

Why Do They Need the Arctic? The First Partition of the Sea

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ABSTRACT. The political situation of the Arctic still remains unstable. In the past decade, a combination of the specific regulations of the Convention on the Law of the Sea and the phenomenon of Arctic ice-cover shrinkage have produced a significant increase in the political activity of some of the countries interested in the region. It is commonly thought that the roots of the Arctic conflict lie in the abundant mineral resources, particularly petroleum and natural gas, that lie under the Arctic seabed. By analyzing geological data on the location of oil deposits and by taking into account the technological and macroeconomic conditions that must be fulfilled in order to exploit them, it is possible to conclude that the exploitation of these deposits will most likely not be attempted in the areas under dispute in the coming decades. This conclusion suggests that the motives behind the Arctic conflict are political, and not economic.

Key words: Arctic, Convention on the Law of the Sea, conflict, resources, crude oil, peak oil

RÉSUMÉ. À ce jour, la situation politique de l'Arctique demeure instable. Cette dernière décennie, les règlements spécifiques découlant de la *Convention sur le droit de la mer*, alliés au phénomène de la diminution de la couverture de glace arctique, se sont traduits par une activité politique considérablement accrue de la part de certains des pays intéressés par la région. On pense généralement que le conflit de l'Arctique est attribuable aux ressources minérales abondantes qui se trouvent sous le plancher océanique de l'Arctique, plus particulièrement le pétrole et le gaz naturel. À la lumière de l'analyse des données géologiques portant sur l'emplacement des gisements de pétrole et des conditions technologiques et macroéconomiques devant être remplies pour les exploiter, il est possible de conclure qu'il faudra vraisemblablement plusieurs décennies avant que l'exploitation de ces gisements ne soit entreprise dans les régions visées par le conflit. On en conclut donc que les motifs derrière le conflit de l'Arctique sont de nature politique, et non pas économique.

Mots clés : Arctique, *Convention sur le droit de la mer*, conflit, ressources, pétrole brut, pic pétrolier

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INTRODUCTION

The Arctic expanse is one of the few areas on earth whose legal status has yet to be determined conclusively. The Law of the Sea Convention (UN, 1982) limited in both time and space the possibility of claiming sovereign rights to Arctic resources. In the first decade of this century, the interested countries have heightened their activity, striving to highlight their presence in the Arctic and prove the legitimacy of their claims to unrestricted exploitation of their respective areas. The expected shrinking of the Arctic polar ice cap is an additional incentive for increased interest, as theoretically it could facilitate access to resources that are assumed to be located under the Arctic seabed.

The primary goal of this paper is to verify the extent to which the acquisition of exclusive rights to the exploitation of Arctic mineral resources is the true motive for the actions that are being undertaken by the countries competing in the race for the Arctic, as they themselves declare. The study widely analyses provisions of the Convention on the Law of the Sea and gives particular attention to the perceived surge

in the political activity of several countries. The economic and technological conditions for the extraction of petroleum from underneath the ocean floor of the Arctic are an additional point of reference, and the results of geological studies on the extent of the Arctic oil reserves are confronted with the claims of the competing states.

THE ARCTIC ON THE POLITICAL MAP OF THE WORLD

The polar regions are among the least-explored and least-penetrated parts of the earth. The fact that their exploration began relatively late does much to explain the assumption, particularly popular in medieval Europe, that a hypothetical stretch of land conventionally referred to as Terra Australis Incognita existed in the south. Europe's understanding of where landmasses were located in the north polar regions was only slightly more advanced. Although the oldest signs of Viking settlement on Greenland are estimated to date from the 10th century AD, Mercator's *Polus Arcticus cum*

