

DET KONGELIGE DEPARTEMENT  
FØR HANDEL, SJØFART, INDUSTRI, HÅNDVERK OG FISKERI

---

---

NORGES SVALBARD- OG ISHAVS-UNDERSØKELSER  
LEDER: ADOLF HOEL

# SKRIFTER OM SVALBARD OG ISHAVET

Nr. 29

GUNNAR HORN  
FRANZ JOSEF LAND  
NATURAL HISTORY, DISCOVERY,  
EXPLORATION, AND HUNTING

WITH 4 TEXT FIGURES AND 1 MAP

---

Norsk Polarinstitutt's Bibliotek

OSLO  
I KOMMISJON HOS JACOB DYBWAD  
1930

## Results of the Norwegian expeditions to Svalbard 1906—1926 published in other series. (See Nr. 1 of this series.)

The results of the Prince of Monaco's expeditions (Mission Isachsen) in 1906 and 1907 were published under the title of 'Exploration du Nord-Ouest du Spitzberg entreprise sous les auspices de S. A. S. le Prince de Monaco par la Mission Isachsen', in *Résultats des Campagnes scientifiques*, Albert 1er, Prince de Monaco, Fasc. XL—XLIV. Monaco.

ISACHSEN, GUNNAR, Première Partie. Récit de voyage. Fasc. XL. 1912. Fr. 120.00.

With map: Spitzberg (Côte Nord-Ouest). Scale 1:100 000. (2 sheets.) Charts: De la Partie Nord du Foreland à la Baie Magdalena, and Mouillages de la Côte Ouest du Spitzberg.

ISACHSEN, GUNNAR et ADOLF HOEL, Deuxième Partie. Description du champ d'opération. Fasc. XLI. 1913. Fr. 80.00.

HOEL, ADOLF, Troisième Partie. Géologie. Fasc. XLII. 1914. Fr. 100.00.

SCHETELIC, JAKOB, Quatrième Partie. Les formations primitives. Fasc. XLIII. 1912. Fr. 16.00.

RESVOLL HOLMSEN, HANNA, Cinquième Partie. Observations botaniques. Fasc. XLIV. 1913. Fr. 40.00.

A considerable part of the results of the ISACHSEN expeditions in 1909 and 1910 has been published in *Videnskapsselskapets Skrifter. I. Mat.-Naturv. Klasse, Kristiania (Oslo)*.

ISACHSEN, GUNNAR, Rapport sur l'Expédition Isachsen au Spitzberg. 1912, No. 15. Kr. 5,40.

ALEXANDER, ANTON, Observations astronomiques. 1911, No. 19. Kr. 0,40.

GRAARUD, AAGE, Observations météorologiques. 1913, No. 1. Kr. 2,40.

HELLAND-HANSEN, BJØRN and FRIDTJOF NANSEN, The sea west of Spitzbergen. 1912, No. 12. Kr. 3,60.

ISACHSEN, GUNNAR, The hydrographic observations. 1912, No. 14. Kr. 4,20.

With chart: Waters and anchorages on the west and north coast. Publ. by the Norw. Geogr. Survey, No. 193.

HOEL, A. et O. HOLTEDAHL, Les nappes de lave, les volcans et les sources thermales dans les environs de la Baie Wood au Spitzberg. 1911, No. 8. Kr. 4,00.

GOLDSCHMIDT, V. M., Petrographische Untersuchung einiger Eruptivgesteine von Nord-westspitzbergen. 1911, No. 9. Kr. 0,80.

BACKLUND, H., Über einige Olivinknollen aus der Lava von Wood-Bay, Spitzbergen. 1911, No. 16. Kr. 0,60.

HOLTEDAHL, OLAF, Zur Kenntnis der Karbonablagerungen des westlichen Spitzbergens. I. Eine Fauna der Moskauer Stufe. 1911, No. 10. Kr. 3,00. II. Allgemeine stratigraphische und tektonische Beobachtungen. 1912, No. 23. Kr. 5,00.

HOEL, ADOLF, Observations sur la vitesse d'écoulement et sur l'ablation du Glacier Lilliehöök au Spitzberg 1907—1912. 1916, No. 4. Kr. 2,20.

VEGARD, L., L'influence du sol sur la glaciation au Spitzberg. 1912, No. 3. Kr. 0,40.

ISACHSEN, GUNNAR, Travaux topographiques. 1915, No. 7. Kr. 10,00.

With map: Spitzberg (Partie Nord-Ouest). Scale 1:200 000 (2 sheets).

GUNNAR ISACHSEN has also published: Green Harbour, in *Norsk Geogr. Selsk. Aarb.*, Kristiania, 1912—13, Green Harbour, Spitzbergen, in *Scot. geogr. Mag.*, Edinburgh, 1915, and Spitzbergen: Notes to accompany map, in *Geogr. Journ.*, London, 1915.

All the above publications have been collected into two volumes as *Expédition Isachsen au Spitzberg 1909—1910. Résultats scientifiques. I, II. Christiania 1916*.

As the result of the expeditions of ADOLF HOEL and ARVE STAXRUD 1911—1914 the following memoir has been published in *Videnskapsselskapets Skrifter. I. Mat.-Naturv. Klasse*.

HOEL, ADOLF, Nouvelles observations sur le district volcanique du Spitzberg du Nord. 1914, No. 9. Kr. 2,50.

---

The following topographical maps and charts have been published separately:

Bjørnøya (Bear Island). Oslo 1925. Scale 1:25 000. Kr. 10,00.

Bjørnøya (Bear Island). Oslo 1925. Scale 1:10 000. (In six sheets.) Kr. 30,00.

Chart of Bear Island. Oslo 1929. Scale 1:40 000. Kr. 3,00. (No. S1).

A preliminary edition of topographical maps on the scale of 1:50 000 covering the regions around Kings Bay, Ice Fjord, and Bell Sound, together with the map of Bear Island, scale 1:25 000, is published in:

Svalbard Commissioner [Kristian Sindballe], Report concerning the claims to land in Svalbard. Part I A, Text; I B, Maps; II A, Text; II B, Maps. Copenhagen and Oslo 1927. Kr. 150,00.

DET KONGELIGE DEPARTEMENT  
FOR HANDEL, SJØFART, INDUSTRI, HÅNDVERK OG FISKERI

---

---

NORGES SVALBARD- OG ISHAVS-UNDERSØKELSER  
LEDER: ADOLF HOEL

# SKRIFTER OM SVALBARD OG ISHAVET


Nr. 29

GUNNAR HORN  
FRANZ JOSEF LAND  
NATURAL HISTORY, DISCOVERY,  
EXPLORATION, AND HUNTING

WITH 4 TEXT FIGURES AND 1 MAP

Norsk Polarinstituttets Bibliotek

---



OSLO  
I KOMMISJON HOS JACOB DYBWAD  
1930

**Norsk Folkehøgskuleinstituttets Bibliotek**

## Contents.

	Page
Preface by ADOLF HOEL.....	5
Natural History .....	7
Position and Topography .....	7
Climate.....	8
Ice Conditions .....	9
Geology.....	9
Flora.....	10
Fauna .....	10
Discovery and Exploration.....	11
Rønnbeck and Aidijärvi 1865 .....	11
Austro-Hungarian Polar Expedition 1872--74 .....	12
De Bruyne Expedition 1879 .....	13
Leigh Smith Expeditions in 1880 and 1881--82.....	13
Jackson-Harmsworth Expedition 1894--97 .....	13
Nansen Expedition 1893--96 .....	14
Wellman Expedition 1898--99 .....	14
Duke of the Abruzzi Expedition 1899--1900 .....	15
Støkken Expedition 1901 .....	16
Yermak Expedition 1901 .....	16
Baldwin-Ziegler Expedition 1901--02 .....	16
Fiala-Ziegler Expedition 1903--05 .....	17
Sedov Expedition 1912--14 .....	17
Brussilov Expedition 1912--14 .....	18
<i>Andromeda</i> Expedition 1915 .....	19
Iversen Expedition 1923.....	19
<i>Persej</i> Expeditions 1923, 1924 and 1926 .....	19
Worsley-Algarsson Expedition 1925 .....	19
Samoilovich Expedition 1927 .....	19
Expeditions in Quest of the <i>Italia</i> and <i>Latham</i> 1928 .....	29
Norwegian Expeditions ( <i>Hobby</i> and <i>Veslekari</i> ).....	20
Russian Expeditions ( <i>Sedov</i> and <i>Krassin</i> ) .....	20
Expeditions to the Franz Josef Land Area in 1929.....	21
Norwegian Expeditions ( <i>Hvalrossen</i> , <i>Thorsnes</i> , <i>Hisø</i> etc.).....	21
Swedish Expedition ( <i>Björnöy</i> ) .....	23
Italian Expedition ( <i>Heimen</i> ) .....	23
Russian Expedition ( <i>Sedov</i> ).....	23
Hunting .....	24
Political Status .....	32
Table of Expeditions to Franz Josef Land .....	33
Literature .....	38
Maps.....	52



## Preface.

On account of the considerable Norwegian interests in Franz Josef Land it has been found desirable to publish an account of the natural history, discovery, exploration, and hunting industry of the islands, the more so, as the political status of Franz Josef Land has now become a problem of immediate importance.

The islands were discovered by a sealer from Hammerfest, and hunting operations there have been carried on almost exclusively by Norwegian subjects ever since the discovery, so that the Norwegian interests in that country are predominant.

In addition to a review of all the scientific expeditions which have worked in the archipelago, an account is given of the hunting expeditions that have been there. Nothing has hitherto been written about Norwegian hunting activities in the Franz Josef Land area, apart from scanty references in papers on allied subjects. For this reason and owing to the fact that this activity goes back for more than fifty years, the necessary information has been difficult to obtain.

The account of the scientific expeditions is based upon the literature available — Norwegian and foreign. With regard to the hunting, some information about the movements of Norwegian sealers will be found in "The State of the Ice in the Arctic Seas" published by the Danish Meteorological Institute, and also in newspapers of the towns of North Norway. The main material, however, has been obtained from old log-books and from personal interviews with sealing skippers.

The present paper has been compiled and written by Dr. G. HORN of *Norges Svalbard- og Ishavs-undersøkelser*.

Oslo, February 1930.

*Adolf Hoel.*





## Natural History.

### Position and Topography.

Franz Josef Land is a group of islands situated in the north-eastern part of the Arctic Sea, east of Svalbard, and on the same submarine shelf as the latter archipelago. Geologically the group also bears a close relation to Svalbard, whereas it is distinctly different from Novaya Zemlya both geologically and geographically. Franz Josef Land extends from  $79^{\circ} 50'$  to  $81^{\circ} 50'$  N and from  $42^{\circ}$  to  $65^{\circ}$  E. The south coast is thus in about the same latitude as the north coast of Spitsbergen. No distinct geographical boundary can be drawn between the two groups of islands as the small Victoria Island forms a connecting link. This island is situated about midway between the two groups and the distance from White Island — the easternmost island of Svalbard — is only about 45 nautical miles.

The distance from Franz Josef to the North-East Land of the Svalbard archipelago is 140 nautical miles, to Novaya Zemlya 195 miles, and to Norway 625 miles. For comparison it may be stated that the distance from the Norwegian coast to South Cape, Spitsbergen, is 355 nautical miles.

Franz Josef Land consists of about 75 islands of the total area of about 20 000 sq.km. (Svalbard: 65 000 sq.km.). Its greatest length is 430 km. from east to west, and from north to south it extends 220 km. The islands with the sounds thus cover an area approximately equal to that of West-Spitsbergen. The appended map has been prepared by *Norges Svalbard- og Ishavs-undersøkelser*, chiefly from the map by FIALA (Washington 1907), which is based on surveys carried out on the ZIEGLER expeditions of 1901—02 and 1903—05, and on older maps (PAYER, LEIGH SMITH, JACKSON, NANSEN, WELLMAN, and the DUKE OF ABRUZZI).

The Franz Josef archipelago is divided by the British Channel in the west and the Austria Strait in the east into three groups of islands. The middle group is divided by the Markham Sound into a northern and southern part. West of the British Ch. are the largest islands of the archipelago, Alexandra and Prince George, each about the size of Edge Island in Spitsbergen. In the south-east of the western group is

the island of Northbrook, the west end of which is Cape Flora, where JACKSON had his winter quarters, "Elmwood".

The middle group embraces most of the islands, all of a moderate size. South of Markham Sound are Hooker, McClintock, Hall, and Salm Is. At Cape Tegetthoff on Hall I. WELLMAN had his winter quarters in 1898—99, and on the islet of Alger north of McClintock the BALDWIN-ZIEGLER expedition wintered in 1901—02. North of Markham Sound the islands are grouped in a triangle pointing northwards. They are separated by narrow sounds. To the north is Rudolf Island, the northern point of which is called Cape Fligely, the northern extremity of the whole group. Rudolf Island has been the starting point of several dashes to the Pole (DUKE OF ABRUZZI, FIALA and others). On Jackson Island farther south NANSEN and JOHANSEN built their winter hut in 1895—96. Other islands are Salisbury, Payer, Ziegler and Luigi.

The section east of Austria Strait consists of two large islands, Wilczek and Graham Bell, forming the eastern limit of the group. North of Graham Bell are four smaller islands, the "Hvidtenland" of NANSEN, where he and JOHANSEN first struck Franz Josef in 1895. All the islands of the archipelago are table-shaped mountains covered with fields of ice. They seldom rise to heights of more than a few hundred metres, except in the south, where they reach 800 metres. The ice-cap covers the solid rock, and stretches down to the sea almost everywhere. As a rule only steep walls of rock, some promontories, and a few coastal plains are ice-free. However, it is reported that the ice-free areas seen in 1928 were much more extensive than they were some twenty years ago as judged from the map of FIALA. On the north side of the western islands these glacier-free plains occupy quite a considerable area. Many islands, particularly in the north-eastern part, are completely covered with ice. The thickness of the ice-sheet is not great, and the glaciers give rise to low tabular icebergs. The movement of the glaciers is very slow.

#### **Climate.**

The climate of Franz Josef Land is considerably more arctic than that of Spitsbergen. The average temperature for July is thus only  $1.3^{\circ}$  C, and for August  $0.2^{\circ}$ . January is the coldest month with  $-26.5^{\circ}$ . The average for the year is  $-14.1^{\circ}$ . The lowest and highest temperatures noted are  $-46.2^{\circ}$  (in Feb. 1872) and  $12.0^{\circ}$  (in July 1900). The precipitation is small and fairly evenly distributed throughout the year, and varies from 300 mm. in the north to 500 mm. on the south coast. The prevalent winds are from the east, north-east, north-west and west. In winter the easterly winds, in summer the westerly winds, dominate. Southerly winds are rare.

### Ice Conditions.

These conditions are much more unfavourable than at Spitsbergen. In the spring the southern limit of the ice runs approximately from Bear Island eastwards to the southern part of Novaya Zemlya. In the course of the summer the ice-edge recedes northwards, and in July—August it usually runs from the region of Hope Island to the north point of Novaya Zemlya, usually with a bight, or more or less open ice, towards the middle part of Franz Josef Land. In August, however, ice-free waters may occur right up to the islands and the southern sounds may be ice-free. The group can be reached in June, but July, and particularly August, are the best months for navigation. In some years the ice-conditions may be so bad that it is impossible for ordinary vessels to reach the islands even in August.

### Geology.

Our knowledge of the geology of Franz Josef Land is chiefly due to the investigations of the JACKSON-HARMSWORTH expedition, but NANSEN and others have also furnished important data regarding the geology of the group. The islands consist of more or less horizontal sedimentary strata of Jurassic age with a capping of basaltic lavas. They were erupted in Jurassic or early Cretaceous times, and are thus contemporaneous with the basalts of King Charles Land east of Spitsbergen. Indeed, the geological structure of this group of islands is very similar to that of Franz Josefs Land with its flat-lying strata of Jurassic deposits capped by basalts.

The Jurassic sediments of Franz Josef Land are chiefly found in the southern part of the archipelago. At Cape Flora they reach an altitude of 170—200 metres and are followed by sheets of basalt. The sedimentary deposits consist of clayey shale interstratified with shale, bands of ironstone, and thin layers of lignite. At Cape Gertrude farther east more sandy beds occur, and also here with thin seams of lignite.

The oldest beds are marine and belong to Bajocian or Bathonian. Higher up we have beds representing Callovian with *Macrocephalites Ishmæ* var. *Arctica*, *Cadoceras Tchekkini* d'Orb., *Nanseni* Pomp., etc. followed by plant-bearing beds with *Gingko polaris* Nath. However, the age of these latter beds is uncertain. Thus we have on Franz Josef Land strata from Middle Jurassic or Dogger whereas the Jurassic of King Charles Land extends far higher up, for we have here Malm (and Neocomian) as well. The Jurassic formation of Franz Josef Land is the northernmost in the world.

Above the sedimentary series follow basaltic rocks, which form so important a feature in the geology of the islands. On the south coast the basalt is first met with some two hundred metres above sea level.

Farther north the basalt appears everywhere to reach the sea, making it probable that the beds have a slight northerly dip, and that the thickness of the basalt increases towards the north. It is generally held that the eruption of the basalt flows took place towards the end of the Jurassic period (or the beginning of the Cretaceous). The age of the basalts on King Charles Land is also Jurassic and Cretaceous. At the close of the volcanic period in Jurassic times the various islands of Franz Josef Land were united and formed part of an extensive tract of land. This land was subsequently broken up by denudation, and perhaps partly by the sinking of certain areas along lines of fault.

Every visitor to Franz Josef Land mentions the occurrence of silicified wood, which is widely distributed and chiefly found on the talus-heaps, but sometimes on the plateaux. The tree-trunks are almost certainly of Jurassic age, and the process of silicification is probably connected with the eruption of the basaltic masses. Similar fossil tree-trunks are also known from King Charles Land and Spitsbergen.

The final stages in the history of the islands are represented by the raised beaches and terraces which prove recent upheaval of the land. Most of the raised beaches have been found between sea-level and 30 metres above this level, but signs of marine terraces occur at an altitude of about 100 metres, and pebbles have even been found much higher up (300 metres).

#### Flora.

The flora is almost confined to terraces and slopes with a southern aspect, where they give a little colouring to the dreary landscape. Only 27 flowering plants and 25 mosses have been collected in the islands. Lichens are fairly well represented. The flora includes *Saxifraga oppositifolia*, *Cardamine bellidifolia*, *Draba alpina*, *Cerastium alpinum*, *Papaver nudicaule*, and *Cochlearia fenestrata*.

#### Fauna.

On account of the small area of ice-free land there is little room for animal life. Polar bears, however, frequent the islands and the ice floes in considerable numbers. Foxes are not often seen. Antlers of reindeer have been found, but the animals have never been met with.

