the Finns, Syrjänen, and others settled early. In Asia there were the Samoyedes, Ostyaks, Dolgans, Tunguses, Yakuts, Chukchis, Roriaks, and others, all stamped with the Mongolian racial type. Greenland, as well as the Canadian Polar islands, was early settled by the Eskimos as far as latitude 80° North. Westward from there, Eskimos and some Indians lived and still live on the North coasts of Canada and Alaska.

The Polar lands were settled much later by Europeans. As early as the 10th century, the Northman Eric the Red founded several colonies on the coasts of Greenland. In the 14th century these colonies were broken up, but they were built up again later. The settlers carried on fishing, hunting, and stock-raising.

In the 17th century, after Hudson had brought the first news of the wealth of the Spitzbergen Archipelago in whales and seals, the surrounding waters were visited by most of the seafaring nations. The Dutch even founded the colony Smeerenburg on the northwest coast of Spitzbergen, on Amsterdam Island, at which 300 hunting vessels often assembled in the summer when the colony was in its prime. Then a period set in again in which this island field waned, until in the middle of the 19th century the exploration of Torrell and Nordenskiöld pointed out the wealth of coal in the archipelago. A beginning was made with the coal-mining industry, and so during the last fifteen years some settlements arose here, first at Ice Fiord, then at Bell Sound and in Kings Bay, in which now perhaps 800 people live during the whole year. In Novaya Zemlya there are now also six or seven colonies, which have been supported since 1876 by Government aid. In 1924 a geophysical radio-station was erected here by the Soviet Government on the east side of Matochkin Strait. Kolguev Island is settled in like manner.

In Greenland the number of colonies has decreased very much of late. However, twelve inhabited districts are to be counted on the West coast. The most northern settlement on the West coast is the Eskimo colony at Etah on Smith Sound. On the East coast there is only one colony, Angmagssalik. On the Canadian islands, on the other hand, we find to-day only nomadic Eskimos.<sup>1</sup> Outside of Greenland, on the continent of British North America, Eskimos live in settlements on Prince Albert Land and Victoria Land, on Herschel Island, and on the north coast of Alaska, where among Eskimos everywhere a small number of Indians also occur mixed in with them.<sup>2</sup>

As far as Siberia is concerned, the coasts on the Kara Sea, namely the Yalmal Peninsula, and the mouths of the Ob and the Yenesei, are scarcely inhabited at all; only nomadic Samoyedes with their reindeer travel about here hunting. Farther east, the great coastal border as far as the mouth of the Khatanga is quite uninhabited, and a sparse, scattered population—which extends as far as Bering Strait—begins for the first time at Khatanga. Wrangel Island also has had a settled population of Chukchis since 1924. On the other hand, the New Siberian Islands have no

1. The Canadian Arctic islands, which are inhabited, have a population consisting mostly of Eskimos, white traders and missionaries. Many of the Eskimos of late years are settled the greater part of the year near the trading posts or police posts. Also the Department of the Interior acting through the North West Territories and Yukon branch, sends out an expedition each year to patrol the islands of the Canadian Arctic Archipelago, to reprovision the government posts, to establish new posts when necessary, and to convey the officers of the various Departments who are detailed for duty in that area. Post offices have been established as far north as Bache peninsula, in latitude 79° 04' N. Cf. *Canada's Arctic Islands*, Bulletin published by the Department of the Interior, Ottawa, 1927.—M. B. A. Anderson.

2. It is very exceptional to find Indians living in Eskimo country. M. B. A. A.

permanent settlements, but hunting and fishing people stay there in the summer.

So we see that outside of Arctic Europe, where favourable living conditions for settlements are created by the Gulf Stream, the largest part of the Arctic is almost entirely uninhabited, while the real central Arctic on the whole presents a sea basin covered with drifting ice-fields difficult to travel over. There man can travel forward only with great hardship at a snail's pace with sledges and kayak. In some cases, drifts on shipboard have taken place through these icy wastes.

History knows only few cases in which there was success in reaching this impenetrable region. Five drift-voyages have taken place:

(1) The disastrous voyage of the *Jeannette* from Wrangel Island to the New Siberian Islands (1879-81).