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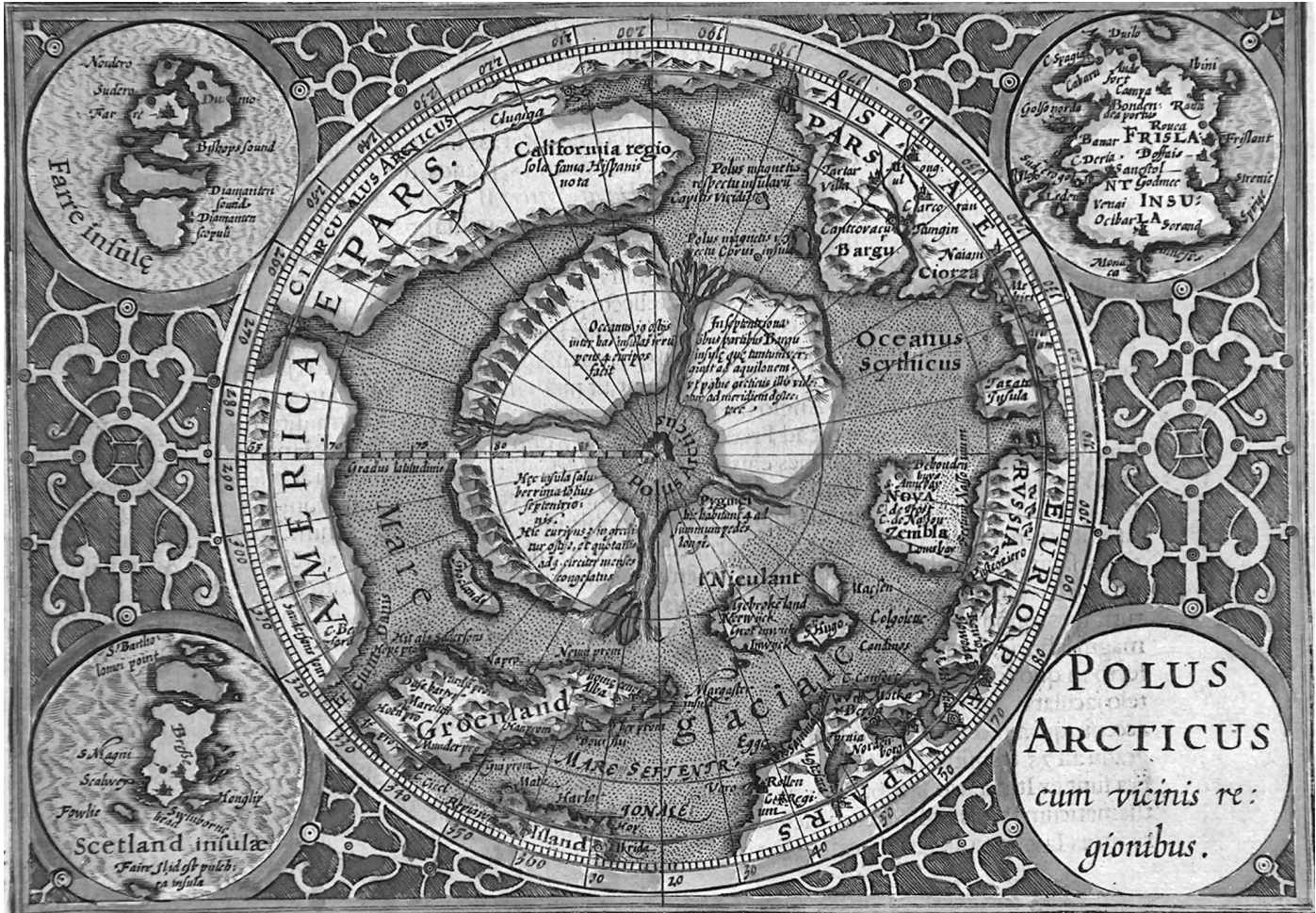


FIG. 1. Mercator's map of the Arctic (version published by Jodocus Hondius, 1625).

vicinis regionibus map (Hondius, 1625), still shows the North Pole surrounded by four islands roughly the size of Greenland (Fig. 1). Today, our insight on the Arctic is substantially greater than it was centuries ago. We no longer have doubts regarding the existence, location, dimensions, or even political status of the individual landmasses that lie in the "Far North"; however, there is still disagreement about jurisdiction in some maritime zones.

From a geographical-political standpoint, five countries possess territories that lie within the region: Russia, Norway, Denmark, Canada, and the United States. The political involvement of Denmark—and, to a certain extent, Norway—in the Arctic is special in nature. Danish legislation stipulates that Greenland is an integral part of the territorial possessions of Denmark; since 1979, however, the island has enjoyed far-reaching and continually widening autonomy with respect to its European proprietor. A good measure of the sovereignty and competence of the Greenlandic government was the withdrawal of the country from the European Communities in 1985, the only such case in the history of the European Union (Anon., 1985, 2011; Sobczyński, 2006). Norway's presence in the Arctic is notable on the Svalbard Archipelago, a Norwegian dependency that also has a special status. Norway is in full political

control of the administration of the archipelago by virtue of the Spitsbergen Treaty of 1920, with each of the 39 contracting parties reserving the right, among others, to settlement and economic activity on the islands (Sobczyński, 2006).

THE POLITICAL STATUS OF THE ARCTIC OCEAN

The first claims to possession of the Arctic Ocean were made more than 100 years ago. In a 1907 speech to the Canadian Senate, P. Poirier suggested dividing the Arctic into sectors (McRae, 1994), and in 1925, Canada officially claimed the sector between 60° and 141° W (Atlas of Canada, 2009; Kubiak, 2009). The proposed sectors were to have the North Pole as their common tip, their latitudinal boundaries would be defined by meridians connecting the Pole to the westernmost and easternmost points of the respective states, and their base would run along the countries' shorelines (Kubiak, 2009). Had this division been accepted, Russia would have received the largest portion of the Arctic Ocean, while another significant percentage would have come under the jurisdiction of Canada, the party that originally submitted the plan. The project did

not meet with universal international approval, primarily because it assumed that the contested area would be allocated only to the few countries whose parts were located in the Arctic (Jaworski, 2009).

An alternative approach, at present widely recognized on the international political stage (UN, 2011), proposes that the Arctic region be subject to the provisions of the 1982 United Nations Convention on the Law of the Sea (UNCLOS), popularly known as the Law of the Sea Convention. This seminal document, signed after several decades of international negotiations, was the first to outline the legal status of marine areas. It distinguishes between 11 categories of waters, of which five in particular are of special relevance to the Arctic: territorial sea, exclusive economic zones (EEZs), continental shelf, international waters (high seas), and in the area beyond the limits of national jurisdiction, the seabed and ocean floor (UN, 1982).