The glaucous gull, fullmar, kittiwake and arctic tern visit the islands, and the ivory gull breeds there in great numbers. Little-auks are numerous. Ptarmigan has been found, probably blown over from Spitsbergen.

In the sea walrus are abundant and shoals of white whale are said to be common when the ice of the sounds starts to break up. Three kinds of seals occur. Most common is the bearded seal (*Phoca barbata*).

## Discovery and Exploration.

### Rønnbeck and Aidijärvi 1865.

Before 1860 the Norwegian sealers hunted almost exclusively along the west coast of Spitsbergen, but about that year they began to extend their field of operation north and eastwards. Up to this time the east and north coasts of North-East Land had been almost entirely unknown and the east coast of Spitsbergen was held to be more inaccessible than it later proved to be. In 1863 the islands were circumnavigated for the first time by ELLING CARLSEN of Tromsø, this being an important step forward as regards the knowledge of these regions. As the Norwegian sealers in 1864 — says KARL PETTERSEN in an article in the *Tromsø Stiftstidende* (25. IX. 64) — “ventured through the Northern Gate (the strait between the Seven Islands and North-East Land) the sea at North-East Land was found to be perfectly open, and several signs seemed to show that this had been the case for some time. Should it be confirmed that this condition is the usual one, our Spitsbergen travellers have this year paved the way for regular hunting on the east coast, where the hunting — compared with that on the North- and Westland — may be expected to become even very profitable. Moreover, it is reasonable to believe that the expeditions to Spitsbergen will now be pursued with much more vigour than in the past.” It was thus to be anticipated that the following year (1865) would show a brisk activity on the north and east coast of North-East Land to exploit these good hunting grounds. That geographical discoveries would follow was only to be expected. Thus it is narrated by Norwegian skippers that a voyage of particular interest was made in 1865.

In that year Skipper NILS FREDRIK RØNNBECK and the harpooner AIDIJÄRVI, both of Hammerfest, sailed (in the schooner *Spidsbergen*) on an easterly course 180 miles from Great Island near the east coast of North-East Land, and there discovered new land which they called North-East Spitsbergen (or Rønnbeck Land). This land is unquestionably identical with one of the western islands of the Franz Josef Land archipelago, viz., Alexandra, or Prince George Is. Unfortunately, nearly all the old log-books that had been preserved in Northern Norway were destroyed by fire some years ago, and for this reason it will probably be difficult to find written evidence of this Norwegian discovery. In February 1929 a Norwegian skipper, SIVERT BRÆKMO, made a statement to the effect that a seaman he had once had in his ship, LEONARD NOREM of Innerøya, had been with RØNNBECK. NOREM told BRÆKMO that he had sailed with RØNNBECK to Franz Josef Land years before the island became known through the Austrian expedition. The discovery made by this Hammerfest skipper was never generally known

and accepted. It may be that the discoverers kept their exploit a secret so as to keep their competitors away from a good hunting ground. Not many years were to elapse before the land found by RÖNNBECK and AIDIJÄRVI was again sighted, without the new discoverers knowing that its western extremity had been sighted some eight years before by Norwegian sailors. The honour of rediscovering and first exploring Franz Josef Land is due to an Austro—Hungarian expedition.

### **Austro-Hungarian Polar Expedition 1872—1874.**

The object of this expedition, which was made in the *Tegetthoff*, a vessel of 220 tons burden and fitted with an engine of 100 h. p., was the exploration of the seas north-east of Novaya Zemlya, and, if conditions were favourable, the North-East Passage. The expedition was composed of 24 men, with Lieutenant CARL WEYPRECHT and Lieutenant JULIUS PAYER in command, and included one Norwegian, viz., ELLING CARLSEN of Tromsø, who acted as ice pilot and harpooner. CARLSEN enjoyed the distinction of being the first to circumnavigate Spitsbergen, in 1863. The expedition left Tromsø on July 14, 1872, and on July 25 the first ice was sighted in latitude 74°. On August 21 the *Tegetthoff* was hopelessly surrounded by ice on the north coast of Novaya Zemlya, and drifted during the winter to the north-east and at a later date to the north-west. The ship had to withstand heavy ice pressure, but otherwise the winter passed without any serious mishap. On August 30, 1873, at 79° 43' N and 59° 33' E the outlines of land of an alpine character were seen in the north-west. This territory was given the name of *Kaiser Franz Josef Land*, and the first landing was made on November 1 on Wilczek Is. The ship stayed throughout the winter in the vicinity of this island. Sledge journeys were made to various parts of the islands, including McClintock Is. and Hall Is., and on March 26, 1874 Lieutenant PAYER with six men and three dogs set out to explore the land to the north. He proceeded up Austria Strait and reached Cape Fligely on Rudolf Is., where he found the cliffs teeming with aulks and divers, and abundant tracks of bears and foxes. The land to the west of the strait he called Zichy Land, and that to the east, Wilczek Land. Subsequent expeditions have proved that these territories really consist of many islands, and are not of the extent that Payer deemed them to be. North of Rudolf Is. he thought he saw land — King Oscar and Petermann Land — but later explorers have proved that these territories do not exist.

On May 20 it was found necessary to abandon the *Tegetthoff* and make for Novaya Zemlya in the boats. The ice edge at 77° 40' N and 61° E was reached on August 15, and land was sighted next day. They followed the coast and were eventually picked up by a Russian schooner, which landed them at Vardø in the north of Norway on September 3, 1874.

### **De Bruyne Expedition 1879.**

In 1879 Franz Josef Land was seen by Captain A. DE BRUYNE of the Dutch Expedition for the Exploration of the Barents Sea in the schooner *Willem Barents*. The land was sighted early in September. The ship was then in open water, but as Captain DE BRUYNE feared that the ship might be caught in the ice he did not proceed any farther north.

### **Leigh Smith Expeditions in 1880 and 1881—82.**

In 1880 the English explorer BENJAMIN LEIGH SMITH undertook in the *Eira*, a steam yacht of 360 tons burden and 50 h. p., an expedition to Franz Josef Land, where he explored the south coast. In 1881 the *Eira* again went north to continue the work commenced the year before. The expedition left Peterhead on June 14 and sighted Franz Josef Land on July 23. A house was erected in Eira Harbour on Bell Is. Towards the end of August the yacht was caught in the ice and crushed about a mile east of Cape Flora, with the result that it sank before anything much could be saved. All hands (25) safely reached the south side of Cape Flora, where a hut was built of turf and stones.

On June 21, 1882 LEIGH SMITH and his party left Cape Flora in four boats on their perilous voyage. On August 1 they came to the edge of the pack, and sighted land next day near the mouth of Matochkin Strait, where they found the *Hope* under the command of Sir ALLEN YOUNG, who had come out in search of the missing expedition.

### **Jackson-Harmsworth Expedition 1894—97.**

In 1893 ALFRED C. HARMSWORTH (Lord NORTHCLIFFE) offered to provide the necessary funds for a proposed expedition to Franz Josef Land under FREDERICK G. JACKSON. JACKSON'S plan was to make a thorough exploration of the country and to take scientific observations for a period of several years. An advance in a northerly direction was also included. After experiencing considerable difficulty in getting the ship of the expedition, the *Windward* (formerly a Scotch whaler), through the pack, JACKSON and his men landed on Cape Flora, on September 7, 1894. Winter quarters were established here (Elmwood). In March 1895 a sledge expedition up Miers Channel was undertaken, and in April JACKSON with two men and three ponies started on a fresh sledge journey, pushing along the east side of the British Channel to  $81^{\circ} 20'$ , or a little north of NANSEN'S winter quarter in 1895—96. The expedition returned to Cape Flora in the beginning of May. Here the *Windward* had remained throughout the winter, and in July she returned

to Norway. In this month and in August boat voyages westward to Alexandra I. were undertaken.

In the spring of 1896 a party of the expedition again worked northwards — to Cape Richthofen. On June 17 the famous meeting between NANSEN and JACKSON took place. NANSEN with his companion JOHANSEN had wintered on an island farther north, not far from the point reached by JACKSON in 1895. The *Windward* came to Cape Flora that summer and NANSEN and JOHANSEN returned to Norway in this ship. As NANSEN's expedition had proved that the islands did not extend beyond the  $82^{\circ}$  parallel, the spring of 1897 was spent in exploring the hitherto unknown western part of Franz Josef land. In the beginning of August the JACKSON expedition left Cape Flora after a stay of three years in these regions.

### **Nansen Expedition 1893—1896.**

The Norwegian North Polar Expedition in the *Fram* has made important contributions to the knowledge we have of Franz Josef Land, through the travels and wintering of NANSEN and JOHANSEN in 1895—96. NANSEN and his companion left the *Fram* on March 14, 1895 in Lat.  $84^{\circ} 4' N.$  and Long.  $102^{\circ} E.$  to make an advance towards the Pole. On April 8 they were forced to stop at Lat.  $86^{\circ} 14' N.$  and Long.  $96^{\circ} E.$  a course was then made for Cape Fligely on Franz Josef Land, and on August 6, some islands in the north-eastern part of the group were reached. The first islet was called Eva, and the little island group: "Hvidtenland". They continued their journey, and towards the end of August they were south of Jackson Island, where they decided to winter. They started again on May 19 of the following year, and travelled southwards on the east side of the British Channel. Off Cape Flora they were fortunate enough to meet the British JACKSON expedition and returned to Norway in the ship of that expedition, the *Windward*, which reached Vardø on August 13, 1896.

During his crossing of the Franz Josef group from north-east to south-west NANSEN made important geographical and geological observations, particularly in the north-eastern part, which was entirely unknown. NANSEN's hypothesis, announced in the plans of the expedition, that Franz Josef Land consisted of many islands separated by narrow sounds, was splendidly corroborated through the work of NANSEN and JACKSON. Very important is also the fact established by NANSEN that Franz Josef Land does not extend beyond the  $82^{\circ}$  parallel.

### **Wellman Expedition 1898—99.**

In the summer of 1898 the American journalist and explorer, WALTER WELLMAN, set out with an expedition to Franz Josef Land in the Norwegian sealer *Frithjof*, Captain JOHAN KJELDSSEN of Tromsø.



They reached the islands towards the end of July, and after having circumnavigated Wilczek and Salm Is they moved JACKSON'S house from Cape Flora to Cape Tegetthoff on the south side of Hall Is. farther east, where WELLMAN wintered with three Americans and three Norwegians (DANIEL JOHANSEN, OLAF ELLEFSEN, and EMIL ELLEFSEN). The *Frithjof* returned to Norway in the beginning of August. The Norwegians, PAUL BJØRVIG of Tromsø, with BERNT BENTSEN (late of the "Fram" expedition) wintered on Cape Heller (Fort McKinley) in charge of the depot established there. BENTSEN died during the winter, and BJØRVIG had to face the solitude and climatic rigours alone until the arrival of WELLMAN and his men.

The main purpose of the expedition was to make a dash with sledges for the Pole, but no higher latitude than abt. 82° was reached. The expedition has, however, made important contributions to our knowledge of the country, particularly as regards the outline and topography of the eastern islands (Graham Bell I.).

In August 1899 the expedition was brought back to Norway in the Norwegian sealer *Capella*.

#### **Duke of the Abruzzi Expedition 1899—1900.**

The Duke of the ABRUZZI had also the idea of reaching the Pole by way of Franz Josef Land. With his ship, the *Stella Polare* (ex *Jason*, Norwegian whaler) he intended to force his way to the northernmost point of the islands, winter there, and in the spring make a sledge journey towards the north.

The expedition numbered 20 men: 11 Italians and 9 Norwegians. The latter were: CARL JULIUS EVENSEN, Sandefjord, skipper of the *Stella Polare*; ANDREAS ANDRESEN, Sandefjord, 2nd mate; HENRIK ALFRED STØKKEN, Sandefjord, 1st engineer; ANTON TORGRIMSEN, Larvik, 2nd engineer; KARL CHRISTIAN HANSEN, Larvik, boatswain; DITMAN OLAVESSEN, Tønsberg, carpenter; HANS MAGNUS DAHL, Oslo, JOHAN JOHANSEN, Sandefjord, OLE JOHANSEN, all stokers.

After having been fitted out at Larvik in Norway the *Stella Polare* left Oslo on June 12, called again at Larvik and proceeded then to Archangel where Siberian dogs were taken on board. On July 13 the ship left Archangel and as early as July 20 the expedition reached Cape Flora, proceeded thence up the British Channel, and was fortunate enough to reach Rudolf Is., where winter quarters were established in Teplitz Bay (81° 47'). Owing to heavy ice pressure the ship sprang a leak; they had to leave her and winter in a hut built on the shore.

The command of the sledge expedition was given to the Duke's second-in-command, Captain CAGNI, who, after an unsuccessful attempt in February, started on the main journey on March 11 with 10 men, 13 sledges, and 104 dogs. The arrangement was that two parties of

three men each were to return so as to enable the others to start with a full outfit. The first group, which included the Norwegian STØKKEN, left CAGNI on March 23, and the second party left him a week later. The members of the first group were never heard of again, and probably never reached land. On April 24 CAGNI reached  $86^{\circ} 34'$ , i. e., 20' or 37.2 km. beyond NANSEN's farthest north. On June 23 CAGNI was back at winter quarters in Teplitz Bay. Shortage of provisions and a strong westerly drift made the the return journey very difficult. Petermann Land and King Oscar Land, which PAYER thought he had seen in 1874, were found to be non-existent.

The *Stella Polare* was repaired and was got afloat on August 8. On the 16th the expedition left Teplitz Bay, and reached Cape Flora on August 31, after being stuck in the ice for a fortnight in the British Channel. On September 6 the *Stella Polare* arrived at Tromsø.

### **Støkken Expedition 1901.**

As already mentioned, one of the sledge parties of the Italian expedition never returned. One of the missing men was a Norwegian, H. A. STØKKEN of Sandefjord; and his father, Captain STØKKEN, was of opinion that the missing men might still be found in the summer of 1901. A Norwegian search expedition in the sealer *Capella*, and led by STØKKEN, went out and examined Cape Flora and the whole of the south coast, but without finding any trace of the missing party.

### **“Yermak” Expedition 1901.**

In 1901 the Russian Admiral MAKAROV made an attempt with the ice-breaker *Yermak* to circumnavigate Novaya Zemlya and then proceed to the mouth of the Yenisei. However, the ship was not able to penetrate the pack-ice here, but she easily forced her way to Franz Josef Land and returned via Tromsø, where the expedition arrived in the beginning of September.

### **Baldwin-Ziegler Expedition 1901—1902.**

As the Italian expedition returned without having reached the Pole, an American, WILLIAM ZIEGLER, decided to send out an expedition to reach the coveted goal, starting from Franz Josef Land. The expedition — with both American and Norwegian members, and also a Dane — left Norway in July with three vessels, *America* (ex *Esquimaux*, Scotch whaler), *Frithjof*, Norwegian sealer, *Belgica* (ex *Patria*, Norwegian sealer), and was led by EVELYN B. BALDWIN. MAGNUS ARNESEN of Tromsø was ice-pilot on the *America*. The crew of the *Frithjof* was entirely Norwegian. The expedition wintered with the *America* on Alger Island (Camp Ziegler) near the south coast.

In the spring of 1902 a sledge expedition brought a supply of provisions to Rudolf Island. An advance towards the North was not attempted, and in August 1902 the expedition returned to Norway without having achieved any particular result.

### **Fiala-Ziegler Expedition 1903—1905.**

Not discouraged by the unsuccessful Baldwin expedition, Mr. ZIEGLER resolved to send out another expedition under the leadership of ANTHONY FIALA, who had been with the first expedition. The *America* left Vardø on July 10, and had on board 30 ponies taken on board in Arkhangel and 218 dogs. The expedition included three Norwegians, amongst whom were PETER L. TESSEM who later took part in AMUNDSEN's *Maud* expedition. As ice conditions were difficult the *America* did not reach Cape Flora until a month later (Aug. 12). The ship proceeded up the British Channel, which was difficult to navigate on account of heavy ice. On August 31 they reached their farthest north, the open Victoria Sea allowing them to penetrate to  $82^{\circ} 14'$ , whereupon they returned to Teplitz Bay. It was decided to winter the ship here, despite the bad experience of the Italians. During the winter the *America* suffered badly from heavy ice-pressure, and sank in January. In the spring of 1904 two unsuccessful attempts to penetrate north were made, and in May FIALA went to Cape Flora to await the arrival of the relief ship, having left a party in the winter camp. On account of the extremely bad ice conditions the ship of the relief expedition, *Frithjof*, did not reach Franz Josef Land. The leader of this expedition was WILLIAM S. CHAMP, with JOHAN KJELDSEN from Tromsø as skipper. As no ship arrived, FIALA returned to Rudolf Island to face another winter. Parties were left on Cape Flora and in Camp Ziegler to winter. In March 1905 FIALA made his last push northwards, but did not get beyond the 82nd parallel. He left Teplitz Bay in May to join the parties which had wintered elsewhere and then await the relief ship. The *Terra Nova* with KJELDSEN as skipper arrived towards the end of July, and on August 9 the expedition was back in Norway. It had failed in its main object, viz. to reach a high northern latitude, and, if possible, the Pole itself; but during the two years a great deal of survey work was done, and a considerable amount of scientific material collected.

### **Sedov Expedition 1912—1914.**

A Russian Arctic expedition under the leadership of Lieutenant GEORGE SEDOV left Arkhangel in July 1912 in the schooner *St. Foka* (ex *Geysir*, Norwegian sealer). SEDOV intended to winter on one of the northern Islands of the archipelago, and in the spring of 1913 to make an attempt to reach the Pole. The ice conditions were very adverse in 1912, so that the *St. Foka* did not get farther than the north-west

coast of Novaya Zemlya, where the winter was passed, and it was not until the autumn of 1913 that Franz Josef Land was reached. At Hooker Island the ship was caught in the ice and the second winter was spent in the so-called Calm Bay (Tikhoia B.) on the north-west coast of the island. During the winter various scientific investigations were carried out. In the spring SEDOV with two men went north, but he did not get any farther than Rudolf Island, where he died from fatigue. The *St. Foka*, which had very little coal left, succeeded in reaching Cape Flora, where more fuel was obtained by pulling down the houses there. At Cape Flora they found their countrymen ALBANOV and KONDRAT, who with others had left the ship of the BRUSILOV expedition north of Franz Josef Land. After a futile search for the missing companions of ALBANOV the ship left for Murmansk.

In the summer of 1914 the Russians sent out an expedition to search for Lieutenant SEDOV. The vessel of the expedition, the steam-schooner *Hertha* (purchased the same year in Norway), Captain ISLJAMOV, passed the *St. Foka* in a dense fog. On arriving at Cape Flora they found the message left by ALBANOV and the SEDOV expedition, and then returned to Russia.