(2) The classic drift of the *Fram* over the Polar basin from the New Siberian Islands to Spitzbergen (1893-96).

(3) The unfortunate voyage of the *St. Anna* of the Brusilov expedition from the Kara Sea to the region north of Franz Josef Land (1912-14).

(4) The drift of the *Karluk* from the north coast of Alaska to Herald Island (1913), and

(5) The smoothly passing drift of the *Maud* from Herald Island to the New Siberian Islands (1923-25).

Among the sled expeditions which have succeeded in penetrating this region are to be mentioned:

(1) The journey of Leontiev northward from the New Siberian Islands (1770).

(2) The journey of the Russian Lieutenant Anjou north of the New Siberian Islands as far as latitude  $76^{\circ} 30'$  North (1821).

(3) The journey of Parry from Spitzbergen north to latitude  $82^{\circ} 30'$  North (1827).

(4) The advance of Nansen with the *Fram* up to latitude  $86^{\circ} 14'$  North (1895).

(5) The advance of Cagni from Franz Josef Land as far as latitude  $86^{\circ} 34'$  North (1900).

(6) The advances of Peary from Grant Land as far as  $84^{\circ} 17'$  North (1902), as far as  $87^{\circ} 06'$  North (1906), and to the Pole in 1909.

(7) The advance of MacMillan northwestward from Grant Land towards the vainly sought-for Crocker Land, and

(8) Advances northward from Alaska and from the Canadian Islands respectively: Stefansson (1914, 1915, 1917), and Storkerson (1914).



Last of all, advances with aircraft are to be noted:

(1) Amundsen's flight with airplane from Spitzbergen as far as latitude  $87^{\circ} 44'$  North and longitude  $10^{\circ} 20'$  West, with landing (1925).

(2) Byrd's flight from Spitzbergen to the Pole and back without landing (1926).

(3) Wilkins's flight across Point Barrow as far as latitude  $74^{\circ}$  North (1926), and

(4) Amundsen-Ellsworth-Nobile's flight on board of the airship *Norge* from Spitzbergen across the Pole to Alaska (1926).

On these sledge journeys, drifts, and air journeys, it is seen that the greatest part of this region, so difficult of access, consists of a deep sea basin, the greatest depth of which exceeds 3,850 meters. Unknown land masses, accordingly, are to be looked for only within range of the Siberian continental shelf or base and the Canadian archipelago. As far as the large land presumed by Harris to exist between the North Pole and Alaska is concerned, and the existence of which this scholar founded on the basis of his calculations of the ebb and flow of the tides in the Polar Ocean, it has been fully contradicted by later tidal observations.

As already mentioned, if the unknown central Arctic region may have had until the present time only an academic, at the most a sporting interest, since all other interests, especially the mercantile ones—fishing, hunting, coal-mining, etc.—find their limit at the border of accessibility of this district for free-moving ships, then from now on a new era begins in the Arctic.

With the present steadily growing progress in aviation however, the Arctic gains quite a new significance for us. It appears, as mentioned above, through its location, as a bridge between the lands on the North Atlantic and North Pacific. Now the time has come when the old dream of mariners of taking the way to China and India over the North Pole can be fulfilled. Only the element in which the journey is covered has become a different one, although considerably quicker. In this the topographical situation of the Polar territory is not alone of significance. Of like significance is its physical nature also, namely, the flat expanse covered with snow and ice, which knows neither day nor night, where generally either the dark or light time prevails, and for this reason one does not have to reckon with great changes of temperature. These peculiarities are particularly to the advantage of aircraft travel, since the airship here remains mostly in static equilibrium and avoids much loss of gas.

The possibility of travelling during the whole year at a height of perhaps 100 to 200 meters without noteworthy variations of temperature and without significant descents, across the surface of the sea, promises a quick, quiet, and profitable aerial traffic.

It is not to be underrated that in the Arctic not only the burning questions of meteorology are being solved, but with the more extensive use of aircraft, fishing and hunting pursuits are being extended to Polar districts farther removed. As is well known, Arctic meteorological conditions exert a great influence on our weather phenomena, and therefore such investigations are of great significance for us.