A coastal state's territorial waters stretch from its baseline, which is defined as the water line farthest from shore at low tide, to a point located no more than 12 nautical miles into the body of water (UN, 1982: Articles 3, 5, 6, 7); this marine area is considered by law to be an integral part of the country's territory. Apart from the ongoing debate on the political status of the Northwest Passage and the Northern Sea Route, the extent of the territorial waters in the Arctic is generally not in question. One exception is Hans Island, located in the Nares Strait between Greenland and Ellesmere Island, exactly halfway across the width of the strait, which at that point measures approximately 30 km. Geologically speaking, the island is the topmost part of the glacial polish, with a surface of just 1.3 km² of bedrock (ICJ, 2008). Since 1933, Denmark and Canada have been involved in a territorial dispute regarding Hans Island, though neither expects any economic benefits whatsoever if the deadlock is resolved. The island has no strategic importance either. Even so, both countries treat the issue of Hans Island with extreme seriousness, a fact that has not escaped comment on the part of politically conscious citizens. One of the more interesting grassroots initiatives to arise from this situation is the creation of a website for a fictional organization calling itself the Hans Island Liberation Front (2010), a platform that enables any and all visitors to give their opinions on undertakings of their governments with respect to the Hans Island case.

The exclusive economic zones, along with the continental shelf recognized by the Law of the Sea Convention, include marine areas that extend to 200 nautical miles from the baseline. In the event that the outer edge of the continental margin extends beyond that, the continental shelf can be expanded up to the undersea break where the continental margin ends, but may not surpass a total width of 350 nautical miles from the baseline. According to the Convention, the 350 nautical mile limit "does not apply to submarine elevations that are natural components of the continental margin, such as its plateaux, rises, caps, banks and spurs" (Article 76, Section 6). The state that possesses the exclusive economic zone and continental shelf enjoys

exclusive rights to the economic exploitation of the sea zone, which includes rights to fishing and exploitation of deep-water and seabed resources, while recognizing that all other states have complete freedom of movement for their vessels within the EEZ, as well as the right to extend pipelines and lay submarine cables there (UN, 1982: Articles 56 and 58). The actual extent of the EEZ and continental shelf of any given country is the root of many international conflicts, given the potential economic benefits in play (Fig. 2).

International waters (high seas) allow all vessels complete freedom of navigation and freedom to realize any form of commercial or economic activity (UN, 1982: Article 87). Because the provisions noted in Article 89 automatically preclude any claim to high seas, only the expansion of a state's continental shelf—and therefore the reclaiming of part of the international waters—can guarantee exclusive exploitation rights for that state in the reclaimed area.

The Law of the Sea Convention places seabed and ocean floor areas that are outside any exclusive economic zone under special protection. According to the "common heritage of mankind" principle, the jurisdiction of these areas and the exploitation of minerals located under their seabed are inalienable rights of all countries, regardless of their geographic location (UN, 1982: Preamble, Articles 136 and 137). As in the case of international waters, only a change in the boundaries of a continental shelf can give a coastal country the exclusive rights to exploit the resources that lie underneath the seabed outside its exclusive economic zone.

DEFINING THE BOUNDARIES OF THE CONTINENTAL SHELF

It is doubtful that the near-universal recognition of the Law of the Sea Convention will put an end to existing rivalries and check future conflicts. The reason is a certain openness to interpretation and subjectivity inherent in some of the Convention's points, particularly Article 76, which refers to the continental shelf. As mentioned previously, a wider-than-average continental margin warrants the expansion of the continental shelf, as defined in the Law of the Sea Convention, up to more than 350 nautical miles from the baseline. In order to secure this right, it is necessary to demonstrate that a part of the ocean floor previously regarded as not belonging to a continental margin does indeed form part of it. The Law of the Sea Convention allows a signatory state a period of 10 years after it ratifies the Convention to provide such evidence (UN, 1982: Annex II, Article 4).

As of 20 September 2011, the Law of the Sea Convention has been signed by 157 states, some of which have yet to carry out the internal ratification process (UN, 2011). Of the five states directly involved in the dispute in the Arctic, four have signed and ratified the Convention: Norway (in 1996), Russia (1997), Canada (2003), and Denmark (2004). The United States is among the several dozen countries that to this day have neither signed nor ratified the Convention.



FIG. 2. Boundaries in the Arctic region. Adapted from International Boundaries Research Unit map of maritime jurisdiction, Durham University, United Kingdom (IBRU, 2011).

Thus the United States does not have to consider itself bound by the laws of the Convention, although various U.S. institutions have acted in accordance with it. Meanwhile, the countdown to the end of the 10-year period allotted for the four Arctic signatories to prove their right to a given marine area began with their respective dates of ratification; in the cases of Norway and Russia, it is already over.

One of the most notable direct consequences of the expiring time limit was the clear invigoration of the four countries' political activity. In 2001, Russia announced that the Lomonosov Ridge, an undersea mountain range that runs across the seabed between the New Siberian Islands and Ellesmere Island and passes close to the geographic North Pole, is a geological prolongation of the Eurasian shelf (Holdys, 2006). This fact, it was argued, would enable Russia to extend its continental shelf to more than 350 nautical miles and simultaneously give the country exclusive rights to the economic exploitation of that area. The Russians presented evidence supporting that theory to the Commission on the Limits of the Continental Shelf. However, before Russia managed to compile sufficient additional data to confirm the thesis, Canada and Denmark made a joint counter-declaration (2006). They postulated instead that the Lomonosov Ridge is actually a prolongation of North America, which, if proven, would grant the right to a significant portion of the Arctic to those two nations (Holdys, 2006; see also Howden and Holst, 2005).