#### **Brussilov Expedition 1912—1914.**

In 1912 an expedition was sent out from Russia led by Lieutenant BRUSILOV, to investigate hunting possibilities in Arctic waters. In October their ship, the *St. Anna* (ex Sir ALLEN YOUNG's *Pandora*), was caught in the ice in the Kara Sea and never got out again. It drifted with the ice northward to the east of Novaya Zemlya. Attempts to get her loose in the summer of 1913 were not successful, and the drift continued the following winter east and north of Franz Josef Land. As the position seemed to be hopeless — as indeed it was — some of the crew, headed by the first mate, ALBANOV, were allowed to leave the ship and try to reach one of the islands of Franz Josef Land. On April 10, 1914, ALBANOV and his companions, in all 14 men, left the *St. Anna*, which was then in lat. 83° North and long. 60° East. After a ten-days-march three men returned to the ship. With the loss of one man the others reached Alexandra I. and continued along the south coast, partly on land and partly in kayaks. This was a fateful journey, for only ALBANOV and a seaman KONDRAT reached Cape Flora, where they found a good supply of provisions left by earlier expeditions. In August the *St. Foka* of the SEDOV expedition arrived at Cape Flora from Hooker Island, where the winter had been spent. After having searched the south coast towards Cape Grant in the hope of finding some of the missing companions of ALBANOV, the *St. Foka* left Franz Josef Land and arrived safely in the harbour of Rynda on the Murman coast.

The *St. Anna* with Lieutenant BRUSILOV has never been heard of, and no trace of the expedition has ever been found.

### **“Andromeda” Expedition 1915.**

As some of the other members of the BRUSILOV expedition might possibly be found in Franz Josef Land, the Russian Naval Ministry decided to despatch a search expedition, which also was to build a house and leave a supply of provisions. A depot had already been left on Cape Flora by the *Hertha* expedition. The *Andromeda*, Captain POSPELOV, left Murmansk on July 15 and encountered ice in latitude 78°. The pack proved to be impenetrable, and the ship therefore returned via Novaya Zemlya. In the beginning of September a fresh attempt was made, when the ship was again stopped by heavy ice.

### **Iversen Expedition 1923.**

In 1923 THOR IVERSEN of the Norwegian Fishery Board carried out fishery investigations in the sea east and south of Spitsbergen. With the motor-cutter *Blaafjeld* soundings and temperature measurements were also made along a line leading up to Alexandra Island on Franz Josef Land.

### **“Persej” Expeditions 1923, 1924, and 1926.**

In 1923 the Scientific Maritime Institute in Moscow sent out to the Barents Sea an expedition led by Professor I. I. MESHACHEV. In the steamer *Persej* (297 gross tons, 360 h. p.) Captain P. I. BURKOV, Franz Josef Land was also visited (Aug. 30). In 1924 the Institute had an expedition in the same waters, but in latitude 78° 33' farther advance was stopped by ice. In August 1926 an expedition in the *Persej* was again at Franz Josef Land.

### **Worsley-Algarsson Expedition 1925.**

The British expedition led by Commander F. A. WORSLEY and GRETTIR ALGARSSON in the sailing schooner *Island* visited in 1925 the waters north of Spitsbergen. In August the expedition sailed across to Franz Josef Land and sighted Northbrook Island on the 21st. A few days later a party went ashore at Cape Barents. The ship then sailed up the British Channel, but was stopped by heavy ice off Cape Murray. Towards the end of the month the expedition left for Spitsbergen.

### **Samoilovich Expedition 1927.**

A party of the Russian Novaya Zemlya expedition led by Professor R. SAMOILOVICH in the motor-cutter *Zarnitza* (ex *Elding*, bought in Norway in 1925) made a hydrographic section from the Barents Islands to Northbrook Island on Franz Josef Land.

### **Expeditions in Quest of the “Italia” and “Latham” 1928.**

Several of the expeditions which were sent out to search for the ill-fated NOBILE expedition in the airship *Italia*<sup>1</sup> and for ROALD AMUNDSEN

<sup>1</sup> On its first flight in May towards the North Land the *Italia* also passed over the northern islands of Franz Josef Land (Cape Fligely).

and his companions in the *Latham* had their field of operation in the Franz Josef Land area. These expeditions were:

#### Norwegian Expeditions.

##### "Hobby" Expedition.

Fitted out at the expense of Miss LOUISE A. BOYD of San Francisco and led by HJ. RIISER-LARSEN, Captain in the Norwegian Navy. In the middle of August the ship used by the expedition, the *Hobby*, was not far from the south coast of Franz Josef Land, but owing to difficult ice conditions it was decided first to steer west and search the area towards Victoria Island west of Franz Josef Land. From Victoria Island they steered north-east to a point north of Alexandra Island, then southward to this island and along the coast to Cape Flora (Sept. 1). The next day the hut ashore was inspected and found to be in a delapidated condition. For the benefit of shipwrecked crews, materials for a hut were brought ashore. The building of the house had, however, to be stopped, as the *Hobby* was forced to put out to sea on account of the heavy swell, and anchor in Eira Harbour. After the motor had been repaired the ship left Franz Josef Land for Spitsbergen.

##### "Veslekari" Expedition.

S/S *Veslekari*, Captain WISTING, Norwegian Navy, approached Cape Mary Harmsworth from SW in August, and then searched westward past Victoria Island to Spitsbergen. Some hunting was done during the expedition, the catch being 2 walruses, 18 bears, and 20 bearded seals.

#### Russian Expeditions.

##### "Sedov" Expedition.

The Russian ice-breaker *Georgii Sedov*, Captain VORONIN, also operated in the Franz Josef Land area and examined the coast from Cape Flora to Cambridge Bay, and to Cape Johansen. On the western shore of Cambridge Bay a party was put ashore which examined the coast to Cape Lofley. The *Sedov* in the meantime went westward past Cape Mary Harmsworth and back to Cape Grant. Besides the crew there were several hunters on board who are reported to have shot a large number of Polar bears.

##### "Krassin" Expedition.

On the second voyage of the ice-breaker *Krassin* search was also made for the still missing members of the NOBILE expedition towards Franz Josef Land. In the last days of September the ship sent a party ashore on Cape Neale with materials for a house. According to a press report the country was occupied in the name of the Soviet Union.

Stores and provisions, arms and clothing for 15 men for 6 months were, it is reported, left here by the expedition. From Cape Neale the *Krassin* proceeded directly to Tromsø in Norway.

### Expeditions to the Franz Josef Land Area in 1929.

In the summer of 1929 ice conditions in the European sector of the Arctic were very adverse. Access to Franz Josef Land was rendered particularly difficult and all the ships experienced great difficulties in the close pack which blocked the south coast of the archipelago.

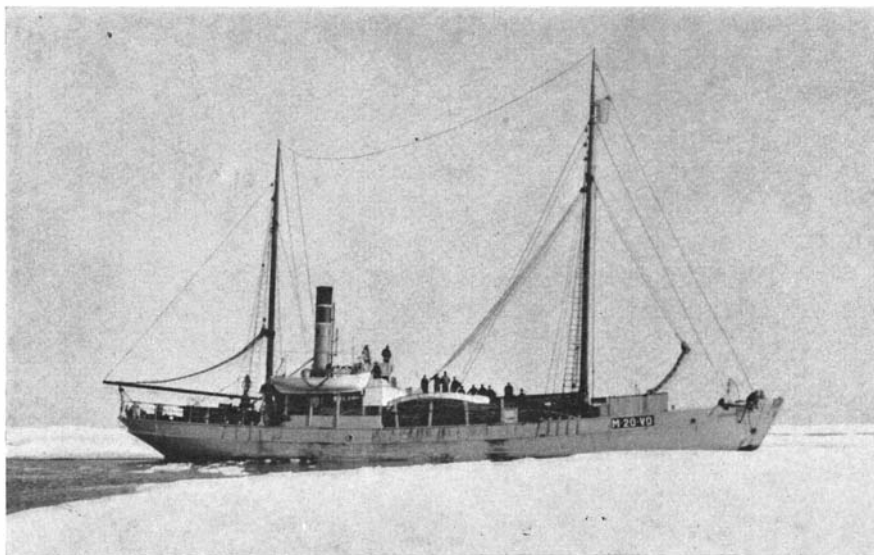


Fig. 1. S/S *Veslekari*.

Orvin phot. 1929.

### Norwegian Expeditions.

Consul Lars Christensen's Expedition with the S/S "Hvalrossen" and M/C "Thorsnes I".

The object of this expedition was to bring a wintering party of five men to some suitable place on one of the islands, where a meteorological (and wireless) station was then to be erected. Hunting was also on the programme. The expedition was planned and fitted out under the supervision of Captain HJ. RIISER-LARSEN, Norwegian Navy. Dr. G. HORN of *Norges Svalbard- and Ishavs-undersøkelser* was in charge of the scientific work, and Lieutenant JOH. BREIREM, Norwegian Navy, was meteorological observer and radio operator. The ships of the expedition were S/S *Hvalrossen* of Ålesund, 146 gross tons, Skipper O. VINJE, and M/C *Thorsnes I* of Sandefjord, 24.5 gross tons, Skipper RUDOLF SVENDSEN. The latter vessel was to remain at Franz Josef

Land. The expedition left Tromsø on August 5, struck the ice edge 70 miles ENE of Bear Island on August 8, and followed the edge which ran in a north-easterly direction. The south coast of Franz Josef Land was found to be blocked by a belt of pack ice from 60 to 80 miles wide. During the period August 13 to September 13 the ships made repeated attempts to penetrate the pack, but never got to within 20 miles from land. During several periods of frost, new ice was formed, making it difficult and impossible for low-powered ships to force their way between the floes. On account of the difficult ice

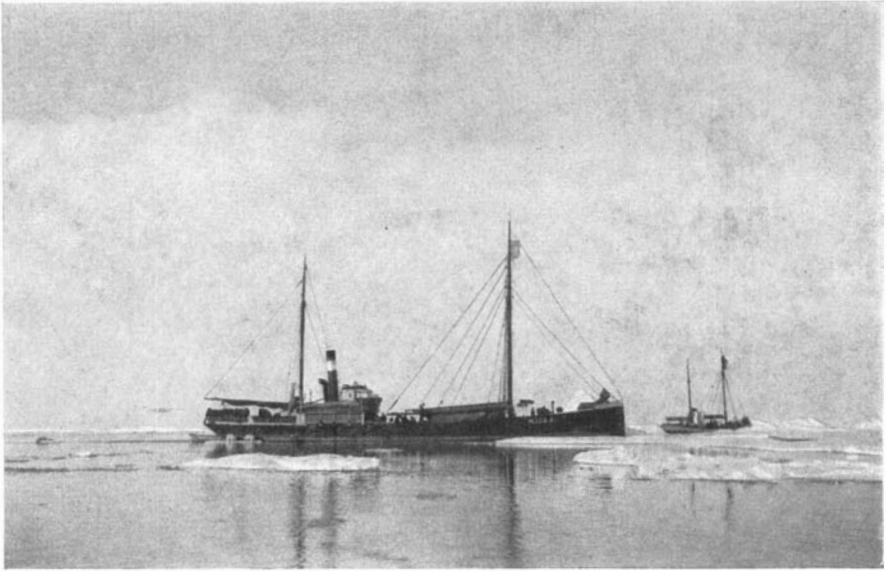


Fig. 2. The Vessels of the Norwegian Expedition 1929, S/S *Hvalrossen* and M/C *Thorsnes I*, at the Ice-edge south of Franz Josef Land.

Horn phot. 5/8 1929.

conditions and the advanced season, the attempts to reach Franz Josef Land had to be abandoned, and the expedition returned to Tromsø (22 September).

While in the ice the vessels secured a catch of 29 bears, including 7 live ones, and a number of bearded seals.

#### Iversen's Expedition.

The Norwegian Fishery Board in Bergen had also planned an expedition to Franz Josef Land to carry out hydrographic investigations. The ship of the expedition was M/C *Hisø* of Ålesund, Skipper BERGESEN. The leader was THOR IVERSEN of the Fishery Board. On board was also EINAR KOEFOED the zoologist. On account of the difficult ice conditions



the expedition did not get through the belt of pack ice. However, hydrographic observations in the sea south of Franz Josef Land and towards Spitsbergen were carried out.

#### Hunting Expeditions.

A number of Norwegian sealers also made attempts to reach Franz Josef Land, but they were all stopped by the ice. As walrus are only to be found near land the catch for all vessels was very poor, consisting only of a number of bears (also live ones) and bearded seals. The ships were: S/S *Sæl*, Skipper RASMUSSEN, M/S *Gungnir*, Skipper TOKLE, of Ålesund; M/C *Terningen*, Skipper GUSTAV JENSEN, of Tromsø; and *Norhavet*, Skipper LARS HANSEN, of Harstad.

#### Swedish Expedition.

A Swedish expedition, led by Dr. J. W. SANDSTRÖM of Stockholm, in the M/C *Bjørnøy* of Tromsø, skipper VICTOR KORNELIUSSEN, worked along the ice edge from Greenland to Novaya Zemlya to make hydrographic investigations, particularly with regard to the Gulf Stream. The expedition found it impossible to reach Franz Josef Land on account of the adverse ice conditions.

#### Italian Expedition.

M/C *Heimen* of Tromsø, Skipper LARS JAKOBSEN, with the Italian Expedition led by ALBERTINI was sent out to search for possible traces of the wrecked Italia expedition in 1928. During their cruises the *Heimen* was also under Franz Josef Land.

#### Russian "Sedov" Expedition.

In March 1929 the Government of U.S.S.R. voted the necessary means (abt. 250 000 roubles) for the establishment of a meteorological station in Franz Josef Land. The ice-breaker *Sedov* of 3 000 tons dw. and 2 200 h.p. was chosen to carry the expedition. The leaders were Professors R. SAMOILOVITCH, O. SCHMIDT, and W. WIESE.

The *Sedov* left Arkhangel on July 21. Ice was met with in lat. 77° 17', long. 45°, and between 79° and 79° 40' (a little farther east) heavy ice was encountered, which made progress difficult.

Hooker I. was reached on July 28 where the wintering party (7 men) and materials for the stations were put ashore in Calm Bay on the north-west coast of the island. In the latter half of August the *Sedov* made an advance up the British Channel, finding the Queen Victoria Sea on the north-west side of the archipelago ice free up to 82° 14' (long. 52° 10'). On August 31 the *Sedov* left Franz Josef Land and had considerable difficulty in getting through the belt of pack ice. On September 12 the expedition was back in Arkhangel.

### VIII. Hunting.

Hunting at Franz Josef Land is prosecuted in the sounds between the islands. Seals (*Phoca barbata*) occur only in small numbers, but walruses are abundant. Polar bears, which are usually plentiful, are hunted both ashore and on the ice. Polar foxes also exist, but not in large numbers. When the ice breaks in the spring white whales appear in the sounds in large shoals. In some years ice conditions prevent hunting near land to some extent.

It is known that Norwegians — mainly from Tromsø — hunted off Franz Josef Land last century from 1870 to the nineties, particularly in years of favourable ice conditions. Accurate information as to which years and the size of the catches is not available, but the following skippers are known to have hunted in those parts: MAGNUS ARNESEN, HEMMING ANDREASEN, A. JENSEN, I. N. ISACHSEN, G. LARSEN, O. NÆSSØ, HANS BECK, ANDR. BECK, H. C. JOHANNESSEN, OLE MÆHLE, all of Tromsø. In addition, a number of vessels from Hammerfest worked those grounds. For instance, KARL JOHAN VIRKOLA was at Franz Josef Land in 1886 with the sloop *Ørnen*, and returned with a full cargo of walruses. In the same year DAVID GRAY, a Scottish whaler, set out for Franz Josef Land, but he was stopped by the ice.

In 1896 the sloop *Moderen* of Tromsø, Skipper RØVIK, and the ketch *Duen* of Hammerfest, Skipper OLSEN, hunted along the ice-edge south of Franz Josef Land. During the following years these ships were frequently hunting in the ice between Franz Josef Land and Novaya Zemlya.

In the spring and summer of 1897 the sealer *Balaena* (ex *Mjølner*, Norwegian) of Dundee in charge of Captain THOMAS ROBERTSON hunted around and in the vicinity of Franz Josef Land. This vessel was of 247 tons burden and fitted with an auxiliary engine. It was built and formerly registered at Moss in Norway. The *Balaena* left Dundee on April 8, and sailed for home on August 13. The catch comprised 600 walruses, including two live ones; 14 bears, and a Greenland whale. Besides the *Balaena*, there were two other British vessels at the same grounds, viz., the *Diana* under Captain DAVIDSON, and the *Active* under Captain DAVIDSON (*Finmarksposten* for August 20, 1897). SIVERT BRÆKMO, a Norwegian skipper, hunted near Franz Josef Land for the first time in 1897.

In 1898 ice conditions were very favourable. The *Balaena* (Captain ROBERTSON) was again in those waters and passed up the British Channel to a point off Cape Norway. In the same year a Norwegian sealing bark, the *Hertha* of Sandefjord under Capt. JØRGENSEN (*A'S Oceana*), was at Franz Josef Land and caught between 200 and 300 walruses in the sounds and along the coast — both ashore and in the water —

and, in addition, a number of bears. In 1898 Skipper BRÆKMO (self-owner) with the cutter *Nora* was at Franz Josef Land and got a full catch of 62 walruses, and a number of bears and bearded seals in the British Channel. In the same year Skipper VIRKOLA of Hammerfest with the cutter *Venus* also hunted there and got a full catch. JENS J. ØIEN was in that area with the sloop *Ingeborg* of Tromsø, 46 tons gross, and caught a number of walruses, seals, and bears in the sounds near Cape Flora. About that year and later S/S *Victoria* of Tromsø (Skipper SØREN KRÆMER) was at Franz Josef Land.

The sloop *Avance* owned by FINCKENHAGEN of Hammerfest (Captain FREDRIK GRØNBECK OLSEN) hunted off Franz Josef Land in 1899, as did Skipper NILS THOMASSEN with the sloop *Marie* in the beginning of August. On the 7th of that month he was in lat. 79° 20' N and long. 44° E. Another visitor to those waters in 1899 was the bark *Capella* (registered at Gothenburg but fitted out at Sandefjord with an exclusively Norwegian crew). This boat secured 270 walruses, and, in addition, 75 bears were shot in the sounds and along the coast. Skipper HARRY ANDERSEN with the sloop *Diana* of Tromsø sailed from Spitsbergen to Franz Josef Land, where he got approximately 100 walruses on the fast-ice at Cape Flora.