All these motives taken together make the desolate wastes of ice the most suitable terrain across which a transarctic commercial air-line between the northern lands of the Western and Eastern hemispheres can approach its realization; a postal and passenger line with large airships would come into consideration first of all in the sense of the proposal which W. Bruns made in 1919. He planned a regular connection between London, Berlin, and Unimak (Aleutian Islands) respectively, and from here to Yokohama and Vancouver respectively. A similar line might lead from Montreal across the Great Lakes, Canadian Islands, and Polar region on the great circle crossing the mouth of the Lena through Siberia to Harbin in China, and from here by the railway to Peking and Tokio respectively.

These are only in large strokes the routes suited to the physical features. With the progress of our meteorological and technical knowledge, these routes will probably undergo some changes, while at the crossings landing stations might also be erected on the outlying islands, such as New Siberian Islands, DeLong Islands, etc. As is to be seen from our map, an intermediate landing of airships of the American and European lines, for example on the New Siberian Islands—at the point of junction between three continents—would be of the greatest significance for the trade between Europe, North America, and East Asia.

Although the Polar region in a geographical and climatic respect is very suitable for large airship communications, it should not be forgotten, that in summer time in these fields very thick fog-banks occur, which make navigation very difficult. Since, orientation by the sun and stars is not possible at this time, and since besides in high Polar latitudes the readings of the magnetic compass as well as that of the revolving compass are not dependable, navigation of airships here must depend principally on the radio position, that is, on the radio bearing or determination of their

position with the help of radio waves, which are sent to the airship by the radio stations on the periphery of the Arctic region, or, reversely, with help of the radio waves which are sent by the airship and are intercepted by the land station, which then shares with the airship the information as to bearings.

So first of all, some suitable radio stations will be necessary, at which meteorological observations are also made. As our map shows, a number of such stations are already at hand.

Besides this, landing stations, with anchoring masts, hangars, and tanks at appointed places, will be indispensable for the safety of the traffic.

Nevertheless all this is of no avail, as long as no strict co-ordination is carried out, particularly in the activity of the radio stations. The more uniform and more centralized the direction of the radio service is, the more complete will be this co-ordination. Attention should here be directed especially to precautions for regulation of the so-called variations in the bearings which are known to occur whenever the radio waves run from the night sector into the day sector, or *vice versa*. The service must be so arranged that the airship is served in daylight from stations which have day, at night by stations which have night.

If we survey on the globe the drawing of an airship line along the great circle from Berlin over the Pole to Bering Strait, then we see that this will stay close to the Norwegian and Icelandic radio stations as far as latitude 80° North, these stations being situated in Iceland, Jan Mayen, Norway, and Spitzbergen. Farther on, however, the Russian and American stations come into play—such as on Novaya Zemlya, Dickson Island, in Siberia, and in Alaska. Just so we see that the drawing of the Montreal-Peking line, by way of the Polar region and Harbin, will in the beginning be situated within the range of the Canadian-Greenlandic radio stations; after the passing of the high Arctic latitudes, however, within range of the Siberian and Chinese stations.

Thus we see that the Arctic and the air space lying above it have for us to-day not only an exclusively academic, but also a distinctly practical, significance. The time has now arrived when solving the question of sovereignty over the Polar regions must be taken up.

Among these lands situated within the North Polar circle, four groups are to be distinguished:

1. Lands and islands which belong to the Soviet Union (Eurasian coasts and islands), to U. S. A. (Alaska), to Canada (the immense islands of North America), to Denmark (Greenland), and to Norway (Bear Island and Spitzbergen).

2. Islands which situated in the sphere of the above-mentioned Governments and shown on geographical maps with the colours of these Governments, were discovered by subjects of other Governments and therefore belong really, even if only symbolically, to these latter.

3. Lands and islands to which their discoverers have announced no rights of possession, the so-called *territoria nullius*.

