

## Field Trip Report – Spitzbergen Excursion. Economic Geography

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[Aller au sommaire du numéro](#)

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## Field Trip Report — Spitzbergen Excursion

### Economic Geography

West Spitzbergen looks surprisingly like the American West ; the strata of the great bare mountains are clearly visible. There are beautiful examples of pediment slopes, talus cones, alluvial fans and braided streams. The plant life is sparse, as in a desert, but the soggy ground and the great blue fiords are characteristically arctic.

The seas of Spitzbergen have been intensively exploited in the past, leaving little for present exploitation. The whale population was reduced to uneconomic levels by 1650. The seals and walruses were the basis of an important industry in the last century, but these beasts are now so scarce that they are usually not hunted. Cod fishing is periodically of great importance as in the 1870's the 1920's and the 1950's. Fluctuating temperatures or intensive fishing may account for this periodicity. Trawlers of several nations are very active around Bear Island but Spitzbergen itself has suffered a decline in the last year.

Hunting and trapping of foxes, and caribou have been carried on for at least 350 years in Spitzbergen. These industries are almost abandoned now as empty little huts testify. These animals were reduced to uneconomic numbers by increasing efficiency during the last century. Caribou are protected, but polar bear and foxes are still hunted. A polar bear becomes economically worth while when an American tourist is willing to pay one thousand dollars for the privilege of finding and shooting him. The yacht *Halvallah* takes 28 such tourists up to the ice pack each summer.

Grazing is possible in Spitzbergen. The caribou population is able to maintain itself and increase gradually. Muskoxen and European hare have been introduced with small success. Plants are low and widely spaced, which means that each animal must have a very large grazing area. This has made it difficult for the animals to find each other in the mating season ; the hare and muskox population grow little or not at all. Hares were killed by wild dogs during the war, while occasionally a precipice is the cause of a sudden down-falls of the musk-ox population.

There are no trees and no agriculture on Spitzbergen so the sparse human population depend principally on mining with slight dependence on hunting, fishing, tourists, radio and weather stations and scientific research. Navigation is helped by open water all year on the West side of Spitzbergen ; the last act of the gulf-stream before it encounters the pack ice north of the islands. Most of the glaciers have retreated back onto the land so there are few icebergs to hinder navigation. No ships go this far north in the dark, stormy, winter months but access is easy in summer. Several different kinds of mining have been attempted, with success only in the case of coal mining.

An iron mine lasted one summer in Recherchefjord in 1920. The weather enriched surface deposits gave way to much poorer ore underneath. A gypsum mine closed for a similar reason. A 1900 marble quarry at New London seems to have failed because costs were not estimated properly. Coal mining supports practically all the people of Spitzbergen. Bituminous coal from lower Tertiary beds is mined at Barentsburg, Grumantbyen, Longyearbyen and Pyramiden, while high grade bituminous coal is mined by the Norwegian government at the farthest north settlement of Ny-Ålesund. The Swedish mine at Sveagruba has been bought by the Norwegian company and closed down.

A note must be inserted here about the ownership of Svalbard. Svalbard includes West Spitzbergen, the islands of this archipelago, and Bear Island. Many countries have had fishing, trapping and mining enterprises there---

including Norway, Sweden, Russia, the U.S.S.R. the United States, Great Britain and Holland. It has therefore not been easy to decide on its ownership. In 1925 the kingdom of Norway was given control of the islands for purpose of administration. The Svalbard treaty limits Norway's power so much however, that it is practically international territory. Any company or any country can set up mining or other operations in Svalbard whenever it wants. Norway registers the claims staked and ensures that the required development work is done within two years. Norway cannot impose any royalties on these activities. Norway is prohibited from deriving any financial benefit whatever from these activities, unless she cares to exercise her right to contribute 25% of the risk capital of any particular enterprise. Up to now Norway has not made use of this right. The cost of administration and supervision are met by a 1% export tax on exported minerals and by a 4% income tax. All this money must be spent in the islands. This explains why topographic maps of Spitzbergen are more beautiful than those of Norway.

When a Dutch Company wanted to sell its coal mines in 1920 the Norwegians were not very interested, so the government of the U.S.S.R. bought them. There are now three Soviet coal mining areas, inhabited by 3,000 people and producing 500,000 tons of coal a year. The coal is used to supply the northern parts of the U.S.S.R. and the northern sea route. The workers come on a two-year contract basis with good accommodation for the workers and excellent nurseries for children. School-age children are sent back to the U.S.S.R.