In 1900 NILS THOMASSEN was with the *Marie* near Cape Grant in the beginning of August and returned with a good catch including 2 live and 11 dead bears. The brig *Duen* of Hammerfest (Skipper KARL OLSEN), hunted off Franz Josef Land from August 1 to 17 and was within 60 nautical miles of land. The brig *Avance* of Hammerfest (Skipper ALEKSANDERSEN) operated in the same waters from August 1 to 15, and was at times within 30 miles of land without however sighting it. Sloop *Anna* of Hammerfest (Skipper F. G. OLSEN) was one mile off Cape Flora on August 15 and hunted along the ice-edge to the east and north-east. Skipper VIRKOLA, too, was also at Franz Josef Land for Messrs. FEDDERSEN & NISSEN of Hammerfest with the *Familien*, and made the following total catch: 359 seals, 119 bearded seals, 1 white whale, 29 walruses, 3 bears, and 175 barrels of blubber; but not all of this was taken at Franz Josef Land. Skipper HARRY ANDERSEN of the brig *Diana* of Tromsø was off Franz Josef Land in 1900 and got 54 walruses and 20 bears. This catch was made off Cape Flora.

In 1901 the cutter *Anna* owned by G. ROBERTSON of Hammerfest (Captain F. G. OLSEN) visited Franz Josef Land. Captain OLSEN went ashore at Cape Flora, and was also on some islets in the sound, where he asserts that he found an Austrian and a French flag flying. OLSEN returned with 11 walruses, 2 bears, 73 bearded seals, and 427 seals, of the total value of about 4000 kroner. The seals were caught farther south.

Sloop *Christiane* owned by G. ROBERTSON (Skipper WILLIAM JONAS) also worked those grounds, but did not make a very large

catch. Skipper VIRKOLA with the *Familien* for Messrs. FEDDERSEN & NISSEN brought home 714 seals, 74 bearded seals, 33 walruses, and 236 barrels of blubber. Skipper NILS THOMASSEN, too, was in the neighbourhood of the islands in that year. The *America* of the BALDWIN-ZIEGLER expedition, piloted by MAGNUS ARNESEN, secured a good catch during its stay at Franz Josef Land. S/S *Frithjof* commanded by JOHAN KJELDSEN acted as the *America's* auxiliary. They left Tromsø about the middle of August and stayed three weeks or so at Franz Josef Land, returning to Tromsø at the end of September 1901. In Gray Bay between Cape Crowther and Cape Grant, and in Bates Sound (on the south side of Bruce Is.) they caught 110 walruses, 52 bearded seals, and 52 bears. The sloop *Grønland*, owned by ANTON NÆSS of Tromsø (Skipper JOHANNES LARSEN) was hailed and reported a full catch.

In 1902 Skipper NILS THOMASSEN of the sloop *Freya* operated in the ice near Franz Josef Land. The steam sealer *Frithjof* (Skipper J. KJELDSEN) made attempts to reach land throughout the late summer, but was prevented by ice. On the other hand, the expedition vessel *America* (BALDWIN-ZIEGLER Exp.) reached Norway from Franz Josef Land in July.

1903. Franz Josef Land was visited by Skipper NILS THOMASSEN with the sloop *Freya* and by Skipper BRÆKMO in the sloop *Nora*.

1904. Sloop *Alken* of Hammerfest (Skipper JENSEN) and the *Stairs* (Skipper THOMASSEN) were near Franz Josef Land. The latter was there also in 1905 and 1906.

One of G. ROBERTSON'S boats, brig *Presto* (Skipper H. JONAS) was there too in 1906. The catch comprised 8 walruses, 68 bearded seals, 22 bears including 2 live ones, and 284 seal pelts. The total value of this catch was 5476 Kroner. In 1906 Skipper VIRKOLA with the *Venus* for the firm of FEDDERSEN & NISSEN brought home 52 walruses, in addition to a quantity of seals and 325 barrels of blubber.

1907. The *Autumn* of Tromsø (Skipper KRÆMER) and the *Stairs* (Skipper NILS THOMASSEN) operated near Franz Josef Land. Skipper BRÆKMO with the *Severn* visited the Kara Sea in 1907, returning through the Kara Strait and along the west coast of Novaya Zemlya and thence across to Franz Josef Land, where he encountered ice 12 nautical miles off McClintock Is. The ice lay in a solid field to land, and there was no catch. He proceeded along the edge of the icefield to Half Moon Is. in Spitsbergen, returning to Tromsø on September 19.

In 1908 the sloop *Grønland* (Skipper MORTEN ISACHSEN) secured a full catch of 30—40 walruses, in addition to bears and seals. Skipper WILLIAM JOHANSEN in ROBERTSON'S motor-cutter *Susan* made a catch value 7334 Kroner and including 15 bears, 46 bearded seals, and

834 seals. STENSVOLD in the *Alfred Edvard* (owned by FINCKENHAGEN), NILS THOMASSEN in the *Stairs*, and SIG. KRÆMER in the motor-cutter *Autumn* were also hunting off Franz Josef Land, the catch of the last-named vessel including 32 walruses. Cutter *Venus* in charge of Skipper KARL VIRKOLA (owners: FEDDERSEN & NISSEN, Hammerfest) was in those waters from July 21 to August 6. This vessel got close to land and the crew were ashore. The catch was 15 walruses, 22 bearded seals, and 7 bears, two of which were taken alive. Captain OLE NIKOLAI HANSEN in the M/C *Syvende Juni*, owned by G. ROBERTSON, Hammerfest, and Captain SIVERT BRÆKMO in the *Severn* of Tromsø, were at Cape Flora and then sailed eastward to Cape Tegetthoff, Hall Is. The crew were ashore at both these points. These two vessels were working together and shared the catch. The *Syvende Juni's* share amounted to 13 000 Kroner, of which 9 000 Kroner represented the catch at Franz Josef Land. This catch consisted of 4 1/2 tons of walrus hides, 3 live walruses, 1 live and 15 dead bears, and 32 bearded seals. Other vessels at those grounds were the *Spitsbergen* of Tromsø (Skipper MORTEN ISACHSEN), and the *Colibri* of Tromsø (Skipper ISAK ISAKSEN). The latter secured in the sounds a catch comprising 27 walruses, 16 bears, and a number of bearded seals. The steam-cutter *Victoria* of Tromsø, in charge of Skipper H. C. JOHANNESSEN, caught a quantity of walruses. This vessel was at Champ Is. on the north side of Markham Sound.

In 1909 NILS THOMASSEN in the *Stairs* was again at the islands. Skipper S. BRÆKMO in the M/C *Severn* operated in the sounds and secured 127 walruses (including 4 live ones), 60 bearded seals, and 83 bears. He erected his claim mark at Cape Flora. In August of that year the DUKE OF ORLEANS went on an hunting expedition to Franz Josef Land in the *Belgica* (ex *Patria*, Norwegian sealer) which was under the command of Captain DE GERLACHE. INGV. SVENDSEN of Tromsø accompanied the expedition as ice pilot and hunter. The *Belgica* went into the sounds, and walruses, bears, and seals were killed. The *Belgica* stayed at the islands for about a fortnight. S/S *Victoria* of Tromsø (Skipper HANS JOHANNESSEN) was seen from the *Belgica* at Franz Josef Land.

In 1910 and 1911 Skipper NILS THOMASSEN in the *Stairs* was there again. In the latter year Skipper ISACHSEN was also at the islands with the sloop *Tora den Blide* from August 9 to 18. There was then practically open water, and ISACHSEN took his vessel through the sounds, but did not secure a catch. Cutter *Mira* was hailed on this visit. Other vessels were S/S *Severn* (S. BRÆKMO, 1910) and M/C *Østerisen* (LUDV. LARSEN).

In 1910 S/S *Lofoten*, piloted by MARKUS JOHNSEN of Tromsø, was at Cape Flora and got 16 walruses and 32 bears (including 4 live ones). This was a hunting expedition with a Spanish party (DUQUE DE

MEDINACELI) and led by F. DE GISBERT. In that year ice conditions were favourable, so that the ship sailed close to the western islands of the group in open water.

In 1911 WALDEMAR KRÆMER in the sloop *Sulitjelma* was off Cape Flora and got 40 bearded seals, 7 walruses, and 15 bears. KRÆMER reports that ice conditions were difficult from 1911 to 1913. BRÆKMO was there also this year.

In 1912 Skipper JENS J. ØIEN in the *Laura* was at Franz Josef Land with a party of Austrian sportsmen, and got 36 bears. In that year the sounds were hardly navigable owing to ice.

In 1913 BRÆKMO was again at Franz Josef Land.

In 1914 K. HAAVOLD in the M/C *Sjøormen* found ice conditions so adverse that no hunting could be done.

In 1918 the M/C *Severn* in charge of S. BRÆKMO worked those grounds, but was hindered to some extent by ice along the coast.

Skipper VIRKOLA was at Franz Josef Land in 1920 for Messrs. FEDDERSEN & NISSEN, but was not very successful. Skipper OLAF KNUDSEN of Hammerfest landed a big catch the same year, a large part of which had been got off Franz Josef Land and in the sounds.

In 1922 JENS J. ØIEN operated in the sounds with S/S *Laura* of Tromsø 275 tons gross, owned by MAGNUS K. GJÆVER. On board were six American sportsmen and the catch was 42 bears, 6 walruses, and some bearded seals. In the same year Skipper INGVRT JOHANNESSEN was there with M/C *Forpp* of Harstad, 60 tons gross, owned by JOHAN HEDMAN, Dyrøhavn. They left Tromsø early in June and hunted off Cape Lofley on Alexandra Is. They afterwards went to Cambridge Bay. On the ice in this bay and at Alexandra Is. they got 130 walruses, 130 bearded seals, and a number of bears. They made a fortnight's stay at the islands, and then continued hunting operations in the direction of Spitsbergen, returning to Tromsø in the first half of August. At Franz Josef Land they joined the *Taakeheimen* of Bodø, which had 90 walruses.

In 1923 Skipper JOHANNESSEN was again at Franz Josef Land with the same boat. He sailed from Tromsø early in July, was off Cape Flora on July 27, and proceeded up the British Channel, through Markham Sound, anchoring off Cape Triest on the east side of Champ Is. The catch amounted to 50 walruses, 40 bears, and about 100 bearded seals. From Champ Is. ØIEN returned to Cape Flora through Aberdare Sound on the west side of McClintock Is., thence westward to Spitsbergen, and was back at Tromsø on December 8. The vessel worked in company with the M/C *Staalís* (Skipper VIKTOR ARNESEN) of Bodø and the *Hanseat* of Tromsø. The *Staalís* catch was 8 walruses, 50 bearded seals, and 47 bears (including 7 live ones). In 1923 Skipper OLAF KNUDSEN in the S/S *Altenfjord* also work the grounds at Franz

Josef Land. His autumn catch was 500 seals, 23 bearded seals, and 17 bears (including two live ones). The bears and bearded seals were secured near the shore. ANTON JENSEN and LUDV. LARSEN were also there. Skipper HANS HOLMESLETT in the *M/C Venus* (70 gross tons) of Hammerfest, owners FEDDERSEN & NISSEN, visited also Franz Josef Land this year. He reached Cape Flora on August 7 and secured 70 walruses in the sounds, in the British Channel and Markham Sound to Cape Triest. He then went to Cape Tegetthoff and left the islands on August 14. Besides the walruses his catch was 57 bears (including 3 live ones) and 150 bearded seals.

The following year towards the end of July he was again with the *Venus* at Franz Josef Land where he hunted between Cape Flora and Cape Tegetthoff. The *Venus* secured 20 walruses, 50 bears, and 125 bearded seals.

In 1924 LUDV. LARSEN was in those waters in the *M/C Salangfjord*, 40 tons gross, owned by JENS SLETTEN of Salangverket. He sailed from Tromsø early in June and reached Cape Flora in the middle of August. He worked in Miers Sound and De Bruyne Sound for about a week, and got 100 walruses and a number of bears and bearded seals.

Other skippers who worked south of Franz Josef Land in 1924 were INGV. JOHANNESSEN, ANTON JENSEN, and VIKTOR ARNESEN. Skipper JOHAN SØRENSEN in the *M/C Johan* of Tromsø was within 25 miles of Cape Flora, but ice blocked his further progress. The catch was 7 bears (including 2 live ones) and 60 bearded seals. In the following year the *Johan* sailed in open water from Victoria Is. to Cape Flora, and returned to Victoria Is. on account of adverse hunting conditions.

In 1925 LUDV. LARSEN was at Victoria Is. and Franz Josef Land with *M/C Salangfjord*. The catch was 115 walruses, a number of bears and bearded seals, and he returned to Tromsø with a full catch in the latter part of August. In the same year VIKTOR ARNESEN was there with the *Hein I*. Skipper NILS PEDERSEN in the *M/C Andfjord* of Tromsø got 150 walruses and about 20 bears. Skipper LUDOLF

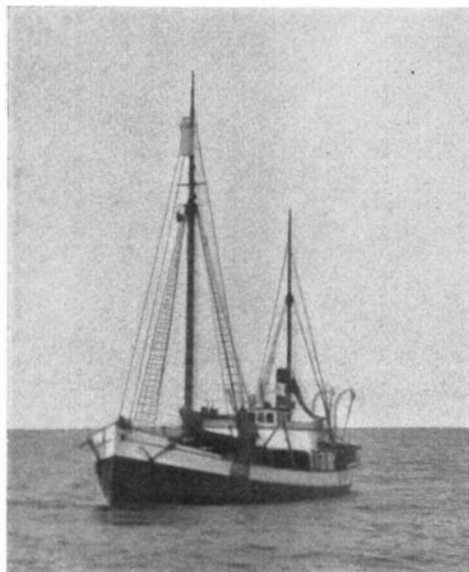


Fig. 3. Norwegian Sealer *M/S Hisø*.

Horn phot. 1/9 1929.

SCHJELDERUP in the *Quest*, owned by *Schjelderups Sælfangstrederi A S* of Skanland in Salten, was off Franz Josef Land with a hunting expedition and his catch included 38 dead and 6 live bears.

LUDV. LARSEN was there again in the *Hein* in 1926, as was also M.C. *Hobby*. According to a report of January 16, 1929 in the *Volna*, an Arkhangel journal, the ship of the "Floating Sea Institute" was off the coast of Franz Josef Land in 1926 (see page 19), and according to the same report the icebreaker *Sedov* carried on hunting operations in the same year off these islands.

In 1927 the steam-cutter *Sverre* of 105 gross tons, commanded by ANTON SALAMONSEN and owned by G. ROBERTSON of Hammerfest, hunted on Wiener Neustadt Is. and at other parts of Franz Josef Land. The catch totalled 27 seals, 38 bearded seals, 241 walruses, and 30 bears (including 3 live ones). The weight of the blubber secured was 35234 kilos., and the value of the whole cargo was 24 986 Kr.

Skipper LUDV. LARSEN in the M.C. *Autumn*, 82 tons gross, owned by I. AUSTAD, left the home port of Tromsø early in July and was off Franz Josef Land on September 1. As Cape Flora was blocked by ice, he proceeded eastward and through the sound between the islands of Hall and Salm, and thence up Austria Strait. At Hayes Is. he killed 400 walruses on land, in contrast with previous years when the catch was secured on the ice. The *Autumn* returned to Tromsø at the end of September with 440 walruses, and, in addition, 30 bears and 270 bearded seals. The whole of this catch was made on Franz Josef Land in the course of three weeks. The M.C. *Sleipner* of Tromsø, owned and commanded by OLAF ERIKSEN had 9 bearded seals, 17 walruses, 31 bears (5 live ones), and 2333 kilos. of blubber, the total value being 5 500 Kr. This catch was secured both at Spitsbergen and Franz Josef Land. S.S. *Quest* (Skipper L. SCHJELDERUP) returned from Spitsbergen and Franz Josef Land with 54 seals, 10 walruses, 29 bears (6 live ones), which yielded 5 400 kilos. of blubber. The total value of the catch was 6 800 kr.

In 1928 Skipper HAGBART KRÆMER in the steam-cutter *Frithjof* of 110 gross tons, owned by G. ROBERTSON, hunted from Wilczek Island to Cape Flora at the end of July and the beginning of August. The value of the catch was 19 508 Kr. It included 37 bears, of which 8 were live ones. The *Frithjof* operated in company with M.C. *Andfjord* of Tromsø, in charge of Skipper NILS PEDERSEN and owned by HANS JENSEN. This vessel secured about 40 bears (including 6 live ones) and a number of walruses and bearded seals. Skipper A. SALAMONSEN in ROBERTSON'S *Sverre* killed 20 walruses in the water at Wiener Neustad Is. and had also 32 bearded seals and 13 dead bears. SALAMONSEN'S catch was of the value of 4 815 Kr.



Skipper HANS ANDERSEN in the motor-cutter *Bjørnøy* of Tromsø, sighted land at Cape Flora and went up de Bruyne Sound and between Keltie and Hooker I. to Koettlitz I. Thence through Nightingale Sound and westwards along the coast. As the sounds were ice-free and there was little hunting to be done he left Franz Josef Land and went westwards to Spitsbergen. He was back in Tromsø on October 5.

The following Ålesund and Sunnmøre vessels worked the grounds at Franz Josef Land: *S/S Signalhorn* (Skipper ROLF KVIEN), *S/S Brandal* (JOHAN VARTDAL), *S/S Jopeter* (HAGERUP LARSEN), owned by A/S *Søndmøre Sælfangere* of Brandal; and *S/S Sæl* (Skipper HANS



Fig. 4. Norwegian Sealer *S/S Sæl*.

Horn phot. 3/9 1929.

RASMUSSEN), owned by ELLING AARSETH & CO., Ålesund. The *Sæl* arrived off Franz Josef Land on August 4, and went in between the islands of Hall and Salm, thence up Austria Strait to a point a little to the north of Kuhn Is., returned southward again by way of Markham Sound and out past McClintock Is. The vessel left Franz Josef Land on August 27. The catch consisted of 20 bears (including 4 live ones), 239 walruses (including 4 live ones), and 51 bearded seals. Skipper ALBERT BERGESEN in *M/C Hisø*, owned by EDW. and IVER LARSEN of Aalesund, followed the same route and made the following catch: 40 bears (of which 3 live ones), 284 walruses (including 4 live ones), and 72 bearded seals. Other Ålesund vessels operating at those grounds were: *M/C Gungnir*, Skipper O. M. TOKLE, owned by A/S ALBERT HØVDE; the catch was 4 live and 21 dead bears, 18 walruses, and 21 bearded seals. *M/C Bratvaag*, Skipper P. ELIASSEN, owned by A/S Bratvaag had 4 live and 24 dead bears, 2 live and 19 dead walruses, and 25 bearded seals

In all, 8 Ålesund and Sunnmøre vessels (including the *Veslekari*, p. 20) with crews totalling 115 men were engaged in the Franz Josef Land area. The aggregate catch landed was 549 dead and 9 live walruses, 251 bearded seals, 150 dead and 25 live polar bears, of the total value of 76 500 Kroner.