The Lomonosov Ridge cuts diagonally across the bottom of the Arctic Ocean. The dilemma regarding which continent the formation belongs to can be resolved only by resorting to historical geology. Most contemporary investigations conclude that the Lomonosov Ridge separated from

Eurasia some 57 to 58 million years ago, having indeed previously comprised part of the continental margin (Heezen and Ewing, 1961; Jokat, 2005). That said, the implications this conclusion has for the current claims of each state involved remain to be determined. Under the Law of the Sea Convention, the fact that a given area was a part of one of the continents in the distant geological past has no bearing on its current standing; the crux of the matter is whether or not the Lomonosov Ridge is part of the continental margin *today*. Using historical geology as a valid argument in the discussion on the shelf's status is about as convincing as arguing that Madagascar belongs to Mozambique, and for similar reasons.

POLITICAL ACTIVITY IN THE ARCTIC IN RECENT YEARS

Another surge of political activity took place in 2007, the year of Russia's deadline for submitting claims relating to national and transnational waters under the Law of the Sea Convention. One event that marked this renewed activity was the sending of a Russian scientific expedition, *Arktika 2007*, to the North Pole. Its commander-in-chief, Artur Chilingarov, stated that "the Arctic is Russian. ...We must prove the North Pole is an extension of the Russian coastal shelf" (Reynolds, 2007). The following day, a Russian flag made of titanium was planted on the bottom of the Arctic seabed, exactly on the North Pole. This act was a symbolic claim to possession of the heart of the Arctic for Russia. Russia's Ministry of Natural Resources issued a statement according to which its analysis of the sediments found on the North Pole's ocean floor confirmed the hypothesis, formulated earlier, that from a geological point of view, the Lomonosov Ridge belonged to Eurasia (Kijewski, 2009).

This declaration triggered an immediate reaction on the part of several other states. On 7 August 2007, Canada announced a mobilization of its armed forces and readiness for military maneuvers, while the prime minister of Canada made a visit to the Canadian Arctic, declaring plans to increase the nation's economic and military activity in the Far North. The United States responded by sending one of its icebreakers to the Arctic (Kaługa, 2009). In 2008, the European Commission demonstrated its concern with the situation by way of a communication entitled "The European Union and the Arctic Region," the importance of which lies in its being one of the first steps toward a common European Union strategy with respect to the Arctic (EC, 2008). However, the EU still shows relatively little political interest in the High North (Offerdal, 2010).

Currently, Russian and Canadian military patrols have made their presence in the Arctic more conspicuous, and the issue of Arctic rights has gained notoriety in the increasing number of documents pertaining to the right each country has to the region. At the same time, a greater incidence of topics related to the Arctic has been noted in political discourse. One of the most significant documents

is the Arctic strategy of Russia, published in 2009 by the Security Council of the Russian Federation (Kaľuga, 2009). Among the policies it contains is a statement that “given the strong competition over access to natural resources, the use of military force as a means of resolving problems cannot be discounted in situations where the balance of power near the borders of Russia and its allies is threatened” (Kaľuga, 2009). In 2009, NATO called attention to the need for a collective strategy with regard to the Arctic, which immediately prompted the vocal disapproval of the Russian side (Kaľuga, 2009).

In May of 2008, an international conference took place in Ilulissat, Greenland, with high-ranking participants from each of the five states vying for influence in the Arctic. The resulting declaration gives hope for an end in sight to the debate on the future political division of the Arctic: “We therefore see no need to develop a new comprehensive international legal regime to govern the Arctic Ocean” (The Ilulissat Declaration, 2008). The attendees also resolved to continue talks on the subject with special regard for the provisions of the Law of the Sea Convention, in spite of the fact that one of the sides—the United States—has yet to sign and ratify the Convention. This decision is in line with the European Union and the Arctic Region communication, which asserts the exclusion of the North Pole from any claims and underlines the importance of handling conflicts through the Law of the Sea Convention (EC, 2008).

THE ARCTIC’S NATURAL RESOURCES

All of the states competing for the Arctic state clearly and unambiguously that the deposits of mineral resources lying dormant under the Arctic Ocean’s seabed are the main motivation behind their attempts to seize the largest possible piece of the Arctic pie (Beauchamp and Huebert, 2008; Kijewski, 2009; Osica, 2010). The President of Russia, Dmitry Medvedev, has stated his intention to transform the Arctic into the Russian resource base of the 21st century and expressed his belief that “there are obvious attempts to limit Russia’s access to the exploitation of deposits located in the Arctic” (Anon., 2010). Many scholars have backed up this outline of the country’s commercial and economic interests in articles on the Arctic dispute. Jaworski (2009) thinks that the basic source of conflict between countries in the Arctic region is their desire for access to areas with abundant natural resources.