4. Lands and islands which are not yet discovered.

In respect to right of possession and sovereignty over a region, there are two opinions. According to the one, every territory on our planet, be it inhabited or not, must lie under the jurisdiction of some kind of Government; according to the other, there can be talk of sovereignty only in a territory which has a settled population. The land is considered to be inhabited when man has settled in a place to stay, and has founded his homestead. A land, therefore, cannot be considered occupied when Eskimos or whalers visit it at the most favourable time of the year for hunting or for fishing. The possibility of regular occupation is, according to this, not given until permanent settlement. However, there have not been lacking either theoretical or practical attempts on the part of some Governments to lay claim to territorial sovereignty in certain Polar lands without regular occupation.

The beginning of this century, when they strove energetically for a division of the still unclaimed Polar lands, is particularly rich in such episodes. The Antarctic was mostly concerned by this. For example, in July, 1908, England declared Graham Land, including South Georgia, South Orkney, South Shetland, and South Sandwich Islands as Falkland Dependencies, and, therefore, British territory. In 1923, England published further declarations, according to which two Dependencies were erected in the Antarctic:

1. Falkland Dependency, in which not only the above-mentioned islands and Graham Land are included, but the whole district of Weddell Sea with the adjacent coast districts of the West and East Antarctic, namely, Louis-Philippe, King Oscar, Graham, Prince Regent Luitpold, Caird and Coats Lands respectively. This region is bordered by two adjacent sectors, of which the one is bounded by the meridians  $20^{\circ}$  and  $50^{\circ}$  West of Greenwich and by latitude  $50^{\circ}$  South, the other by the meridians  $50^{\circ}$  and  $80^{\circ}$  West and latitude  $58^{\circ}$  South.

2. Ross Dependency, comprising the district of Ross Sea, likewise with the coasts of the Eastern and Western Antarctic, herewith: on the East Antarctic, the alpine South Victoria Land

with the chain of mountains extending to the South Pole, and in the West Antarctic the still less explored King Edward VII Land. This sector is bordered by the meridians 160° West of Greenwich and 150° East of Greenwich and latitude 60° South.

Thus England has laid her hand on the largest part of the Antarctic continent and the field of islands belonging to it, while France has laid claim to Kerguelin, the Crozet group, and lately Adelie Land. The chief hunting grounds are seized with the two English possessions, so that the whaling and sealing industries, pursued mostly by Norwegians, require an English license.

Let it be remarked here, that the Antarctic lands were always uninhabited, even if hunting was carried on here by Cook's expeditions in search of the valuable fur-seal, and when after a short time this seal was almost or completely exterminated, hunting was carried on for other species of seals. There could be no talk of a real settlement in the Antarctic region until 1905, when Captain Larsen founded a permanent whaling station at Grytviken on South Georgia, and about the same time a similar one was also established on South Shetland Islands. Consequently the real Antarctic mainland continued to remain uninhabited.

When we turn to the Northern region, we see that here, too, not less was done than in the region of the Antipodes.

As early as 19th February, 1907, Senator Poirier in the Canadian Senate demanded the declaration of Canadian sovereignty over all land lying north of Canada as far as the North Pole.<sup>3</sup> Dr. Cook, who had pretended the attainment of the Pole in 1908, telegraphed to the President of the United States concerning the hoisting of the American flag. The Governments, however, have derived no rights out of this. A similar symbolic taking of possession could be ascribed to Amundsen, when he undertook his investigations on the air-route into the Arctic in 1925 and 1926, and wished to place the hoped-for new lands under the sovereignty of Norway.

Diplomatic pourparlers have moved most of all about the correct status of Spitzbergen. The decisions of the Spitzbergen conference at Christiania in 1912, in which Norway, Sweden, and Russia shared, have, as is known, not been ratified, and the next conference called at Christiania in the summer of 1914, in which,

3. House of Commons Debates. Official Report—Unrevised Edition. Vol LX. Wednesday, June 10, 1925. No. 84., p. 4238.

Hon. Charles Stewart (Minister of the Interior): Mr. Speaker, this Government has been very much alive to what we claim to be the possessions of Canada in the northern territory adjacent to the Dominion. Indeed, I made the statement in the House the other evening that we claimed all the territory lying between meridians 60 and 141. This afternoon, when dealing with the estimates of the Department of the Interior, I propose to bring down a map to make it clear what precautions we are taking to establish ourselves in that territory, and to notify the nationals of foreign countries passing over it that we think Canada should be advised of their plans and that they should ask for permits from the Canadian Government.



besides the Governments mentioned, Germany, England, and the United States took part, lapsed without results because of the World War, which broke out in the meantime. It cannot be said how long this question would have remained undecided, and how long Spitzbergen would have continued its existence as *terra nullius*, if the decision of the Entente by the Sévres treaty of 9th February, 1920, had not attached this island, together with Bear Island, to Norway, and so with one stroke of the pen settled this question. In July, 1924, the treaty of Sévres was finally ratified, and Spitzbergen placed under the sovereignty of Norway with the name Svalbard.