In 1928 Skipper LUDV. LARSEN in the *M C Autumn*, owned by I. AUSTAD, was again at Franz Josef Land. He arrived off Cape Flora on September 10, and continued on an eastward course, but he left the islands after a stay of only a few days, for other vessels had already been there, with the result that the previous year's grounds were exhausted.

## IX. Political Status.

Franz Josef Land was discovered in 1865 by the Norwegian sealing skipper RØNNBECK and harpooner AIDIJÄRVI. They called the country North-East Spitsbergen. No importance was attached to their discovery, which never became generally known. In 1873 the islands were found by the Austro-Hungarian *Tegetthoff* expedition, which did the first exploring and mapping. Neither this nor any other subsequent scientific expedition appears to have laid claim to Franz Josef Land for their respective countries. Ever since its discovery Norwegian hunters have visited the country to engage in sealing and other hunting operations, and have been practically supreme in those regions. Since its discovery Franz Josef Land has been regarded as *terra nullius*, open to all nations. It was not until 1926<sup>1</sup> that a change came about in this respect. The Presidential Council of the Central Executive Committee of the U. S. S. R. issued a decree on April 15, 1926, whereby all lands and islands, discovered or that may be discovered in future, which are situated in the North Pole sector to the north of Russia and Siberia, shall be regarded as the Union's territory. Under this decree Franz Josef Land was also to be regarded as Russian territory. On official maps, however, e. g. of 1923, 1926, and 1928, Franz Josef Land was not coloured as Russian territory. In a communication of December 19, 1928 from the Ministry of Foreign Affairs to the minister of the Soviet Union in Oslo, Madame KOLLONTAY, Norway has protested against the decree.

In August 1928 a notice appeared in the press (e. g. in *Aftenposten*, Oslo, (No. 416) Aug. 18, 1928) to the effect that Russia was planning the erection of meteorological stations on Franz Josef Land, Novaya Zemlya, and in other places. Not long after that we were again reminded of Russia's interest in Franz Josef Land. When the *Krassin* expedition visited the islands during its search for the *Italia* expedition and ROALD AMUNDSEN, a landing was made, according to some press reports, at Cape Neale and Prince George Is. Materials for the erection of a hut

<sup>1</sup> In 1914 a war vessel is reported to have hoisted the Russian flag at Cape Flora, apparently as a war measure.

were brought ashore, and a depot was laid, whereupon the *Krassin* immediately left the islands. According to the same press report (*Tidens Tegn*, Oslo, Sept. 27, 1928), "the flag of Soviet-Russia was hoisted and possession was taken of the country for Russia in pursuance of a resolution of the Central Executive Committee at Moscow". It is reported, however, that no such ceremony ever took place.

Since that time the Soviet Government has resolved that Franz Josef Land shall be regarded as Russian territory under the government of Arkhangel. This resolution was confirmed in January 1929 by the Central Council of the All-Russian Executive Committee. The Executive Committee for the Arkhangel district formulated a scheme for the colonisation of Franz Josef Land, the intention being to found a small settlement there in 1929, and in July that year a party was put ashore on Hooker Island by the ice-breaker *Sedov* (see p. 23).

### Table of Expeditions to Franz Josef Land 1865—1928.

As it has been impossible to obtain information about a number of Norwegian hunting expeditions, particularly those of older date, no pretence to completeness is made in the appended list as far as Norwegian expeditions are concerned.

A = Austrian, Am = American, B = British, D = Dutch, F = French, I = Italian, N = Norwegian, R = Russian.

Year	Vessel	Leader (Skipper)	Nationality	Nature of Exp.	Remarks
1865.....	Spidsbergen	Rønnbeck	N	Hunting	Franz Josef Land sighted for the first time
1872—74.....	Tegetthoff	Payer and Weyprecht	A	Scientific	First exploration of Franz Josef Land
1879.....	Willem Barents	de Bruyne	D	Scientific	
1880.....	Eira	Leigh Smith	B	Scientific	
1881—82.....	Eira	Leigh Smith	B	Scientific	
1886.....	Ørnen	Virkola	N	Hunting	
1886.....	—	Gray	B	Hunting	
1895—96.....	—	Nansen	N	Scientific	Norwegian North Polar Exp.
1896.....	Moderen	Røvik	N	Hunting	
1896.....	Duen	Olsen	N	Hunting	
1894—97.....	Windward	Jackson	B	Scientific	Jackson—Harmsworth Polar Exp.
1897.....	Balaena	Robertson	B	Hunting	
1897.....	Diana	Davidson	B	Hunting	
1897.....	Active	Davidson	B	Hunting	
1897.....	—	Brækmo	N	Hunting	
1898.....	Balaena	Robertson	B	Hunting	
1898.....	Hertha	Jørgensen	N	Hunting	
1898.....	Nora	Brækmo	N	Hunting	
1898.....	Venus	Virkola	N	Hunting	
1898.....	Ingeborg	Øien	N	Hunting	
1898.....	Victoria	Kræmer	N	Hunting	With Mr. Arnold Pike
1898—99.....	Frithjof	Wellman	Am	Scientific	

Year	Vessel	Leader (Skipper)	Nationality	Nature of Exp.	Remarks
1899.....	Avance	F. G. Olsen	N	Hunting	
1899.....	Marie	Thomassen	N	Hunting	
1899.....	Capella		N	Hunting	
1899.....	Diana	Andersen	N	Hunting	
1899—1900...	Stella Polare	Duke of Abruzzi	I	Scientific	Italian Polar Exp.
1900.....	Marie	Thomassen	N	Hunting	
1900.....	Duen	Olsen	N	Hunting	
1900.....	Avance	Aleksandersen	N	Hunting	
1900.....	Anna	Olsen	N	Hunting	
1900.....	Familien	Virkola	N	Hunting	
1900.....	Diana	Andersen	N	Hunting	
1901.....	Capella	Støkken	N	Search Exp.	To search for the missing members of the Italian Exp.
1901.....	Yermak	Makarov	R	Scientific	
1901.....	Anna	Olsen	N	Hunting	
1901.....	Christiane	Jonas	N	Hunting	
1901.....	Familien	Virkola	N	Hunting	
1901.....		Thomassen	N	Hunting	
1901.....	Grønland	Larsen	N	Hunting	
1901—02.....	America	Baldwin	Am	Scientific	Baldwin-Ziegler Polar Exp.
	Frithjof				
	Belgica				
1902.....	Freya	Thomassen	N	Hunting	
1903.....	Freya	Thomassen	N	Hunting	
1903.....	Nora	Brækmo	N	Hunting	
1903—05.....	America	Fiala	Am	Scientific	Fiala-Ziegler Polar Exp.
	Frithjof				
	Terra Nova				
1904.....	Stairs	Thomassen	N	Hunting	
1904.....	Alken	Jensen	N	Hunting	
1905.....	Stairs	Thomassen	N	Hunting	
1906.....	Presto	Jonas	N	Hunting	
1906.....	Venus	Virkola	N	Hunting	
1906.....	Stairs	Thomassen	N	Hunting	
1907.....	Autumn	Kræmer	N	Hunting	
1907.....	Stairs	Thomassen	N	Hunting	
1907.....	Severn	Brækmo	N	Hunting	
1908.....	Grønland	Isachsen	N	Hunting	
1908.....	Susan	Johansen	N	Hunting	
1908.....	Alfred Edvard	Stensvold	N	Hunting	
1908.....	Stairs	Thomassen	N	Hunting	
1908.....	Autumn	Kræmer	N	Hunting	
1908.....	Venus	Virkola	N	Hunting	
1908.....	Syvende Juni	Hansen	N	Hunting	
1908.....	Severn	Brækmo	N	Hunting	
1908.....	Spitsbergen	Isachsen	N	Hunting	
1908.....	Colibri	Isachsen	N	Hunting	
1908.....	Victoria	Johannessen	N	Hunting	
1909.....	Stairs	Thomassen	N	Hunting	
1909.....	Severn	Brækmo	N	Hunting	
1909.....	Belgica	Duke of Orleans	F	Hu. & Sc.	
1909.....	Victoria	Johannessen	N	Hunting	
1910.....	Stairs	Thomassen	N	Hunting	
1910.....	Severn	Brækmo	N	Hunting	
1910.....	Lofoten	Johnsen	N	Hunting	With Spanish hunt- ing expedition
1911.....	Stairs	Thomassen	N	Hunting	

Year	Vessel	Leader (Skipper)	Nationality	Nature of Exp.	Remarks
1911.....	Severn	Brækmo	N	Hunting	
1911.....	Tora den Blide	Isachsen	N	Hunting	
1911.....	Mira		N	Hunting	
1911.....	Østerisen	Larsen	N	Hunting	
1911.....	Sulitjelma	Kræmer	N	Hunting	
1912.....	Laura	Øien	N	Hu. & Sp.	
1912—14.....	St. Foka	Sedov	R	Scientific	
1912—14.....	St. Anna	Brussilov	R	Scientific	
1913.....	Severn	Brækmo	N	Hunting	
1914.....	Sjøormen	Haavold	N	Hunting	
1914.....	Hertha	Isljamov	R	Search Exp.	
1915.....	Andromeda	Pospelov	R	Search	
1918.....	Severn	Brækmo	N	Hunting	
1920.....		Virkola	N	Hunting	
1920.....		Knudsen	N	Hunting	
1922.....	Laura	Øien	N	Sport and Hunting	
1922.....	Forpp	Johannessen	N	Hunting	
1922.....	Taakeheimen		N	Hunting	
1923.....	Blaafjeld	Iversen	N	Scientific	
1923.....	Forpp	Johannessen	N	Hunting	
1923.....	Staaalis	Arnesen	N	Hunting	
1923.....	Hanseat		N	Hunting	
1923.....	Altenfjord	Knudsen	N	Hunting	
1923.....		Anton Jensen	N	Hunting	
1923.....		L. Larsen	N	Hunting	
1923.....	Venus	Holmeslett	N	Hunting	
1923.....	Persej	Meshachev	R	Scientific	
1924.....	Venus	Holmeslett	N	Hunting	
1924.....	Salangfjord	Larsen	N	Hunting	
1924.....	Persej	Meshachev	R	Scientific	
1924.....		Johannessen	N	Hunting	
1924.....		Jensen	N	Hunting	
1924.....		Arnesen	N	Hunting	
1924.....	Johan Island	Sørensen	N	Hunting	
1925.....		Worsley-Algars- son	B	Scientific	
1925.....	Salangfjord	Larsen	N	Hunting	
1925.....	Johan	Sørensen	N	Hunting	
1925.....	Hein I	Arnesen	N	Hunting	
1925.....	Andfjord	Pedersen	N	Hunting	
1925.....	Quest	Schjelderup	N	Hunting	
1926.....	Hein	Larsen	N	Hunting	
1926.....	Persej	Meshachev	R	Scientific	
1926.....	Sedov (?)		R	Hunting	(?)
1926.....	Hobby		N	Hunting	
1927.....	Zarnitza	Samoilovitch	R	Scientific	
1927.....	Sverre	Salamonsen	N	Hunting	
1927.....	Autumn	Larsen	N	Hunting	
1927.....	Sleipner	Eriksen	N	Hunting	
1927.....	Quest	Schjelderup	N	Hunting	
1928.....	Frithjof	Kræmer	N	Hunting	
1928.....	Andfjord	Pedersen	N	Hunting	
1928.....	Sverre	Salamonsen	N	Hunting	
1928.....	Bjørnøy	Andersen	N	Hunting	
1928.....	Signalhorn	Kvien	N	Hunting	
1928.....	Brandal	Vartdal	N	Hunting	

Year	Vessel	Leader (Skipper)	Nationality	Nature of Exp.	Remarks
1928.....	Jopeter	Larsen	N	Hunting	To search for the missing members of the Nobile Exp.
1928.....	Sæl	Rasmussen	N	Hunting	
1928.....	Gungnir	Tokle	N	Hunting	
1928.....	Hisø	Bergesen	N	Hunting	
1928.....	Bratvaag	Eliassen	N	Hunting	
1928.....	Autumn	Larsen	N	Hunting	
1928.....	Hobby	Riiser-Larsen	N	Search Exp.	
1928.....	Veslekari	Wisting	N	Search Exp.	
1928.....	Sedov	Voronin	R	Search Exp.	
1928.....	Krassin	Samoilovitch & Eggi	R	Search Exp.	

### Summary.

#### Hunting and Scientific Expeditions at Franz Josef Land.

Year	N	R	B	Am	A	D	F	I
1865.....	1	-	-	-	-	-	-	-
1872-74.....	-	-	-	-	1	-	-	-
1879.....	-	-	-	-	-	1	-	-
1880.....	-	-	1	-	-	-	-	-
1881-82.....	-	-	1	-	-	-	-	-
1886.....	1	-	1	-	-	-	-	-
1895-96.....	1	-	-	-	-	-	-	-
1896.....	2	-	-	-	-	-	-	-
1894-97.....	-	-	1	-	-	-	-	-
1897.....	1	-	3	-	-	-	-	-
1898.....	5	-	1	-	-	-	-	-
1898-99.....	-	-	-	1	-	-	-	-
1899.....	4	-	-	-	-	-	-	-
1899-1900.....	-	-	-	-	-	-	-	1
1900.....	6	-	-	-	-	-	-	-
1901.....	6	1	-	-	-	-	-	-
1901-02.....	-	-	-	1 <sup>1</sup>	-	-	-	-
1902.....	1	-	-	-	-	-	-	-
1903.....	2	-	-	-	-	-	-	-
1903-05.....	-	-	-	1 <sup>1</sup>	-	-	-	-
1904.....	2	-	-	-	-	-	-	-
1905.....	1	-	-	-	-	-	-	-
1906.....	3	-	-	-	-	-	-	-
1907.....	3	-	-	-	-	-	-	-
1908.....	11	-	-	-	-	-	-	-
1909.....	3	-	-	-	-	-	1	-
1910.....	3	-	-	-	-	-	-	-
1911.....	6	-	-	-	-	-	-	-
1912-14.....	-	2	-	-	-	-	-	-
1912.....	1	-	-	-	-	-	-	-
1913.....	1	-	-	-	-	-	-	-

<sup>1</sup> Employing three vessels.

Year	N	R	B	Am	A	D	F	I
1914.....	1	1	-	-	-	-	-	-
1915.....	-	1	-	-	-	-	-	-
1918.....	1	-	-	-	-	-	-	-
1920.....	2	-	-	-	-	-	-	-
1922.....	3	-	-	-	-	-	-	-
1923.....	8	1	-	-	-	-	-	-
1924.....	6	1	-	-	-	-	-	-
1925.....	5	-	1	-	-	-	-	-
1926.....	2	2	-	-	-	-	-	-
1927.....	4	1	-	-	-	-	-	-
1928.....	14	2	-	-	-	-	-	-
1865--1928.....	110	12	9	3	1	1	1	1

Norwegian expeditions: 110

Foreign — : 28

In addition to the Norwegian expeditions enumerated in the above list, many Norwegian vessels of which we have no records have undoubtedly visited the coasts of Franz Josef Land. It is thus highly probable that the total number of Norwegian expeditions will be considerably higher, around 150.

## Literature.

### General Bibliography.

- BREITFUSS, LEONID, Die Erforschung des Polargebietes Russisch-Eurasiens. See- und Landreisen während der Jahre 1912—24. Gotha 1925. — Petermanns Mitt., Erg. H. 188.
- CHAVANNE, JOSEF, KARPF, ALOIS, LE MONNIER, FRANZ RITTER v., Die Literatur über die Polar-Regionen der Erde. Wien 1878.
- GES. F. ERDKUNDE ZU BERLIN, Bibliotheca Geographica. Herausgegeben von der — (Jahrgang 1891—1912). Berlin 1895—1917.

### History and Exploration.

#### General.

- BREITFUSS, LEONID, Die Erschließung des eurasiatischen hohen Nordens. 30 Jahre eigener Arbeit an der wissenschaftlichen und kulturellen Erschließung des nördlichen Eismeerer 1898—1928. Gotha 1930. — Petermanns Mitt., Erg. H. 207.
- Bericht über die Fortschritte der Landeskunde der außereuropäischen Erdteile. Die Erforschung des Nordpolargebiets in den Jahren 1913—28. — Geogr. Jahrbuch, Gotha, B. XLIV, 1930, pp. 350—353.
- Geplante Erforschung des Franz-Josef-Landes und Ost-Grönlands durch des Grafen von Zeppelin. (Ref.) — Z. Ges. Erdk., Berlin, 1909, p. 474.
- MARKHAM, SIR CLEMENTS R., The Lands of Silence. A History of Arctic and Antarctic Exploration. Cambridge 1921.  
Franz Josef Land and its Explorers, pp. 289—297.
- MITTELMANN, S., L'étude des régions arctiques dans l'Union soviétique. — La vie économique des soviets, Paris, 20 jan. 1929, pp. 7—8.
- ROSBERG, I. E., Eine kurze historische Übersicht über die Polarforschung am Gestade des Lapplandmeeres, am nächsten in Franz-Josef-Land und auf Nowaja Semlja. — Terra, Helsingfors, 37, 1925. (Finnish).

#### Payer and Weyprecht 1872—1874.

- CARLSEN, E., Optegnelser fra den østerrigsk-ungarske Polarexpedition (1872—1874). Tromsø 1875. 87 pp.
- PAYER, JULIUS. Die österreichisch-ungarische Nordpol-Expedition in den Jahren 1872—1874, nebst einer Skizze der zweiten deutschen Nordpol-Expedition 1869—1870 und der Polar-Expedition von 1871. Wien 1876. 8<sup>3</sup>. 696 pp., ill., 3 maps.