The generalized conviction that the Arctic is particularly abundant in natural resources, especially oil and natural gas, found strong support in the results of a study conducted by American geologists (Bird et al., 2008). The complex methods used by these researchers allowed them to estimate that the area to the north of the Arctic Circle is likely to contain approximately 90 billion barrels of crude oil and 47 trillion m³ of natural gas, as well as diamonds, nickel, lead and other resources. The scientists’ comments emphasize the importance of the study’s findings: “The

extensive Arctic continental shelves may constitute the geographically largest unexplored prospective area for petroleum remaining on Earth” (Bird et al., 2008). Should the estimates provided by this geological investigation prove accurate, the economic value of the Arctic would be tremendous, as the tentative, theoretical deposits of Arctic natural gas mentioned above constitute 27% of all estimated undiscovered hydrocarbon resources.

PEAK OIL AND ARCTIC OIL EXPLOITATION

Resource potency is one of the deciding factors in claiming economic and political success in the world. This hypothesis particularly applies to today’s universally coveted energy resources and to those countries whose economies depend largely on the exportation of raw resources. Two of the five countries engaged in the Arctic scramble, Norway and Russia, derive a significant part of their export value from the sale of natural resources. Throughout the past decade, crude oil and natural gas together made up approximately 55% of total export value for Norway and 51% for Russia (WTO, 2010; see also Statistics Norway, 2009). Stockpiling raw resources and expanding their existing volume is therefore of the utmost importance for both countries in terms of ensuring continued financial support for their economic development.

Speculation on how the world’s available supply of crude oil will change in the coming decades has long been kept in an alarmist tone. The 1970s produced some of the first fatalistic predictions of global economic and humanitarian catastrophes that allegedly awaited mankind before the end of the century as a result of definitive depletion of basic energy resources. Reports prepared for the Club of Rome, a global think tank founded in 1968, were especially pessimistic (Meadows et al., 1972). In the 1980s, the predicted date of complete oil depletion was moved forward; Enz (1981) estimated that the wells would dry up in 2022. Indeed, even today, most reports seem to imply there is only enough oil to go around for the next several decades at most, one cited date of depletion being 2049 (Craig et al., 2003).

Evidently, with time, despite the steadily rising figures for worldwide oil extraction, the final depletion date is systematically being postponed. Many bleak and pessimistic studies that have surfaced in recent years draw their conclusions from the observation of two main variables. The first is the price of oil worldwide. Before the year 2000, the nominal value of a barrel of Brent crude, the most important benchmark for oil prices, had barely exceeded \$30, whereas a few years later, in mid-2008, it reached the previously unheard-of sum of almost \$150. The rise in oil prices is understood as an economic consequence of the supply and demand laws, which stipulate that an increase in the price of a commodity is a measure of that commodity’s increasing scarcity.

The second meaningful variable is the production rate of oil extracted around the world and in each country, figures

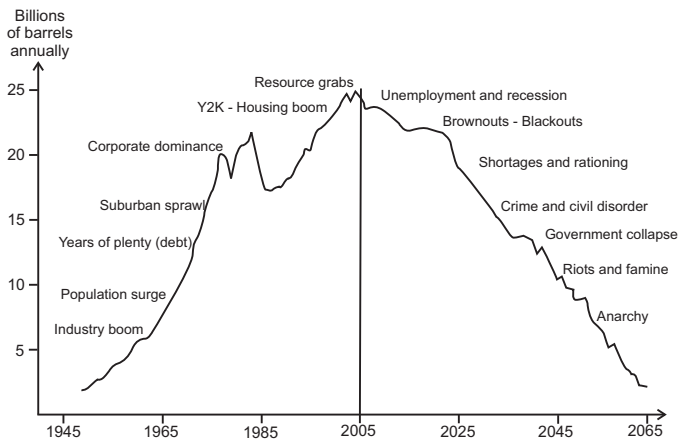


FIG. 3. Hubbert curve for crude oil in the world. Modified from ISEOF (2010).

that can be represented graphically by Hubbert curves (Hubbert, 1956). The model posits that because existing reserves are finite, each area of exploitation is doomed to reach a peak rate of extraction. The current Hubbert curve of world petroleum production rates suggests that the peak rate was either reached in 2008 or will be reached within the next two to three years. It is useful to note, however, that the authors of the Hubbert curve, published 10 years ago, predicted that maximum production would be attained in 2005, and if we follow previous predictions farther back in time, we find a corresponding downward trend toward earlier peak oil dates (see Smil, 2006). The curves continue to be published regularly, regardless, and they are often dispatched with accompanying comments and predictions whose general mood is best conveyed by Figure 3.

Despite relentless scientific research that aims to replace fossil fuels with renewable sources of energy, attempts to provide a renewable future have yielded few results, and the world continues to depend largely on non-renewable resources. Nonetheless, as we are currently unable to estimate with confidence exactly when petroleum will turn into a raw commodity of marginal significance, the stated goal of many states is to accumulate the largest possible supply of oil in case it turns out to be the basis of the world's economy in the coming years. One of the most important catalysts for such actions is undoubtedly the shrinking of the Arctic ice sheet. It is widely believed, also within political fora like the European Parliament, that a reduction in the extent of permanent ice will spur the exploitation of the ocean floor for natural resources (EP, 2010). The Far North nations expect to reap even more of the profit through the activation of potential trade routes running along the northern coasts of North America and Asia. The Northwest Passage would shorten the road from northwestern Europe to eastern Asia by several thousand kilometers in comparison to the Panama Canal route, while the Northern Sea Route (Northeast Passage) would similarly unseat the Suez Canal route as the preferred route to the Far East (Jaworski, 2009).