Such a decision—even if a dictatorial one—is not unjust, for in past time the Norwegians have been the pioneers in the coal industry; they were also the first settlers in the country. It was also the Norwegian Government which established the first radio weather station (1912) in the Arctic for the use of the country and for the progress of synoptic meteorology.

At the same time rivalry flamed up between Norway and Denmark concerning Greenland. The public opinion of Norway demanded all Greenland for Norway; for up to the Peace of Kiel, 14th January, 1814, even as far back as Viking times, the Greenland question concerned the Norwegian people. There was, namely, conflict concerning the parts of Greenland over which Denmark had exercised no sovereignty until 1921. The latter until now had extended on the west side from the southern point as far as latitude 70° 30' North, where twelve districts are formed: Julianehaab, Frederikshaab, Godthaab, Sukkertoppen, Holstensborg, Egedesminde, Christianshaab, Jakobshavn, Godhavn, Ritenbenk, Umanak, and Upernivik. Besides, Etah, in Smith Sound, comes in as the dwelling place of the isolated Polar Eskimos, and Angmagssalik, the only Eskimo settlement on the east coast. All other districts of Greenland are uninhabited.

But when Denmark in 1921 also declared its sovereignty over the unsettled part of Greenland, a hot controversy raged with Norway. After long debates, the two Governments were able to come to an agreement in 1927, that on the ground of the treaties of 1814 and 1819 the right to the whole west coast was conceded to Denmark; but on the other hand, the Norwegians received the right to carry on shipping and hunting along the whole east coast from Lindenof Fiord as far as Cape North East, and to build the establishments necessary for this, with exception of the districts of Angmagssalik, inhabited by the Eskimos, and of Scoresby Sound, which fell to Denmark.

Just as little forgotten is the controversy between England and Soviet Russia<sup>4</sup> concerning Wrangel Island, upon which, as is known, a band of Canadians and Eskimos was set down in 1921, who were to form the nucleus of a future colony, and the English flag was hoisted. The controversy was ended in the summer of 1924 when the Russian ice-breaker *Red October* arrived at Wrangel Island, carried away the English colony, and put in its place Russian Chukchis, at which time the flag was also changed. . . . .

The Russian discoveries in the Polar Sea in the years 1912 and 1913 gave the Russian Government occasion to publish a declaration on 4th September, 1916, in which together with announcement of the new discoveries, of Nicholas II Land, and of Alexis, Starokadomsky, General Vilkitski, and Nowopaschenny Islands, it was further stated that Wrangel, Herald, Bennett, Henrietta, and Jeannette Islands, not discovered by the Russians, as well as Ujedinenje (Lonely) Island, because of their geographical positions, also fell into the territorial scope of Russia.

The case of Wrangel Island and the progress in aircraft travel forced the Soviet Government, on 15th April, 1926, to publish a further declaration, which reads as follows:

Sont déclarées territoire de l'Union des SSR toutes terres et îles découvertes ou qui pourraient être découvertes à l'avenir qui ne sont point reconnues par le Gouvernement de l'Union des SSR territoires d'Etats étrangers quelconques à la date de la promulgation de présent Arrêté et qui se trouvent entre le littoral septentrionale de l'union des SSR et le pôle Nord, dans la région limitée par le méridien 32° 4' 35" de longitude d'est (Greenwich), qui passe par la côte orientale de la baie de Vaida et traversant la marque triangulaire de Kap Kekursky, et par le méridien 168° 49' 30" de longitude ouest (Greenwich), qui passe au milieu de détroit separant les îles Ratmanoff et Krusenstern, toutes deux appartenant au groupe des îles Diomide, situe dans le détroit de Bering.