- Norwegian Ed.:  
Payer, J., Den østerrigsk-ungarske Nordpol-Expedition i aarene 1872—1874, tilligemed en skitse af den anden tyske Nordpol-Expedition 1869—70 og af Polar-Expeditionen i 1871. Kristiania 1877. 667 pp.
- English Ed.:  
Payer J., New Lands within the Arctic Circle. London 1876. 2 vols. 335 og 303 pp.
- PAYER, JULIUS. Die zweite Österr.-Ungar. Nordpolar-Expedition unter Weyprecht und Payer, 1872/4. K.K. Ober-Lieutenant J. Payer's offizieller Bericht an das Comité, d. d. September 1874. — Petermanns Mitt., Gotha, Jahrg. 20, 1874, pp. 443—451, 1 map (Taf. 23).
- The Austro-Hungarian Polar Expedition. (Paper read before the Roy. Geogr. Soc.). — Proc. Roy. Geogr. Soc., London, Vol. 19, Sess. 1874—75, 1875, pp. 17—37.
- Die Entdeckung des Kaiser-Franz-Joseph-Landes. Die österreich-ungarische Nordpolexpedition 1872—74. Leipzig 1929. 158 pp., map.
- PETERMANN, A., Die Österreichisch-Ungarische Polar-Expedition und Graf Wiltschek's Expedition. — Petermanns Mitt., Gotha, Jahrg. 18, 1872, pp. 354—363.
- Die arktische Campagne von 1873. — Petermanns Mitt., Gotha, Jahrg. 20, 1874, pp. 39—40.
- und andere. Die zweite Österreichisch-Ungarische Nordpolar-Expedition unter Weyprecht und Payer, 1872/4. — Petermanns Mitt., Gotha, Jahrg. 20, 1874, pp. 381—392, 2 maps (Taf. 20).
- Die Entdeckung des Franz Josefs-Landes durch die zweite Österr.-Ungarische Nordpolar-Expedition, 1873 und 1874. — Petermanns Mitt., Gotha, Jahrg. 22, 1876, pp. 201—209, Map (Taf. 11).
- Die Rückreise der Österreichisch-Ungarischen Nordpolar-Expedition mit den Booten, Mai—August 1874. — Petermanns Mitt., Gotha, Jahrg. 23, 1877, pp. 85—86, map (Taf. 5).
- Tagebuch des Nordpolfahrers Otto Krisch, Maschinisten und Officiers der zweiten österr.-ungar. Nordpol-Expedition. Aus dem Nachlasse des Verstorbenen herausgegeben von seinem Bruder Anton Krisch. 116 pp. Wien, Wallishäuser, 1875. 8°. Ref. Petermanns Mitt., 1875, pp. 195—196.
- WEYPRECHT, C., Die zweite Österr.-Ungar. Nordpolar-Expedition unter Weyprecht und Payer, 1872/4, K.K. Schiffs-Lieut. C. Weyprecht's offizieller Bericht an das Comité, d. d. 12. Sept. 1874. — Petermanns Mitt., Gotha, Jahrg. 20, 1874, pp. 417—421.
- e J. PAYER, La Spedizione Austro-Ungarica al Polo Nord 1872—1874. 29 pp. con carta. Roma, G. Civelli, 1874. 8°.
- De Bruyne 1879.
- DE BRUYNE, A., De verslagen omtrent den tocht met de Willem Barents naar en in de ijszee, in den zomer van 1879. Amsterdam 1880. 40 s., map., pl. — Bijbladen Tijdschr. aardrijks. genootschap, No. 6.
- The Dutch Arctic Expedition. — Proc. Roy. Geogr. Soc. London, Vol I, 1879, p. 705.
- JANSEN, COMMODORE, The Dutch Arctic Voyages (1878, 1879, 1880, 1881) and the probable position of Mr. Leigh Smith. — Proc. Roy. Geogr. Soc., London, Vol. 4, 1882, pp. 35—41.
- MARKHAM, A. H., The Arctic Campaign of 1879 in the Barents Sea. — Proc. Roy. Geogr. Soc., London, Vol. 2, 1880, pp. 1—40, map.
- Map with track of the *Willem Barents*.

## Leigh Smith 1880 and 1881—1882.

- GRANT, J. A., Cruise of the Yacht Eira, and Discovery of new Lands in the far North. — *Leisure Hour*, 1881, pp. 213—220.
- MARKHAM, C. R., The Voyage of the "Eira" and Mr. Leigh Smith's Arctic Discoveries in 1880. — *Proc. Roy. Geogr. Soc.*, London, Vol. 3, 1881, pp. 129—150, map.
- The Eira Search and Relief Expedition. (Geographical Notes). — *Proc. Roy. Geogr. Soc.*, London, Vol. 4, 1882, pp. 420—422.
- MARKHAM, C. R., Second Voyages of the "Eira" to Franz-Josef Land. (Drawn up from Mr. Leigh Smith's Journals by—). — *Proc. Roy. Geogr. Soc.*, London, Vol. 5, 1883, pp. 204—228, map p. 248.

## Jackson 1894—1897.

- BRICE, ARTHUR MONTEFIORE, The Jackson-Harmsworth Polar Expedition. — *Geogr. Journ.*, London, Vol. 8, 1896, pp. 543—566, map.  
With "Some Remarks on the Flora of Franz Josef Archipelago" by H. Fischer.
- JACKSON, FREDÉRIK G., Three Years' Exploration in Franz Josef Land. — *Geogr. Journ.*, London, Vol. 11, 1898, pp. 113—130, map.
- A thousand Days in the Arctic. London and New York. 1899. 8°. Vols. I, II, 551 og 580 pp., ill., 5 maps.
- MONTEFIORE, ARTHUR, The Jackson-Harmsworth North Polar Expedition: An Account of its first Winter and of some Discoveries in Franz Josef Land. — *Geogr. Journ.*, London, Vol. 6, 1895, pp. 499—522, map.

## Nansen 1895—1896.

- JOHANSEN, HJALMAR, Selv-anden paa 86° 14'. Optegnelser fra den norske polarfærd 1893—96. Kristiania 1898. 366 pp. Franz Josef Land, pp. 237—354.  
English Ed.:  
Johansen, Hjalmar, With Nansen in the North. London 1899. 351 pp., ill., map.
- NANSEN, FRIDTJOF, Fram over Polhavet. Kristiania 1897. 8°. Vols. I, II, 526 and 553 pp., ill. 3 maps. Franz Josef Land: Vol. II, pp. 175—387, 511—526, map.  
English Ed.:  
Nansen, Fridtjof, Farthest North. London 1897. 8°. Vols. I, II, 510 and 671 pp., ill., 4 maps.  
Also in many other languages.

## Wellman 1898—1899.

- BROSCH, GUSTAV RITTER v., Die Wellmansche Polar-Expedition 1898—1899 nach dem Kaiser-Franz-Josefs-Land. — *M. k. k. G. Ges.*, Wien, B. 44, 1901, pp. 177—184.
- NATHORST, A. G., Om spaningarne efter Andrée kring Spetsbergen och vid Franz Josefs Land. — *Ymer*, Stockholm, Årg. 18, 1898, pp. 235—242, map.  
The Search of Capt. Kjeldsen after Andrée with the Ship of the Wellman exp., *Frithjof*.
- Mr. WELLMAN'S Expedition. — *Geogr. Journ.*, London, Vol. 14, 1899, p. 326.
- WELLMAN, WALTER, The Wellman Polar Expedition. — *Nat. Geogr. Mag.*, Washington, Vol. 10, 1899, pp. 481—505, maps.

WICHMANN, H., Polargebiete. [Notes about the W. Exp.] — Petermanns Mitt., Gotha, Jahrg. 44, 1898, pp. 144 og 264, Jahrg. 45, 1899, p. 200, Jahrg. 46, 1900, p. 48.

Duke of Abruzzi 1899—1900.

ABRUZZI, S. A. R. Luigi Amedeo di Savoia, duca degli, La "Stella Polare" nel mare artico 1899—1900. Milano 1903. 583 pp., ill., 4 maps. English Ed.:  
Abruzzi, Luigi Amedeo of Savoy, Duke of the, On the "Polar Star" in the Arctic Sea. London 1903. 2 vols. 702 pp.  
— Luigi Amedeo di Savoia duca degli, Osservazioni scientifiche eseguite durante la spedizione polare di —, 1899—1900. Milano 1903. 4°. 723 pp.

Støkken 1901.

WICHMANN, H., [Notes on the Støkken-exp.] (Geographischer Monatsbericht). — Petermanns Mitt., Gotha, Jahrg. 47, 1901, p. 72, 192.

Makarov 1901.

WICHMANN, H., [Notes on the Yermak-exp.] (Geogr. Monatsbericht). — Petermanns Mitt., Gotha, Jahrg. 47, 1901, pp. 23, 168, 216.

Baldwin-Ziegler 1901—02.

WICHMANN, H., Polargebiete. [Notes on the Baldwin-Ziegler Expedition]. — Petermanns Mitt., Gotha, Jahrg. 48, 1902, p. 192, 216.  
Return of the Baldwin Expedition. — Geogr. Journ., London, Vol. 20, 1902, p. 344.  
The Arctic Expeditions—Return of Sverdrup, Peary, and Baldwin. — Geogr. Journ., London, Vol. 20, 1902, p. 438.

Fiala-Ziegler 1903—1905.

FIALA, ANTHONY, Fighting the Polar Ice. London 1907. 8°. 302 pp., ill., map.  
FLEMING, JOHN A., The Ziegler Polar Expedition 1903—1905. Anthony Fiala, Commander. Scientific Results . . . Edited by —. Washington 1907.  
KJELDSSEN, JOHAN, [About the Relief Expedition with the *Terra Nova* in 1905]. — Isachsen, Gunnar, Folk, Fangst og Færder, Nordmændene paa Spitsbergen og Ishavet. Norsk Geogr. Selsk. årb., Kristiania, B. 28/30, (Aarg. 1916—1919), 1921, pp. 220—226.  
Return of the Ziegler Polar Expedition. — Geogr. Journ., London, Vol. 26, 1905, p. 335.  
The Ziegler Arctic Expedition. — Geogr. Journ., London, Vol. 26, 1905, pp. 457—458.  
WICHMANN, H., [Account of the Fiala-Ziegler Expedition.] (Geographischer Monatsbericht). — Petermanns Mitt., Gotha, Jahrg. 51, 1905, pp. 191—192.  
The Ziegler North Polar Expedition. — Scot. Geogr. Mag., Edinburgh, Vol. 21, 1905, pp. 543—548.

## Brussilov Expedition 1912—14.

ALBANOV, V. I., Na jug k zemlia Frantsa Josifa! Pochod sjturmana V. I. Albanova po ldu so sjkuny "Sv. Anna" ekspeditsii leitenanta G. L. Brusilova. Petrograd 1917. 4°. 194 pp., ill., map. Supplement to "Zapizok po gidrografii", T. 41.

German Ed.:

Breitfuss, Leonid (ed), Irrfahrten im Lande des Weißen Todes. Erlebnisse und Tagebuchaufzeichnungen des Ersten Steuermanns Albanow der Brussilow-Expedition (1912—1914) auf seiner Reise von Bord der "St. Anna" nach dem Kap Flora. Stuttgart/Gotha 1925. 206 pp., ill., 2 maps.

French Ed.:

Breitfuss, L., (ed), Au pays de la mort blanche. Récit de l'expédition arctique Broussiloff par l'un des deux survivants, A. Albanoff, premier pilote à bord du brick "Sainte-Anna", publié par le docteur —. Paris 1928. 8°. 203 pp., 2 maps.

— Zwischen Leben und Tod. Kurze Skizze der Brussilow-Expedition. Berlin 1925. (Russian).

BREITFUSS, LEONID, Die Polarexpedition von Leutnant Brussilow an Bord "St. Anna". — Denkschr. f. Hydrogr., St. Petersburg, XXXVIII, Lief. 2, Beilage, 1914. (Russian).

— Die Nordpolarexpeditionen des Jahres 1912 und Maßnahmen zu ihrer Auffindung. — Denkschr. f. Hydrogr., Petrograd, XXXIX, Lief. 4, 1915. (Russian).

— Skizze der Expedition von Leutnant Brussilow. — Denkschr. f. Hydrogr., Petrograd, XLI, Lief. 4, 1917. (Russian).

## Sedov 1913—1914.

BREITFUSS, L., Nordpolarexpeditionen 1912 und deren Suchexpeditionen. — Denkschr. f. Hydrografie, Leningrad, XXXIX, Lief. 2, 1915. (Russian).

— Skizze der Sedow-Expedition zum Nordpol. — Denkschr. f. Hydrogr., hrsg. vom Hydrogr. Hauptamt Leningrad, XLII, Lief. 1, 1918. (Russian).

— Die Erforschung des Polargebietes Russisch-Eurasiens. See- und Landreisen während der Jahre 1912—24. Gotha 1925. 113 pp. — Petermanns Mitt., Erg. H. 188.

KUSCHAKOW, P. G., Zwei Jahre im Eise, mit der Expedition Sedows zum Nordpol (nur jener Teil der Expedition bis zum Frühjahr 1913). — Denkschr. f. Hydrogr. XLII/XLIII, 1918—19, (Russian).

PINEGIN, N., Auf den weiten Eisfeldern. Leningrad 1924. (Russian).

## „Andromeda“ Expedition 1915.

BREITFUSS, L., Über die Tätigkeit der Suchexpeditionen an Bord der S.S. "Andromeda" und "Kit" ("Poliarny") im Jahre 1915. — Denkschr. f. Hydrogr., Petrograd, XL, Lief. 3, 1916. (Russian).

## Russian Expeditions 1923 and 1924.

MESSJATZEW, I. I., Dritte Expedition des Wissenschaftlichen Meeresinstituts (1923). — Ber. des Wiss. Meeresinst., Bd. I, Lief. 1, Moskva 1926, s. 37—38.

— Fünfte Expedition des Wissenschaftlichen Meeresinstituts (1924). — Ber. des Wiss. Meeresinst., Bd. I, Lief. 1, Moskva 1926, s. 38—39.

## Iversen 1923.

- IVERSEN, THOR, Praktiske fiskeundersøkelser i de nordlige polarfarvande 1923. — Aarsberetn. vedk. Norges fiskerier for 1924, H. I. Also in: Norsk Fiskeritidende, Årg. 43, 1924, pp. 74—85.
- Hopen (Hope Island). Oslo 1926. — Result. norske statsunderstøt. Spitsbergeneksp. B. I, Nr. 10.

## Worsley—Algarsson 1925.

- WORSLEY, F. A., Under Sail in the frozen North. With a preface by Grettir Algarsson. London 1927.  
Franz Josef Land, pp. 108—141.

## Russian Expedition 1927.

- SAMOILOVITCH, R., Explorations in Novaya Zemlya and the Barents Sea executed by the Institute for the Exploration of the North. — Arktis, Gotha, Jahrg. 1, 1928, pp. 2—11, Taf. 1—3.

## “Sedov” Expedition 1928.

- EVGJENOV, N., The Cruise of the Ice-breaker Sedov at the Coast of Franz Josef Land in 1928. — Morskoi Sbornik, Leningrad, Feb. 1929, pp. 43—54, map (Russian).

## “Sedov” Expedition 1929.

- Een Russische expedition naar Frans-Josef-land. — Tijdschr. Kon. Nederl. Gen., Sept. 1929, pp. 739—740.
- SAMOILOVITCH, R., L'Expédition à la Terre François-Joseph. — La Vie économique des Soviets, No. 103, 1929.
- WIESE, W., Die Expedition des Eisbrechers “Sedow” nach Franz-Josefs-Land zwecks Aufbau einer meteorologischen Radiostation. — Arktis, Gotha, Jahrg. 2, 1929, pp. 126—128, map of Hooker I.

**Astronomy.**

- CAGNI, UMBERTO, Osservazioni astronomiche. . . Relazione sulle osservazioni astronomiche fatta dal tenente di vascello Alberto Alessio. — Osservazioni scientifiche eseguite durante la spedizione di S. A. R. Luigi Amedeo di Savoia. Milano 1903. Pp. 15—107.
- GEELMUYDEN, H. Astronomical Observations. — The Norwegian North Polar Expedition 1893—1896. Scientific Results edited by Fridtjof Nansen. Vol. II. Christiania 1901.  
The Sledge Expedition, pp. 109—136.
- PETERS, W. J., PORTER, RUSSELL W., and FLEMING J. A., Astronomical Observations and Reductions. — The Ziegler Polar Expedition 1903—1905. Scientific Results. Ed. by John A. Fleming. Washington 1907. Pp. 597—622.
- WEYPRECHT, CARL, Astronomische und geodätische Bestimmungen der österreichisch-ungarischen arctischen Expeditionen 1872—1874. — Denkschr. der k. Akad. der Wiss. Wien, Mat. Nat. Cl., B. 35, 1878, pp. 47—68, 1 Taf.

### Aurora Borealis.

- BALDWIN, E. B., Auroral Observations on the second Wellman Expedition made in the Neighbourhood of Franz Josefs Land. — *Monthly Weather Rev.*, Vol. 29, 1901, pp. 107—115.
- CAGNI, UMBERTO, Aurore boreali osservate dal — nella baia di Teplitz. — Osservazioni scientifiche eseguite durante la spedizione polare di S. A. R. Luigi Amedeo di Savoia. Milano 1903. Pp. 193—207.
- FIALA, ANTHONY, Notes and Sketches of the Aurora Borealis. — *The Ziegler Polar Expedition 1903—1905. Scientific Results.* Ed. by John A. Fleming. Washington 1907. Pp. 360—368. 19 pl.
- Journal of Aurora* — Jackson, F. G., *A Thousand Days in the Arctic.* Vol. II. London 1899. Pp. 460—484.
- WEYPRECHT, CARL, Die Nordlichtbeobachtungen der österreichisch-ungarischen arctischen Expedition 1872—1874. — *Denkschr. d. k. Akad. der Wiss. Wien, Mat. nat. Cl.*, B. 35, 1878, pp. 293—356.

### Magnetism.

- ARMITAGE, A. B., Absolute Declinations at Cape Flora. — Jackson, F. G., *A Thousand Days in The Arctic.* Vol. II. London 1899. P. 541.
- FLEMING, J. A., *Scientific Results of the Ziegler Polar Expedition of 1903 to 1905. Abstract.* — *Terr. Magnetism a. Atm. Elect.* Baltimore, 1907, 12, pp. 105—124.
- HANN, J., Magnetische und meteorologische Beobachtungen der Ziegler-Expedition auf Franz-Joseph-Land. — *Met. Z.*, Braunschweig, B. 28, 1911, pp. 327—330.
- PALAZZO, LUIGI, Relazione sulle osservazioni magnetiche. — Osservazioni scientifiche eseguite durante la spedizione di S. A. R. Luigi Amedeo di Savoia. Milano 1903. Pp. 441—501.  
 Appendice: Esperienze sul traino di un veicolo alleggerito da un areostato eseguite dal comandante Cagni. Pp. 505—516.
- PETERS, WILLIAM J., *Scientific Work of the Ziegler Polar Expedition.* — *Terr. Magnetism a. Atm. Elect.*, Baltimore, 1905, 10, p. 130.
- PETERS, W. J., and FLEMING, J. A., *Magnetic Observations and Reductions.* — *The Ziegler Polar Expedition 1903—1905. Scientific Results.* Ed. by John A. Fleming. Washington 1907. Pp. 1—359.
- WEYPRECHT, CARL, Hauptresultate der magnetischen Beobachtungen während der österr.-ung. Polar-Expedition. 19 pp. Wien, Gerold's Sohn, 1876. 8<sup>o</sup>.  
 — Die magnetischen Beobachtungen der österreichisch-ungarischen arktischen Expedition 1872—1874. — *Denkschr. der k. Akad. der Wiss. Wien*, B. 35, 1878, pp. 69—292, 6 pl.