In estimating the volume of extant petroleum deposits and other resources that could come within reach of the

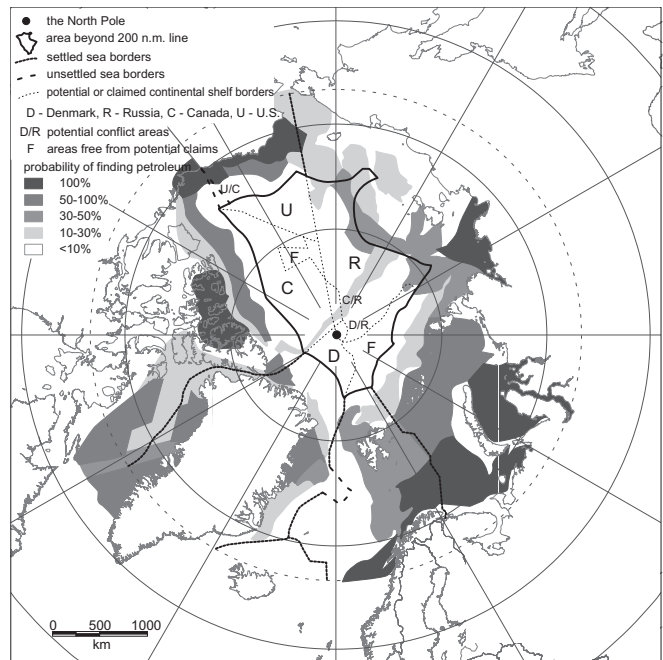


FIG. 4. Probability of finding petroleum in politically claimed areas of the Arctic region. Modified from Bird et al. (2008) and IBRU (2011).

Arctic pretenders in the near future, it is advisable to exercise extreme caution. The research conducted by the U.S. Geological Survey was the first to be carried out on such a wide scale and was intended, to a large extent, to pave the way for future endeavors. The study provided data on the probability of encountering a given volume of petroleum in selected sectors in the region; it failed, however, to pinpoint specific locations and come up with precise quantitative figures (Bird et al., 2008). Also, the published results indicate that the likelihood of finding petroleum in and around the central part of the Arctic seabed is close to zero (Fig. 4).

The ocean floor as a whole, and what lies beneath the Arctic Ocean in particular, remains notoriously poorly researched. This is true for both its geological structure and, to a certain degree, the bathymetric relief of the land underneath the depths, while our knowledge of some of the keystones of the environment, such as the benthic fauna of the central zone of the Arctic, is practically non-existent (Węślawski, 2010). This state of affairs was perhaps best expressed by R.L. Hotz (2007) in the *Wall Street Journal*: "Overall, maps of Mars are about 250 times better than maps of earth's ocean floor." Given the lack of verifiable data, the actual availability of mineral resources in the Arctic may just as well be significantly higher or significantly lower than what current estimates might imply. Further geological probing of the ocean floor is essential if we want a more realistic assessment of Arctic mineral resources and their future availability.

Regardless of how much petroleum lies hidden under the bottom of the Arctic Ocean, one must realize that its exploitation will be possible only at some future time that is difficult to anticipate with precision. Fixed offshore platforms

have the capacity to drill down to depths no greater than 1000 m, while semi-submersible rigs can reach down to almost 2200 m; the Arctic areas that are the international bone of contention, located on either side of the Lomonosov Ridge, are significantly deeper (Subsea Oil & Gas Directory, 2010). The depth of the undersea Makarov Basin is more than 3000 m, while that of the Nansen Basin is 4000 m. The next generation of floating platforms allows for extraction of oil from underneath the seabed at a depth of 3000 m (Subsea Oil & Gas Directory, 2010). However, since the Deepwater Horizon methane explosion on 20 April 2010 in the Gulf of Mexico and the resulting environmental disaster, many plans to exploit previously untapped undersea oil deposits using semi-submersible rigs are bound to be put on hold.

Even if technological development enables us to begin mining the Arctic seabed for petroleum, transporting the oil to refineries will require icebreakers to escort the oil tankers on each journey (Jaworski, 2009). A feasible alternative to this would be to introduce radical structural changes to the tankers that would enable them to traverse and navigate the ice independently and unaccompanied. It also seems likely that technological advances will enable new methods of oil exploitation in the foreseeable future, with pipelines located on the sea bottom. In each of these cases, the costs of the drilling process would rise dramatically. Only if the Arctic ice sheet were to completely disintegrate could the costs be kept near today's level; yet numerous contemporary studies suggest that complete disintegration will most certainly not happen within the next several decades. Research results from the Intergovernmental Panel on Climate Change show that in the years 2080–2100, the average extent of the Arctic Ocean's ice should decrease by anywhere from 22% to 33%, depending on the criteria used for the model (Zhang and Walsh, 2006; Anisimov et al., 2007). The Arctic would then be completely free of sea ice for about 80 days a year (Jaworski, 2009).