From this we see that according to the example of the English, who divided their territory in the South into sectors, the Government of the Soviet Union carried out the same idea in the North.

4. House of Commons Debates. No. 84. p. 4264. Hon. Charles Stewart (Minister of the Interior):—

It appears the Imperial Government were not disposed to lay claim to the island, but, before reaching a decision, submitted the matter to this Government. P. C. 1227 of the 17th July, 1924, sets out clearly our position. It says "The view taken by the Imperial authorities as to the undesirability of laying claim to Wrangel island is shared by the Government of Canada." The tragic end of the 1921 expedition is most regrettable. Beyond doubt Crawford, the leader, was prompted by patriotic motives and died in the belief that he perished for the empire. The expedition was, however, carried out under the responsibility of Mr. Stefansson, and the Stefansson Arctic Exploration and Development Company, and this Government was not in any way connected with it.

Our review of these changes of boundary would not be fully complete without reference to the renewal of the Russian-Finnish boundaries, which were moved to the East by the treaty of Dorpat on 14th October, 1920. The boundary is now situated east of Vaida Bay (longitude  $32^{\circ} 4' 35''$  East of Greenwich), and runs in a southwesterly direction to the old boundary between Finland and Russia. Russia has lost with this its most beautiful regions on the North Polar Sea—Petschenga and Pasrjeka with mighty waterfalls and historic relics, the Trifon monastery and the chapel of Boris and Gleb—but Finland has received free access to the North Polar Sea, and with this has entered among the Polar lands.

From the above it results, that Norway, Finland, Soviet Russia, the United States, British Canada, and Denmark, are the Governments whose territories are cut by the North Polar circle.

In consideration of all that has been represented, the Arctic region gains a great political significance, and can therefore remain no longer as *territorium nullius* free from the executive power of the civilized lands interested.

According to my opinion,<sup>5</sup> the whole Arctic region, that is to say, the circular expanse which one strikes with a radius of  $23\frac{1}{2}^{\circ}$  around the Pole, should be divided into five sectors, according to the number of the five northern Polar lands. On account of its insignificant size, I should like to attach the Finnish sector to the Norwegian.

Within each of these sectors, all known lands as well as all undiscovered lands and islands must be placed under the sovereignty of the Government concerned, and sovereignty is to be exercised not only on the dry land, but also in a certain measure, still to be determined internationally, upon the waters, covered with ice-fields, which touch these lands and islands, and upon the air space above the sector. These sectors are the following:

1. Norwegian-Finnish sector, of perhaps  $42^{\circ}$  of longitude (from longitude  $10^{\circ}$  West of Greenwich to the western boundary of U. S. S. R.)

2. Soviet Russia sector, of perhaps  $158^{\circ}$  of longitude (from longitude  $32^{\circ} 4' 35''$  East to  $168^{\circ} 49' 30''$  West of Greenwich). In this sector falls also the *terra nullius*, Franz Josef Land, where already for some years the building of a radio weather-station has been decided upon by Russia.

3. Alaskan sector, of perhaps  $29^{\circ}$  of longitude (from the east border of the U. S. S. R. as far as longitude  $141^{\circ}$  West of Greenwich).

5. This plan was published by the author under the title, *Die Einteilung des noerdlichen Polargebiets* ("The Division of the North Polar Region") in the *Morskoj Sbornik*, Leningrad, January number, 1927, (Russian).

4. Canadian sector, of perhaps 81° of longitude (from longitude 60° to 141° West of Greenwich).

5. Greenlandic sector, of perhaps 50° of longitude (from longitude 10° to 60° West of Greenwich).

All known lands and lands perhaps still undiscovered, falling in these sectors, must be placed under the jurisdiction of the Governments concerned.

Such a division would be not only practical for the future air connections across the Arctic, but also useful for future discoveries, since uncertainty is thereby avoided, which, as already mentioned, is to be expected in the case of further discoveries in the Canadian and Siberian sectors.

As outcome of the territorial sovereignty, enactments will take place particularly in respect to the practice of hunting, fishing and mining prohibitions against the erection of buildings. Instructions will have to be arranged especially to control the activity of the radio and weather stations in the service of air travel.