### Meteorology.

- ARMITAGE, LIEUT., *Meteorological, Magnetic, and Astronomical Observations.* (Appendix to Mr. Jackson's Paper). — *Geogr. Journ.*, London, Vol. 11, 1898, pp. 130—132.
- , A. B., *Notes on the Meteorological Observations in Franz Josef Land of the Jackson-Harmsworth Polar Expedition.* — Jackson, F. G., *A Thousand Days in the Arctic.* Vol. II. London 1899. Pp. 420—426.

- BALDWIN, EVELYN B., *The Meteorological Observations of the Second Wellman Expedition.* — *Nat. Geogr. Mag.*, Washington, Vol. 10, 1899, pp. 512—516.
- *Meteorological Observations of the Second Wellman Expedition.* — U. S. Dep. of Agriculture. Weather Bureau. Rep. of the Chief of the Weather Bureau 1899—1900. Part VII. Washington 1901, pp. 351—436.
- BAUR, FRANZ, *Das Klima der bisher erforschten Teile der Arktis.* — *Arktis*, Gotha, 2. Jahrg., 1929, pp. 77—89, 110—120.
- H[ANN], J., Rizzo: *Die tägliche Drehung des Windes auf Franz-Josefs-Land. Teplitz-Bai 81° 47'.* — *Met. Z. Wien*, 1904, 21, pp. 141—142.
- *Täglicher Gang der meteorologischen Elemente auf Franz-Josefs-Land, Teplitz-Bai 81° 47'.* — *Met. Z.*, Wien, 1904, 21, p. 141.
- *Einige Ergebnisse der meteorologischen Beobachtungen auf Franz Josefs Land zwischen 1872 und 1900.* — *Met. Z.*, Braunschweig, B. 21, 1904, pp. 547—555.
- MOHN, H., *Meteorology.* — *The Norwegian North Polar Expedition 1893—1896. Results*, ed. by Fridtjof Nansen, Vol. VI. Christiania 1905.  
The Sledge Expedition, pp. 609—653.
- PETERS, W. J., and FLEMING, J. A., *Meteorological Observations and Compilations.* — *The Ziegler Polar Expedition 1903—1905. Scientific Results.* Ed. by John A. Fleming. Washington 1907. Pp. 369—487.
- RIZZO, GIOVANNI BATTISTA, *Relazione sulle osservazioni meteorologiche.* — *Osservazioni scientifiche eseguite durante la spedizione polare di S. A. R. Luigi Amedeo di Savoia . . .* Milano 1903. Pp. 221—415.
- STRACHAN, *Some Results of Meteorological Observations made at Cape Flora, Franz Josef Land.* — Jackson, F. G., *A Thousand Days in the Arctic.* Vol. II. London 1899. Pp. 427—459.
- WIESE, W., *Resultate der meteorol. Beobacht. auf Franz Josefs Land.* — *Met. Z.*, 1923, p. 274.
- WÜLLERSDORF-URBAIR, B. VON, *Die meteorologischen Beobachtungen und die Analyse des Schiffcurses während der Polar-Expeditionen unter Weyprecht und Payer 1872—1874.* — *Denkschr. der k. Akad. der Wiss. Wien*, B. 35, 1878, p. 1—24, map.
- *Die meteorologischen Beobachtungen am Bord des "Tegetthoff" Commandant: Carl Weyprecht 1872—1874.* — *Denkschr. d. k. Akad. d. Wiss. Wien, Mat. nat. Cl.*, B. 43, 1882, pp. 147—292, 4 Taf. (Ref. in *Met. Z.*, B. 18, p. 193).

### Hydrography.

- Arctic Pilot.* Vol. I. London 1918. Franz Josef Land, pp. 444—446.
- ARMITAGE, A. B., *Tidal Observations at Cape Flora.* — Jackson, F. G., *A Thousand Days in the Arctic.* Vol. II. London 1899. Pp. 545—546.
- CAGNI, UMBERTO, *Quadro delle osservazioni di marea fatte nella baia di Teplitz. Relazione sulle osservazioni di marea: Tenente di Vascello Alberto Alessio.* — *Osservazioni scientifiche eseguite durante la spedizione di S. A. R. Luigi Amedeo di Savoia.* Milano 1903. Pp. 109—177.
- *Scandagli eseguiti dal com.te — durante la campagna della "Stella Polare".* — *Osservazioni scientifiche . . . di S. A. R. Luigi Amedeo di Savoia.* Milano 1903. Pp. 179—187, 2 maps.

- IVERSEN, THOR, Soundings taken by — on the Blaafeldt 1923. South Cape — Hope Island — Franz Josef Land. — Iversen, Thor, Hopen. De norske statsunderstøt. Spitsbergeneksp. B. 1, No. 10. Pp. 39—40.
- Lothungen und Beschaffenheit des Meeresbodens. — Willersdorf-Urbair B. von, Die meteorologischen Beobachtungen . . . Denkschr. d. kais. Akad. d. Wiss. Mat.-Nat. Cl., B. 35, Wien 1878, p. 23.
- PETERS, W. J., and SHIDY, P. L., Tidal Observations and Reductions. — The Ziegler Polar Expedition 1903—1905. Scientific Results. Ed. by John A. Fleming. Washington 1907. Pp. 489—596.
- WEYPRECHT, C., Tiefsee-Temperatur-Beobachtungen im Ost-Spitzbergischen Meere, 1871—1874. — Petermanns Mitt., Jahrg. 24, 1878, pp. 345—353.
- WIESE, W. J., Flut auf dem Franz-Joseph Lande. Petrograd 1923. 8 s. — Russ. Hydrol. Inst. No. 69 (Nachrichten No. 7).  
Observations of the Sedov Expedition.

### Glaciology and Ice Conditions.

- Isforholdene i de arktiske have (the State of the Ice in the Arctic Seas). Published annually by the Danish Meteorological Institute, Copenhagen.
- PAWLOW, M. A., Über die Dislokation in den Gletschern auf Franz-Josef-Land. — Mat. f. Geol. d. fernern Ostens XXI, 1921, 2 Tab. (Russian).
- SPEERSCHNEIDER, C. I. H., Isforholdene i de arktiske have, oversigt, gennemsnitsgrænser m. m. Nautisk meteorologisk aarbog, Kjøbenhavn 1917.
- WEYPRECHT, KARL, Die Metamorphosen des Polareises. Österr.-Ungar. Arktische Expedition 1872—1874. Wien 1879. 284 pp., 1 map.
- WIESE, W., Über die Möglichkeit den Zustand des Eises im Barents Meer vorauszusagen. — Nachr. Hydro-meteorol. Zentralbureau 1923, No. 1, 45 pp., 6 Tab. (In Russian).
- Zur Glaziologie von Franz-Josef Land. — Bulletin de l'Institut Hydrologique. Leningrad, No. 22, 1929, pp. 61—78, 2 maps. (Russian with German summary).

### Geography.

- BROSCH, GUSTAV RITTER VON, Prof. Dr. Nansen und Payers Karte von Franz Josef Land. — M. G. Ges. Wien, 43, 1900, pp. 15—24.
- COPELAND, RALPH, On a revised Map of Kaiser Franz Josef Land, based on Oberleutenant Payer's Original Survey. — Geogr. Journ., London, Vol. 10, 1897, pp. 180—191, map.
- MECKING, L., Die Polarländer. Leipzig 1925. Pp. 40—42.
- A Regional Geography of the Arctic and the Antarctic. — The Geography of the Polar Regions. Am. Geogr. Soc., Sp. Publ. No. 8, New York 1928. Pp. 151—154.
- MONTEFIORE, ARTHUR, A Note on the Geography of Franz Josef Land. — Geogr. Journ., London, Vol. 3, 1894, pp. 492—497.
- NANSEN, FRIDTJOF, Franz Josefs Lands geografi og geologi. — Nansen, Fram over Polhavet, B. 2, Kristiania 1897, pp. 511—526.
- PORTER, RUSSELL W., Map Construction and Survey Work. — The Ziegler Polar Expedition 1903—1905. Scientific Results. Ed. by John A. Fleming. Washington 1907. Pp. 623—630. 4 maps.
- SUPAN, ALEXANDER, Copelands neue Carte von Franz Josef-Land. — Petermanns Mitt., Gotha, Jahrg. 43, 1897, pp. 217—218.



**Physics.**

FISHER, H., Temperatures of Soil, Water, &c. — Jackson, F. G., A Thousand Days in the Arctic. Vol. II. London 1899. Pp. 542—544

**Geology.**

- COLOMBA, LUIGI, Zeoliti dell'isola del Principe Rodolfo. — Osservazioni scientifiche eseguite durante la spedizione polare di S. A. R. Luigi Amedeo di Savoia . . . Milano 1903. Pp. 713—719.
- FREBOLD, HANS, Das Festungsprofil auf Spitzbergen. Jura und Kreide. Oslo 1928. — Skr. om Svalbard og Ishavet, Nr. 19.
- KOETTLITZ, REGINALD, Observations on the Geology of Franz Josef Land. — London, Q. J. Geol. Soc., Vol. 54, 1898, pp. 620—645.
- Brief Sketch of the Geology. (Appendix to Mr. Jackson's paper). — Geogr. Journ., London, Vol. 11, 1898, pp. 132—135.
- Short Statement upon the Geology of Franz Josef Land. — Jackson, F. G., A Thousand Days in the Arctic. Vol. II. London 1899. Pp. 485—540.
- NANSEN, FRIDTJOF, A Geological Sketch of Cape Flora and its Neighbourhood. — Pompeckj, J. F., The Jurassic Fauna of Cape Flora . . . Pp. 3—32.
- NATHORST, A. G., [On Plant Fossils from Franz Josef Land.] — Nansen, F. Fram over Polhavet, B. 2, Kristiania 1897, pp. 519—521.
- Fossil Plants from Franz Josef Land. Pp. 1—26, 2 pl. — The Norwegian North Polar Expedition 1893—1896. Scientific Results, ed. by Fridtjof Nansen. Vol. I. Christiania 1900.
- NEWTON, E. T. and TEALL, J. J. H., Notes on a Collection of Rocks and Fossils from Franz Josef Land, made by the Jackson-Harmsworth Expedition during 1894—1896. — London, Q. J. Geol. Soc., Vol. 53, 1897, pp. 477—519, 1 map, pl. 37/41.
- Additional Notes on Rocks and Fossils from Franz Josef Land. — London, Q. J. Geol. Soc., Vol. 54, 1898, pp. 646—652, pl. 29.
- NORDENSKJÖLD, OTTO, Die Nordatlantischen Polarinseln. Heidelberg 1921. — Handb. d. reg. Geol., B. IV. 2 b, p. 26.
- PIOLTI, GIUSEPPE, I basalti dell'isola del Principe Rodolfo. — Osservazioni scientifiche eseguite durante la spedizione polare di S. A. R. Luigi Amedeo di Savoia . . . Milano 1903. Pp. 701—711.
- POMPECKJ, J. F., Über Jura auf Franz-Josef-Land. [Review of lecture]. — Zs. d. geol. Ges., Berlin. B. 51, 1899, Verh. pp. 2—10.
- The Jurassic Fauna of Cape Flora, Franz Josef Land. With a Geological Sketch of Cape Flora and its Neighbourhood by Fridtjof Nansen. Pp. 1—147, 3 plates. — The Norwegian North Polar Expedition 1893—1896. Scientific Results, ed. by Fridtjof Nansen. Vol. I. Christiania 1900.
- SOLMS LAUBACH, H. GRAF ZU, Die strukturbietenden Pflanzengesteine von Franz Josef Land. Stockholm 1904. 16 pp., 2 pl. — Stockholm Vet.-Ak. Handl., B. 23, No. 8.
- Material from Leigh Smith's and Jackson's Expeditions.
- SPEZIA, GIORGIO, Note mineralogiche sopra alcuni materiali dell'isola del Principe Rodolfo. — Osservazioni scientifiche eseguite durante la spedizione polare di S. A. R. Luigi Amedeo di Savoia . . . Milano 1903. Pp. 689—700.

### Zoology.

- BRADY, HENRY B., Über einige arktische Tiefsee-Foraminiferen gesammelt während der österreichisch-ungarischen Nordpol-Expedition . . . 1872—1874. — Denkschr. d. k. Akad. d. Wiss. Wien, Mat. nat. Cl., B. 43, 1882, pp. 91—110, 2 Taf.
- BREITFUSS, LEONID, Die biologischen Probleme der Arktis (Mit übersicht über die wichtigsten Expeditionen während der letzten 50 Jahre). — Arktis, Gotha, Jahrg. 1, 1928, pp. 97—112, Taf. 25.
- BRUCE, W. S., The Zoology of the Expedition. (Appendix to Mr. Jackson's paper). — Geogr. Journ., London, Vol. 11, 1898, pp. 137—138.
- BRUCE, WILLIAM S., and CLARKE, WILLIAM EAGLE, The Mammalia and Birds of Franz Josef Land. — Proc. Royal Physical Soc. Edinburgh, Vol. 14, 1899, pp. 78—112, outline map.
- CAMERANO, LORENZO, Di alcuni resti di renna. Pp. 523—546.  
 — Di alcuni resti di "pusa foetida fabr." Pp. 547—553.  
 — Osservazioni intorno ad alcuni crani di "Odobaeus rosmarus Malmg." . . . Pp. 555—563.  
 — Osservazioni intorno ad alcuni cranî di "Thalassarctos maritimus (Linn.)." Pp. 565—579.  
 — Osservazioni intorno ad una femmina di "Delphinapterus leucas Pall." . . . Pp. 581—596.  
 — Osservazioni intorno al "Gadus saida Lepechin". Pp. 609—620.  
 — Osservazioni scientifiche eseguite durante la spedizione polare di S. A. R. Luigi Amedeo di Savoia . . . Milano 1903.
- CARPENTER, GEORGE H., On Pantopoda collected by Mr. W. S. Bruce in the neighbourhood of Franz-Josef Land, 1896—97. — Journ. Linn. Soc., London, Vol. 26, 1898, pp. 626—634, pl. 46.  
 — Collembola from Franz Josef Land. (Collected by Mr. W. S. Bruce, 1896—97). — P. R. Dublin Soc., Vol. 9, 1900, pp. 271—282.
- CLARKE, WM. EAGLE, On the Avifauna of Franz Josef Land. With Notes by Wm. S. Bruce. — Ibis, April 1898, 30 pp., map.
- COLLETT, ROBERT and NANSEN, FRIDTJOF, An Account of the Birds. The Sledge Journey and Franz Josef Land, pp. 24—43. — The Norwegian North Polar Expedition 1893—1896. Scientific Results, ed. by Fridtjof Nansen. Vol. I. Christiania 1900.
- FEILDEN, Some Remarks on the Natural History of Franz Josef Land. — Trans. Norfolk and Norw. Nat. Soc. 111, 1881, pp. 201—211.
- FISHER, H., Zoology. (Appendix to Mr. Montefiore Brice's Paper). — Geogr. Journ., London, Vol. 8, 1896, pp. 563—564.
- FROHAWK, F. W., Notes and Descriptions of the Eggs collected by Frederick G. Jackson and the Jackson-Harmsworth Polar Expedition in Franz Josef Land, 1894 to 1897. — Jackson, F. G., A Thousand Days in the Arctic. Vol. II. London 1899. Pp. 389—396.
- GIGLIO TOS, ERMANN, "Chironomus fuscipes Meig." — Osservazioni scientifiche eseguite durante la spedizione polare di S. A. R. Luigi Amedeo di Savoia . . . Milano 1903. P. 625.
- HELLER, CAMIL, Die Crustaceen, Pycnogoniden und Tunicaten der k. k. österr.-ungar. Nordpol-Expedition. — Denkschr. der k. Ak. der Wiss. Wien, Mat. Nat. Cl., B. 35, 1878, p. 25—46, 5 Taf.
- HOEL, ADOLF, Hvorfra er Spitsbergenrenen kommet? — Naturen, Bergen, 40 årg., 1916, pp. 37—43.

French translation:

Hoel, Adolf, D'où vient le renne du Spitsberg? — *La Géographie*, Paris, T. 30, 1914—15, pp. 443—448.

JACKSON, F. G., Notes on the Birds of Franz Joseph Land seen by the Jackson-Harmsworth Polar Expedition 1894 to 1897. — Jackson, F. G., *A Thousand Days in the Arctic*. Vol. II. London 1899. Pp. 397—412.

Liste des stations ou on a jeté la drague etc. en route du "Ermak" en été de 1901. — *Ann. Musée Zool. Acad. Imp. des Sc. de St. Petersburg*, Vol. IV, 1901, p. 425 ff.

MARENZELLER, EMIL v., Die Coelenteraten, Echinodermen und Würmer der k. k. österreichisch-ungarischen Nordpol-Expedition. — *Denkschr. d. k. Akad. d. Wiss. Wien, Mat. Nat. Kl.*, B. 35, 1878, pp. 357—398, 4 pl.

MIERS, E. J., On a small Collection of Crustacea and Pycnogonida from Franz-Josef Land, collected by B. Leigh Smith, Esq. — *Ann. Mag. Nat. Hist.* (5) VII, 1881, pp. 45—51, pl. VII.

MILLER, [Note on Ptarmigan collected on Alger Island.] — *The Ziegler Polar Expedition 1903—1905*. Scientific Results. Ed. by John A. Fleming. Washington 1907. Page vi.

NEALE, Notes on the Natural History of Franz Josef Land as observed in 1881—1882. — *Proc. Zool. Soc. of Lond.* 1882, pp. 652—656.

NOBILI, GIUSEPPE, Crostacei. Pp. 627—629.

— Echinodermi. P. 631. — *Osservazioni scientifiche eseguite durante la spedizione polare di S. A. R. Luigi Amedeo di Savoia . . . Milano 1903*.

PARONA, CORRADO, Elminti. — *Osservazioni scientifiche eseguite durante la spedizione polare di S. A. R. Luigi Amedeo di Savoia . . . Milano 1903*. Pp. 633—635.

PICKARD-CAMBRIDGE, O., On some Arctic Spiders collected during the Jackson-Harmsworth Polar Expedition to the Franz-Josef Archipelago. — *Journ. Linn. Soc.*, London, Vol. 26, 1898, pp. 613—615, pl. 45.

POLLONERA, CARLO, Molluschi. — *Osservazioni scientifiche eseguite durante la spedizione polare di S. A. R. Luigi Amedeo di Savoia . . . Milano 1903*. Pp. 621—623.