Technically, it is possible that a time will come when the price of oil on the international market will be high enough to warrant exploitation of the resources underneath the Arctic Ocean. This situation could arise if demand for crude oil should exceed supply by a large margin. An imminent increase in demand, it seems, has become an inescapable reality: the need for petroleum in the rising markets in China and India is rapidly increasing, and the consumption of oil in developed countries is on the rise as well. Note, however, that rising demand is continuously curbed by a wide range of factors, such as the replacement of one resource with another (biofuels), the implementation of energy-efficient technologies, and the rising prices of petroleum-based products. Supply is also bound to expand for the time being, though it is difficult to estimate how long the numerous methods of boosting it will keep pace with rising demand and maintain prices that are lower than the cost of drilling in the Arctic. The means of increasing supply include, among others, the discovery of new oil reserves, innovation and development in seeking out oil deposits and

information processing, as well as the exploitation of secondary reserve deposits and less abundant reservoirs.

Similarly, an economic profit-and-loss estimate for natural gas exploitation could be developed. In addition to the factors already mentioned above, the increasing prospects for shale gas exploitation in many areas of the world should be noted. In some cases, finding new resources may radically change the situation of their possessors; a leading example is the United States, a former importer of natural gas that is now covering all its gas-related needs with its own exploitation. Surely, increasing supply will help keep market prices for gas at relatively low levels, contributing to the delay in exploiting the Arctic resources.

IS OIL BEHIND THE SCRAMBLE FOR THE ARCTIC?

Without petroleum, the economy of today's world cannot exist. Abundance of natural resources is one of the reasons for armed conflicts, and crude oil is a star attraction (Le Billon, 2001). Nevertheless, it is possible that in the coming decades—well before the right technological and economic circumstances come into effect for humans to dig into the Arctic resources—oil will find itself increasingly marginalized by other sources of energy. In the words of A.Z. Yamani, former Saudi Minister of Oil and Mineral Resources, “Thirty years from now there will be a huge amount of oil—and no buyers. Oil will be left in the ground. The Stone Age came to an end, not because we had a lack of stones, and the oil age will come to an end not because we have a lack of oil” (Fagan, 2000).

Similar statements are upheld by many analysts. Simon (1981) argued that price is the simplest and most responsive indicator of fluctuations in the volume of a given resource available on the market, and that the real prices of oil in the world had been falling for years. In the 1996 revision of that publication, Simon (1996:6) wrote: “Our supplies of natural resources are not finite in any economic sense. Nor does past experience give reason to expect natural resources to become scarce. Rather, if history is any guide, natural resources will progressively become less costly, hence less scarce, and will constitute a smaller proportion of our expenses in future years.” Simon (1996) supported this controversial statement by juxtaposing oil prices to average income in the United States, demonstrating that the purchasing power of Americans in relation to crude oil has quadrupled in the 100 years between 1890 and 1990 (see Fig. 5).

Simon's approach was met with vigorous protest and criticism from supporters of the reasoning presented by the Club of Rome in its reports and is a prime example of the dynamic general equilibrium approach to the analysis of mineral resources, which posits that “resources do not possess a finite amount and are rather a ‘function’ of human knowledge” (Fierla, 2005:57). On economic grounds, classical economists Ricardo (1957) and Mill (1965–66) argue that physical finiteness of resources does not pose any

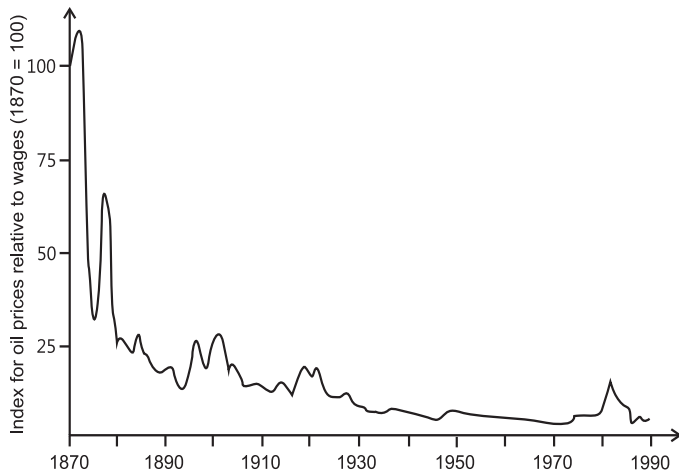


FIG. 5. The price of oil relative to wages in the United States of America (Codrington, 2005:50).

significant barrier to development, mostly because of progress in civilization and technology.

Assuming that the dynamic approach to mineral resources is sound, as it seems to be in the face of several decades' worth of encouraging proof, and with a closer look at the changes that took place in the structure of energy production in the world throughout the 20th century, one can venture to claim that human beings might never have to resort to the exploitation of Arctic oil. As the age of petroleum began, so will it eventually end. This holds true for all energy resources. Natural gas, a pivotal energy source whose part in primary energy worldwide is rapidly increasing towards the 30% mark, and without which the survival of today's economy is difficult to fathom, has been used on a large industrial scale only since the 1960s. Nuclear energy's share in electrical energy in the world is over 16%, up from zero as recently as the 1940s. Therefore, it seems possible that technological progress will one day allow humanity to replace oil with another energy source that is more efficient, cheaper, and perhaps renewable.