Longyerbyen was established by an American named Longyear in 1910. He sold his company in 1916 to a Norwegian company which, except from 1941-1945, has operated it ever since. The Tertiary coal is in a seam 1 meter to 70 cms. thick. The flat-lying deposit crops out on the mountain sides, so it is fairly easy to mine. Most mines have no problem of water seepage because the ground is permanently frozen from 1 meter down to 300 meters below the surface. The newest mine at Longyearbyen, opened in 1959, now supplies most of the production as it is the most efficient mine. The retreating longwall method makes it possible to recover practically all the coal. Rock-bolting is used in the main access corridors so no wooden pitprops are needed. Bolts two meters long screwed into the ceiling effectively prevent cave-ins. Otherwise it seems to be a standard coal-mine — one of the three shifts undercuts and drills holes in the coal for blasting. The second shift uses a sort of scoop to pull out the coal that has been blasted; little railway cars are loaded which take the coal to the six-mile long cable and bucket conveyor system. The third shift takes the short steel pit-props from the previous days work area and sets them up in the area from which coal has just been mined. A few props are left behind allowing the roof to collapse gradually.

The mines at Longyearbyen were not operating in the summer of 1960 because of the world surplus of coal. They will be operated in the winter of 1960-61 and the population of this company town will rise from 250 to 750. The Soviet mines operate all year.

There is some question about the profitability of these mines. The mine at Ny-Ålesund seems clearly not to be a commercial proposition. It is owned by the government and supplies coal to the *S.S. Lyngen*. The *S.S. Lyngen* operates its half of this tiny closed economy by bringing food supplies and mining equipment to Ny-Ålesund.

The mines of Store Norske Spitzbergen Kulkompani A/S are much more highly mechanized than the Soviet mines. The Norwegians say that with 50 men they can equal Russian production by 300 men. Norse efficiency means high wages, low-cost coal and continued operation even when world prices are low. Fewer men are employed and at the moment there is no mining in summer.

The Soviet planned economy means steady employment and a guaranteed market for coal at a fixed price. It is not perhaps so easy with this system to lower production costs by mechanisation, raise wages and reduce manpower.

Thus Spitzbergen reproduces in miniature the juxtaposition of the capitalist and socialist ideas which occupy men's minds, in Spitzbergen as elsewhere. They may not agree on everything but the Russians and Norwegians are quite good friends. They visit each other in the horrible dark winters : they play football and other sports. Stars from various Soviet ballet companies visited the Russian and Norwegian settlements in the summer of 1960, to the intense pleasure of all. Both types of community are currently suffering from competition with cheaper, more accessible fuels produced in other parts of the world.

Since Svalbard has guaranteed low tax rates it is an attractive area for prospectors. Shell and Caltex were looking for oil in the summer of 1960. Shell had one boat ; Caltex was starting its operations with three or four boats and two helicopters. This first prospecting season was devoted to an examination of the geology so that the most promising areas can be staked out. If local formations and world oil prices are favourable drilling will follow. Caltex (a subsidiary of Texaco and California Standard Oil) was generally conceded to be far ahead of Shell in the Spitzbergen search. The low export tax with no royalties may make production profitable for this company, while Norway is assured of receiving nothing. It seems a shame that these islands which have no native population could not provide revenue to help countries which have difficulty supporting their large native populations.

One or two hunters live in Spitzbergen in winter hunting foxes and polar bears, but the level of income from this is not usually very attractive. Cod fishing with trawlers was important a year or so ago ; other species of fish seem to be moving north as the climate warms up. Isfjord Radio Station on Kapp Linné send out weather reports, provides communication with the outside world and keeps in touch with trans-polar airplane flights. The rooms for the men are more comfortable than those in Canadian stations. There are about a dozen scientific research stations in Spitzbergen mostly concerned with glaciology — The Polish station in Hornsund, founded during the I.G.Y., operates in winter as well as summer with a staff of more than twenty. A Swedish archeological expedition at Kapp Linné was studying ancient Russian settlements. Tourists are carried out the Norwegian supply ship *S.S. Lyngen*. The regular tourist is not shown as much as the visiting geographer, but magnificent scenery, gigantic glaciers, beautiful flowers, enormous bird colonies and photographing seals under the midnight sun result in a highly satisfying trip for everyone.

Donald Q. INNIS

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### **Dixième réunion annuelle de l'Association canadienne des géographes**

C'est à Kingston qu'eut lieu, du 2 au 4 juin 1960, le dixième congrès annuel de l'Association canadienne des géographes. Une vingtaine de communications furent présentées dans le cadre de sept sections portant sur *l'homme et la terre dans la région des Caraïbes*, l'aménagement urbain, la méthodologie et la géographie historique, la géographie économique, l'aménagement régional la climatologie et la « géographie physique ». Un colloque sur l'enseignement de la géographie aux niveaux secondaire et universitaire réunit la plupart des congressistes pour entendre quatre communications qui furent suivies de discussions animées. Quant aux excursions dans la région de Kingston, elles portaient res-