SALVADORI, TOMMASO, Uccelli. — *Osservazioni scientifiche eseguite durante la spedizione polare di S. A. R. Luigi Amedeo di Savoia . . . Milano 1903*. Pp. 597—607.

SCHÖTT, H., Fyra Collembolaformer från Franz Josephs land. — *Förhandl. Skand. Naturf. 15:e möte 1898, Stockholm 1899*, p. 288

### Botany.

BELLI, S., Phanerogamæ. — *Osservazioni scientifiche eseguite durante la spedizione polare di S. A. R. Luigi Amedeo di Savoia . . . Milano 1903*. Pp. 643—647.

BORGE, O., Süßwasseralgen von Franz Josefs-Land, gesammelt von der Jackson-Harmsworth'schen Expedition. — *Stockholm, Vet.-Ak. Öfvers. Årg. 56*, 1899, pp. 751—766.

CLEVE, P. T., Diatoms from Franz Josef Land collected by the Harmsworth-Jackson expedition and examined by —. *Stockholm 1898*. 26 pp. — *Stockholm, Vet.-Ak. Bih.*, B. 24, Afd. III, No. 2.

- ELENKIN, A. A. et SAVICZ, V. P., Lichenes in regionibus arcticis Oceani Glacialis ab I. V. Palibin anno 1901, collecti. — Acta Horti Petropolit., Tom. XXXII (1912), St. Petersburg 1912.  
Franz Josef Land, pp. 82—93.
- FISHER, H., Some Remarks on the Flora on the Franz Josef Archipelago. — Geogr. Journ., London, Vol. 8, 1896, pp. 560—563.
- Flora of Franz Josef Archipelago. — Geogr. Journ., London, Vol. 11, 1898, pp. 135—137.
- Botany of Franz Josef Land. — Jackson, F. G., A Thousand Days in the Arctic. Vol. II. London 1899. Pp. 413—419.
- Report on the Flora of Franz Josef Land from Cape Barents to Cape Neale. — Jackson, F. G., A Thousand Days in the Arctic. Vol. II. London 1899. Pp. 547—553.
- GRUNOW, A., Die Diatomeen von Franz Josefs-Land. — Denkschr. d. k. Akad. d. Wiss. Bd. Wien, Mat. Nat. Cl., B. 48, 1884, pp. 53—112, 5 Taf.
- MATTIROLLO, O., Cryptogamæ. — Osservazioni scientifiche eseguite durante la spedizione polare di S. A. R. Amedeo di Savoia . . . Milano 1903. Pp. 649—685.

### Hunting.

- [British Sealers at Franz Josef Land]. — Finmarksposten, Hammerfest, 20. aug. 1897.
- IŞACHSEN, GUNNAR, Folk fangst og færder, nordmændene paa Spitsbergen og Ishavet. — Norsk geogr. selsk. årb., Kristiania, Årg. 28/30, 1921, pp. 121—250.
- Den norske Ishavsfangst. — Den norske sjøfarts historie. B. III (2). Oslo 1929. Pp. 361—382.
- IVERSEN, THOR, Drivis og selfangst. Bergen 1927. 84 pp. Årsberetn. ved Norges Fiskerier, H. 1.
- MEDINACELI, DUQUE DE, Expedición en el Arctica en el Verano de 1910. Madrid 1919.
- ORLEANS, DUC. D', La Revanche de la Banquise. Un été dérive dans la mer de Kara. Juin—sept. 1907. Paris 1909.  
Brækmo's hunting exp. in 1907 (with map) p. 255.
- Chasses et chasseurs arctiques. Paris 1911.
- PETTERSEN, KARL, Spitsbergen i 1864. — Tromsø Stiftstidende, 25. and 29. sept. 1864.
- RÉCAMIER, DOCTEUR, L'âme de l'exilé. Paris 1927. Terre de François-Joseph, pp. 231—260.
- WICHMANN, H., [Captain Gray at F. J. L.]. — Petermanns Mitt., Goth., Jahrg. 33, 1887, p. 61.
- [Whaler Balaena at F. J. L.]. — Petermanns Mitt., Goth., Jahrg. 43, 1897, p. 224.
- [Whaler Balaena at F. J. L.]. — Petermanns Mitt., Goth., Jahrg. 44, 1898, p. 119.

### Health.

- HARLEY, VAUGHAN, An Experimental Inquiry into Scurvy. — Jackson, F. G., A Thousand Days in the Arctic. Vol. II. London 1899. Pp. 382—388.
- MOLINELLI, A. C., Relazione del Medico — sulle condizioni sanitarie durante la spedizione. — Savoia, Luigi Amedeo di, La "Stella Polare" nel mare artico. Milano 1903. Pp. 549—578.

**Politics.**

- BREITFUSS, L., Die territoriale Sektoreneinteilung der Arktis im Zusammenhang mit dem zu erwartenden transarktischen Luftverkehr. — Petermanns Mitt., Gotha, Jahrg. 74, 1928, pp. 23—28.
- JOERG, W. L. G., Brief History of Polar Exploration since the Introduction of Flying. To accompany a Physical Map of the Arctic and a Bathymetric Maps of the Antarctic. American Geographical Society, Special Publ. No. 11, New York 1930.  
Political Sovereignty in the Arctic and Antarctic: Recent Developments, pp. 31—36.
- LAKHTINE, V. L., Rights over the Arctic Regions. Analysis of the political, economical and legal status of the Arctic regions in connection with the development of aero-navigation and transarctic flights. Moskva 1928, 48 pp. (Russian).
- MILLER, D. H., Political Rights in the Polar Regions. — Problems of Polar Research. Am. Geogr. Soc., Special Publ. No. 7, New York 1928.  
Franz Josef Land, pp. 237, 241—242.
- SMEDAL, GUSTAV, Erhvervelse av statshøihet over polarområder (Acquisition of Political Sovereignty of Polar Regions). Oslo 1930. (In the press).

### Maps.

- Provisorische Skizze von Franz Joseph Land entdeckt von der 2. Österr.-ungar. Nordpolar-Expedition 1873 & 1874. Roher der Erinnerung entnommener Umriß von Oberlieutenant Julius Payer.  
(Scale 1 : 600 000. 15 × 24 cm. Con. proj.)  
Petermanns Mitt., Gotha, Jahrg. 20, 1874, Taf. 20.
- Zweite provisorische Karte von Franz Joseph Land entdeckt von der 2. Österr.-Ungar. Nordpolar-Expedition 1873 & 1874. Von Oberlieut. Julius Payer, 10. Okt. 1874.  
(Scale 1 : 600 000. 18 × 24 cm. Con. proj.)  
Petermanns Mitt., Gotha, Jahrg. 20, 1874, Taf. 23.
- Originalkarte des Kaiser Franz Josef Landes aufgenommen von Julius Payer.  
(Mean scale 1 : 1.5 mill. 20 × 28 cm. Merc. proj.)  
PAYER, J., Die österreichisch-ungarische Nordpol-Expedition in den Jahren 1872—1874. Wien 1876.
- Curs des Schiffes „Tegetthoff“ 1872—1873 vom 24 August 1872 in einer Eisscholle eingefroren und mit dieser treibend.  
(Mean scale 1 : 2.23 mill. 36 × 32 cm. Merc. proj.)  
Denkschr. der kais. Akad. d. Wiss. Mat.-Nat. Cl., B. 35, Wien 1878, p. 24.
- Skizze der um die Wilczek-Jnsel ausgeführten Triangulirung.  
(18 × 20 cm.)  
Denkschr. der kais. Akad. d. Wiss. Mat.-Nat. Cl., B. 35, Wien 1878, p. 68.
- Discoveries along the south coast of Franz-Josef Land by Mr. B. Leigh Smith, 1880.  
(Mean scale 1 : 1.55 mill. 24 × 21 cm. Merc. proj.)  
Proc. Roy. Geogr. Soc., London, Vol. 3, 1881, p. 192.
- Chart showing Mr. Leigh Smith's Track to Franz Josef Land and Boat Journey to Novaya Zemlya in 1881—1882.  
(Mean scale 1 : 7 mill. 25 × 20 cm. Merc. proj.)  
Proc. Roy. Geogr. Soc., London, Vol. 5, 1883, p. 248.
- Foreløbig kartskisse over øgruppen Franz Josef's Land. Udarbeidet på Kap Flora i juli 1896 ved sammenstilling av Payer's, Leigh Smith's, og Jackson's karter, samt egne iagttagelser, Fridtjof Nansen.  
(Scale 1 : 1.6 mill. 32 × 25 cm. Con. proj.)  
NANSEN, F., Fram over Polhavet. Kristiania 1879. Vol. 2.

Map of Kaiser Franz Josef Land. From a Survey by Julius Payer. Enlarged from the Original Map in Payers "Die Österr.-Ungar. Nordpol-Expedition".

(Scale 1 : 1 mill. 23 × 38 cm. Con. proj.)

Map of Kaiser Franz Josef Land. Reconstructed from the Original Survey of Julius Payer by Ralph Copeland, Astronomer Royal of Scotland.

(Scale 1 : 1 mill. 23 × 38 cm. Con. proj.)

Geogr. Journ., London, Vol. 10, 1897, p. 236.

Franz Josef Land. Compiled from Information to 1894.

(Scale 1 : 1.6 mill. 40 × 28 cm. Con. proj.)

Western Franz Josef Land up to September 1895 by Frederick G. Jackson.

(Scale 1 : 750 000. 37 × 25 cm. Con. proj.)

Western Franz Josef Land showing Explorations up to End of Spring 1896 by Frederick G. Jackson.

(Scale 1 : 750 000. 37 × 25 cm. Con. proj.)

Map of Western Franz Josef Land by Frederick G. Jackson . . . Showing the discoveries of the Expedition from 1894 to 1897, and sledge journeys of Spring 1897.

(Scale 1 : 500 000. 51 × 35 cm. Con. proj.)

Map of Franz Josef Land Showing Discoveries of Frederick G. Jackson, Commander of the Jackson-Harmsworth Polar Expedition 1894—97. Compiled from Copeland-Payer's, Leigh-Smith's, Nansen's and Jackson's Maps.

(Scale 1 : 1 mill. 40 × 30 cm. Con. proj.)

JACKSON, F. G., A Thousand Days in the Arctic. London 1899. Vol. I, pp. 1, 386; Vol. II, 38, 302, 376.

Map of Franz Josef Land Archipelago, showing the New Lands discovered and explored by the Wellman Expedition.

(Scale abt. 1 : 2.8 mill. 10 × 10 cm. Con. proj.)

Nat. Geogr. Mag., Washington, Vol. 10, 1899, p. 502.

Archipelago dell' Imp.re Francesco Giuseppe. Secondo le più recenti esplorazioni. Payer (1872—74), Leigh Smith (1880—81), Jackson (1894—97), Nansen (1895—96), Wellman (1898—99), S. A. R. Luigi di Savoia (1899—1900).

(Scale 1 : 1 mill. 45 × 30 cm. Con. proj.)

Tracciato della rotta seguita dal Commandante U. Cagni nella spedizione colle slitte verso il Polo.

(Scale 1 : 4.3 mill. 19 × 28 cm. Con. proj.)

SAVOIA, S. A. R. LUIGI AMEDEO DI, La "Stella Polare" nel Mare Artico. Milano 1903.

Scandagli eseguiti dalla "Stella Polare" (dal No. 1 al No. 12). [Novaya Zemlya to Franz Josef Land.]

(13 × 19 cm. Merc. proj.)

Scandagli eseguiti dalla "Stella Polare" (dal No. 13 al No. 39). [Around Northbrook and Alexandra Is.]

(13 × 19 cm. Con. proj.)

Osservazioni scientifiche eseguite durante la spedizione polare di S. A. R. Luigi Amedeo di Savoia . . . Milano 1903. Tav. II, III (pp. 189, 191).

Camp Abruzzi. Ziegler Polar Exp. 1903—4.

(Scale 1 : 1200. 21 × 13 cm.)

Camp Ziegler. Ziegler Polar Exp. June—July 1905.

(Scale 1 : 3750. 14 × 21 cm.)

Map of Franz Josef Archipelago compiled from surveys of the Ziegler Polar Expeditions 1901—02, 1903—5, and from information published by Payer (1872—74), Leigh Smith (1880—81), Jackson (1894—97), Nansen (1895—96), Wellman (1898—99), The Duke of the Abruzzi (1899—1900).

(Scale 1 : 750 000. 60 × 40 cm. Con. proj.)

Part of Franz Josef Archipelago surveyed by the Ziegler Polar Expedition 1903—4—5.

[Map of the central group of islands from Northbrook to Rudolf I.]

(Scale 1 : 600 000. 50 × 69 cm. Con. proj.)

Scientific Results of the Ziegler Polar Expedition 1903—1905. Washington 1907.

Franz Josef-Archipel. Karte zu Albanow's Route entworfen von Dr. L. Breitfuss.

(Scale 1 : 4 mill. 20 × 13 cm. Con. proj.)

Breitfuss, L. (ed.), Irrfahrten im Lande des Weißen Todes. Stuttgart/Gotha 1925. Karte 2.

Plan der Hookerinsel.

(Scale 1 : 325000. 13 × 11 cm.)

Arktis, Gotha, Jahrg. 2, 1929, p. 127.

Arctic Ocean and Greenland Sea.

(Scale in lat. 70°: abt. 1 : 3.8 mill.). London. Published at the Admiralty. No. 2282.

Nördliches Eismeer. Barents See.

Maßstab auf 70° Breite: 1 : 2 mill. Herausgegeben vom Reichs-Marine-Amt, Berlin. No. 155.



Printed, May 7th, 1930.

Addendum.

Sketch Map of Rubini Rock and Bay.

(Scale : 2000 ft. = 1 inch. 14 × 12 cm.)

Scientific Results of the Ziegler Polar Expedition 1903—1905.

Washington 1907.

SKRIFTER  
OM SVALBARD OG ISHAVET  
RESULTATER AV DE NORSKE STATSUNDERSTØTTEDE  
SPITSBERGENEKSPEDITIONER

(RESULTS OF THE NORWEGIAN STATE-SUPPORTED  
SPITSBERGEN EXPEDITIONS)

OSLO

Prices are quoted in Norwegian Currency

VOL. I

- Nr. 1. HOEL, ADOLF, *The Norwegian Svalbard Expeditions 1906—1926*. November 1929. Kr. 10,00.
- ” 2. RAVN, J. P. J., *On the Mollusca of the Tertiary of Spitsbergen*. June 1922. Kr. 1,60.
- ” 3. WERENSKIOLD, W. and IVAR OFTEDAL, *A burning Coal Seam at Mt. Pyramide, Spitsbergen*. October 1922. Kr. 1,20.
- ” 4. WOLLEBÆK, ALF, *The Spitsbergen Reindeer*. April 1926. Kr. 10,00.
- ” 5. LYNGE, BERNT, *Lichens from Spitsbergen*. December 1924. Kr. 2,50.
- ” 6. HOEL, ADOLF, *The Coal Deposits and Coal Mining of Svalbard (Spitsbergen and Bear Island)*. July 1925. Kr. 10,00.
- ” 7. DAHL, KNUF, *Contributions to the Biology of the Spitsbergen Char*. March 1926. Kr. 1,00.
- ” 8. HOLTEDAHL, OLAF, *Notes on the Geology of Northwestern Spitsbergen*. May 1926. Kr. 5,50.
- ” 9. LYNGE, BERNT, *Lichens from Bear Island (Bjørnøya)*. May 1926. Kr. 5,80.
- ” 10. IVERSEN, THOR, *Hopen (Hope Island), Svalbard*. November 1926. Kr. 7,50.
- ” 11. QUENSTEDT, WERNER, *Mollusken aus den Redbay- und Greyhooksschichten Spitzbergens*. December 1926. Kr. 8,50.

From Nr. 12 the papers will not be collected into volumes, but only numbered consecutively.

- Nr. 12. STENSIØ, ERIK A:SON, *The Downtonian and Devonian Vertebrates of Spitsbergen. Part I. Cephalaspidae*. A. Text, and B. Plates. September 1927. Kr. 60,00.
- ” 13. LIND, J., *The Micromycetes of Svalbard*. February 1928. Kr. 6,00.
- ” 14. *A paper on the topographical survey of Bear Island*. (In preparation.)
- ” 15. HORN, GUNNAR and ANDERS K. ORVIN, *Geology of Bear Island*. July 1928. Kr. 15,00.
- ” 16. JELSTRUP, HANS S., *Déterminations astronomiques*. June 1928. Kr. 2,00.
- ” 17. HORN, GUNNAR, *Beiträge zur Kenntnis der Kohle von Svalbard (Spitzbergen und der Bäreninsel)*. October 1928. Kr. 5,50.
- ” 18. HOEL, ADOLF, *Das Festungsprofil auf Spitzbergen. Jura und Kreide. I. Vermessungsergebnisse*. (In the press.)
- ” 19. FREBOLD, HANS, *Das Festungsprofil auf Spitzbergen. Jura und Kreide. II. Die Stratigraphie*. December 1928. Kr. 3,00.
- ” 20. FREBOLD, HANS, *Oberer Lias und unteres Callovien in Spitzbergen*. January 1929. Kr. 2,50.
- ” 21. FREBOLD, HANS, *Ammoniten aus dem Valanginien von Spitzbergen*. February 1929. Kr. 4,00.
- ” 22. HEINTZ, ANATOL, *Die Downtonischen und Devonischen Vertebraten von Spitzbergen. II. Acanthaspida*. January 1929. Kr. 15,00.
- ” 23. HEINTZ, ANATOL, *Die Downtonischen und Devonischen Vertebraten von Spitzbergen. III. Acanthaspida. — Nachtrag*. May 1929. Kr. 3,00.
- ” 24. HERITSCH, FRANZ, *Eine Caninia aus dem Karbon des De Geer-Berges im Eisfjordgebiet auf Spitzbergen*. March 1929. Kr. 3,50.
- ” 25. ABS, OTTO, *Untersuchungen über die Ernährung der Bewohner von Barentsburg, Svalbard*. June 1929. Kr. 5,00.
- ” 26. FREBOLD, HANS, *Untersuchungen über die Fauna, die Stratigraphie und Paläogeographie der Trias Spitzbergens*. December 1929. Kr. 6,00.
- ” 27. THOR, SIG, *Beiträge zur Kenntnis der invertebraten Fauna von Svalbard*. January 1930. Kr. 18,00.
- ” 28. FREBOLD, HANS, *Die Altersstellung des Fischhorizontes, des Grippianiveaus und des unteren Saurierhorizontes in Spitzbergen*. January 1930. Kr. 4,00.
- ” 29. HORN, GUNNAR, *Franz Josef Land. Natural History, Discovery, Exploration and Hunting*. May 1930. Kr. 5,00.

Norges Svalbard- og Ishavs-undersøkelser, Bygdø Allé 34, Oslo.