The context outlined above once more begs the question of what is the real motivation behind the ongoing political dispute over the Arctic. Are the contestants in the symbolic race for the North Pole really intent on hoarding the vast expanses of the underwater oil reservoirs under the Arctic seabed—reservoirs whose extraction will not begin for at least several decades (and perhaps will never even reach that stage)? An affirmative answer to this question would imply that the nations involved recognize and accept the static resource approach championed by the Club of Rome and the peak oil prophets associated with it (Meadows et al., 1992). It is the cautious and conservative way, prompted by fear for the future of energy supply and the potential oil-based economic profit that can be reached several decades from now. If, however, the dynamic approach is chosen as a point of reference, then gaining control over Arctic oil is nothing more than an excuse for a race that shows its true colors only when viewed from a political perspective. Alternatively, it might be assumed that many

decision-makers have wrong perceptions of the potential for oil and gas exploitation in the Arctic, and that the scramble is one of the effects of their struggle to secure energy resources for their countries. However, it seems impossible to prove that qualified advisors intentionally mislead their patrons, so this hypothesis should be rejected.

The central part of the Arctic is one of the last expanses on the planet with a still ill-defined political status. The Law of the Sea Convention was intended to resolve any and all marine conflicts, but some of its provisions leave space for interpretation, a fact duly noted and used by countries interested in expanding their possessions into the Arctic zone (see Łukaszuk, 2004). The region is a subject of dispute because it is currently outside the jurisdiction of any country, and therefore, its occupation does not require war tactics and armed interventions. The heightened activity of some players, particularly Russia, can be viewed as an expression of imperial ambitions and the desire to realize them. Within the frame of the Arctic issue, Osica (2010) calls both Russia and Canada "Arctic warriors". Following the humiliating defeat of the Soviet Union in Afghanistan in the 1980s, the collapse of the USSR, the progressive estrangement of the traditional Soviet sphere of influence, and Central and Eastern Europe's accession to NATO and the European Union, Russia seems to be in search of a zone it could administer successfully. The political activity of the remaining countries can be seen in part as a knee-jerk reaction to Russia's mobilization, which in turn has led to heightened international tension.

It is useful to note that the scramble presented in this paper takes place over the central part of the Arctic Ocean, while most oil and natural gas deposits discovered to date in the Arctic lie within the exclusive economic zones of each state (Bird et al., 2008; see also Fig. 4). It is unreasonable to assume that any country will begin its exploitation of Arctic resources at the highest latitude and the greatest depth, extracting the least accessible reserves in the region. The prospect of exploiting these particular reserves is therefore even more distant than the several decades mentioned before, another reason to believe in the strictly political and not economic motivation behind each state's involvement in the Arctic dilemma. Ingenfeld (2010) deftly called this the "just in case policy," although she views the background of the Arctic scramble as economic.

CONCLUSION

As stated by the Law of the Sea Convention of 1982, the central part of the Arctic Ocean constitutes international waters, the resources of which are available for use by any country in the world. The Convention foresees the possibility of extending a state's exclusive continental shelf from the standard 200 to a maximum of over 350 nautical miles from its baseline, provided that the coastal nation demonstrates that its continental margin is more than 200 nautical miles wide. Some of the countries in the race for the

Arctic are determined to use the chance to prove on geological grounds that the Lomonosov Ridge, which traverses the Arctic Ocean, is a direct prolongation of either Eurasia or North America.

The official motive for the Arctic aspirations of states involved in the struggle is the mineral reserves those nations expect to locate under the Arctic seabed. Comparing and contrasting the extent of the areas potentially rich in oil and gas as identified in the course of research by American geologists (Bird et al., 2008) with the claims of each individual country proves beyond any reasonable doubt that recognizing these claims and expanding the continental shelves according to the Law of the Sea Convention will have little effect on the total amount of resources available to any given country. The reason is that most of the Arctic's petroleum and natural gas reserves lie in areas that already form part of one or more exclusive economic zones.

Primary energy production is going through deep and rapid structural changes worldwide, coupled with equally rapid development in technology relating to the substitution of finite exploitable resources with generators of renewable energy. Although the Arctic ice sheet has been shrinking at an unprecedented rate in recent years, it is impossible to state whether the technological and economic viability of the undersea exploitation of Arctic resources will precede the unseating of petroleum and natural gas as cornerstones of the world's energy network, or the other way around. It seems the rate of climate change is still too slow, and the natural gas and oil deposits currently available are still too rich, to warrant drilling for resources in deep Arctic waters in the next several decades (see Macnab et al., 2007).

Considering both the arguments given above, political motives for the five states attempting to gain sway in the Arctic appear to be much more plausible than any economic considerations. The Arctic does not belong to any political entity, which makes effective political competition over it all the more viable. Winning this game would do much in the way of satisfying the imperial ambitions of one of the most active players—Russia.

Whatever conclusions are reached in the future regarding the Arctic, the regulations of the widely respected Law of the Sea Convention bar any nation from political control over the North Pole because of the significant distance that separates it from dry land masses. The only way of gaining economic control over this symbolic place is to prove that the Lomonosov Ridge is part of a continental margin. The planting of the Russian flag at the bottom of the Arctic Ocean can therefore be interpreted only as a symbolic expression of Russia's ambitions to superpower status—not unlike the planting of the American flag on the Moon. An excellent final remark on these events is that of Ole Kvaerno, director of the Institute of Strategy and Political Science in Copenhagen: "It is all surreal. It really strikes me that various nations have begun to make these impossible territorial claims. What will be the next territorial claim: space?" (Anon., 2005).

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