At the same time, as far as the limit of sovereignty on the sea is concerned, the teachings of Grotius and van Bynkershoek, according to which the territorial boundaries do not depend on the miles, but relatively, on the measurement of their usability, which depends on the range of artillery, can no longer be fully recognized.

In the practice of civilized nations to-day, this varies between 3 and 20 nautical miles (1 nautical mile -1.852 kilometers). Although the *Institut de droit international* in 1894 recommended the 6-nautical-mile zone, at the same time it demanded for neutral states the right to extend the zone up to the distance of a cannon-shot when they wish to forbid operations of war for the district. The same Institute has established fundamentally a zone of 12 nautical miles for bays and inlets. These decisions, however, do not correspond to the needs of maritime affairs.

As an example, where the territorial limit is far overstepped in spite of these circumstances, the position of Hudson Bay in international law may be considered. In spite of the fact that Hudson Strait, which leads into this great inland sea, has a breadth of not less than 50 nautical miles, Hudson Bay, as is well known, is Canadian territory in its whole extent for the questions of neutral rights. In practice, the Canadian Government demands certain declarations from North American ships for the right to pursue the whaling industry.

At a conference in Petersburg in 1907 in regard to territorial questions of the Russian European North, the author pointed out<sup>6</sup>

6. L. Breitfuss: "Über die Grenzen der territorialen Gewässer des Europäischen Russlands in Nordpolargebiet." (*Russkoje Sudohodstvo*, Petersburg, April, 1907, Russian).

that the interests of sea-fishing imperatively demanded that these boundaries be not defined relatively, but by reason of the physical-geographical conditions. At that time the territorial limit for the Murman coast was measured at twenty nautical miles; for the southeastern coast region of Barents Sea, with its shallow bottom, where during the greater part of the year the sea is covered with ice, the wish was expressed that the boundaries of this district must be established according to quite other points of view than for the seas which know no ice.

In consideration of the interests mentioned, the Soviet Government, in the decree of 24th May, 1921, declared a strip of coast twelve nautical miles wide in Barents Sea under Russian sovereignty, although this boundary is not yet recognized by other Governments, and not a few conflicts arise with the fish-trawlers because of it.

From this fleeting review of the marine territorial limits of sovereignty we see that it is imperatively necessary to arrange the solution of this problem in an international way.

If the ice conditions are taken into consideration in the determination of territorial marine limits, then for the seas of the Polar region we could make still other proposals, which must be weighed still more carefully.

We already know that the upper surface of the Arctic Ocean is in great part covered with ice, and is therefore inaccessible for ship travel. Accessible only up to a certain degree are the Northern districts of the Atlantic Ocean, that is to say, the Greenland Sea, Barents Sea, Kara Sea, Davis Strait, and Baffin Bay; on the Pacific Ocean side, the parts of the sea northwards from Bering Strait, Beaufort Sea, and East Siberian Sea.

Since Kara Sea is connected with Barents Sea only by relatively narrow straits<sup>8</sup>—Yugor Strait, Kara Strait, and Matochkin Strait—the route around the northern point of Novaya Zemlya is mostly blocked by the ice, this sea must therefore be regarded as inland sea (*mare clausum*).

For the same reason also the so-called "American route" to the Polar Sea through Davis Strait, Baffin Bay, and Smith Sound, as well as the waters lying westwards and eastwards above Bering Strait, should be regarded as Danish-Canadian and Russian-American territories respectively.

From the basis of our experience we may assume with certainty that during our geological period we can never count on a transit route by ship either by the Northeast or the Northwest Passage.

8. Kara Strait is noticeably narrower than Hudson Strait, and Kara Sea is smaller than Hudson Bay.—The Author.



In the case of the Northeast Passage, a route only would come into consideration from Europe, to be sure, into the mouths of the Ob and Yenesei respectively, and from Bering Strait into the mouths of the Kolima and Lena. For this reason, these last two routes, important from a trade and political standpoint, will remain a purely Russian concern. The Northwest Passage, which likewise has no transit importance, but only local significance, would in conformity with this fall under the jurisdiction of Canada.