of spiritualism is protected by the utter mystery which screens certain mental and nervous conditions from the light of explanation. As of others, so the basis also of this superstition is, in one word, ignorance.

To those gifted with a clearer intelligence and purer moral sense, there is a moral duty in one aspect of the proposed studies. A hope that psychical research may liberate us from a baneful superstition is a stimulus to inaugurate the work of the American society; yet a scientific man cannot calculate all the after-effects of his labor, but must toil for the truth with blind devotion. It will be the endeavor of the new society to ascertain the truth in regard to the alleged psychical phenomena, by means of experiments of unquestionable accuracy, conducted with unprejudiced independence: it will try to steer safely between the Scylla of scoffing and the Charybdis of charlatan spiritualism.

The names of the present leaders of the movement in America are a sufficient guaranty that the investigations will be thorough and serious: we shall await their outcome with great interest, and we hope, meanwhile, that the society will receive liberal public support and encouragement.

THE INTERNATIONAL POLAR STATIONS.

Now that the result of the arctic sojourn of the various parties is determined, so far as concerns the safety of their *personnel*, and the manner in which they were able to carry out the programme of the international commission, it may be interesting for the readers of *Science* to briefly review the whole topic. Including Finland, ten countries participated in the work; namely, Germany, the United States, Denmark, Austria, Sweden, Norway, Russia, the Netherlands, Russian Finland, and France. Fifteen primary stations were contemplated, of which two in the southern, and twelve in the northern, hemisphere were successfully established, all of which, it is believed, carried out the observations prescribed by the commission. The several stations were as follows: —

1. Discovery Harbor, Lady Franklin Bay, established by the United States. The party consisted of Lieut. A. W. Greely, U.S.A., assisted by Lieuts. Kislingbury and Lockwood; astronomer Edward Israel; Octave Pavy, M.D., surgeon; two Eskimo hunters; four signal-corps observers, and fourteen petty officers and enlisted men. This expedition left St. John's, Newfoundland, July 7, 1881; arrived at Disco, July 17, and at their station, which was named Fort Conger, Aug. 12. The position of the station is approximately latitude 81° 20′, longitude 64° 58′ west of Greenwich. The Proteus, after landing the party and stores, sailed on her return about Aug. 26. Efforts were made to reach this station in 1882 by a party on the steamer Neptune, and in 1883 by one on the Proteus, but both failed in the attempt; nor was a suitably large supply of provisions landed for the support of a retreating party when opportunity offered. Aug. 9, 1883, the observations having been carried on successfully, the party in good condition retreated to the vicinity of Cape Sabine, finding an insufficient supply of provisions and no rescuing party. The melancholy result need not be recapitulated. Lieut. Greely and six men, one of whom afterward died, were rescued June 22, 1884, by the relief expedition under Capt. W. S. Schley, U.S.N., in the ships Thetis and Bear. The remainder perished of want and exposure, except one man shot for theft and mutiny, and one Eskimo accidentally drowned. The exact state of the records of this expedition has not been made public; but it is believed that the international programme was carried out, while a large amount of valuable geographical knowledge was attained.

2. Kingava Fiord, Cumberland Inlet, in latitude 66° 36′, longitude 67° 13′ west of Greenwich, established by the German government. This expedition, commanded by Dr. W. Giese, sailed from Hamburg, June 27, 1882, and arrived at its destination, Aug. 12; the vessel returning Sept. 8, the regular work of the station having begun the previous day, and all the observations in good running order by Sept. 15. The expedition returned to Germany in August, 1883, having carried out the international programme, and obtained valuable ethnological information in regard to the Eskimos, without mishap or serious illness of any of the party.

3. Nain, Labrador, in latitude 56° 30′, longitude 62° 0′ west of Greenwich, established under direction of Dr. R. Koch by the German government. The doctor left Hamburg, July 7, 1882, arriving in Labrador, Aug. 10. Five auxiliary stations were established by the co-operation of the Moravian missionaries, and

the full programme carried out at the Nain observatory. This station is too far south to be indicated on our chart.

4. Godthaab, Greenland, in latitude 64° 12′, and longitude 51° 42′ west of Greenwich, established by the Danish government under direction of Adjunct Paulsen of the Meteorological institute. The party, consisting of six persons, left Copenhagen, May 17, 1882, arriving at Godthaab, Aug. 1. It carried out its work with success according to the programme.

5. Fort Rae, on the northern arm of Great Slave Lake, in latitude 62° 38′, longitude 115° 25′ west of Greenwich, was established by the co-operation of Great Britain and Canada, under the auspices of the London meteorological office. The party commanded by Capt. Dawson left London, May 11, 1882, and arrived at its destination in August. It carried the international work to a successful conclusion, and returned to civilization safely in September, 1883.

6. Point Barrow, Alaska. The station at Uglaamie, a short distance from the Point, in latitude 71° 18′, and longitude 156° 40′ west of Greenwich, was established by the United States under the auspices of the Army signal-office. It was commanded by Lieut. P. H. Ray, U.S.A., and left San Francisco, July 18, 1881, arriving at its destination, Sept. 8. Observations began Oct. 17, but the full series did not commence until Dec. 1. They were carried on with unimportant interruptions until Aug. 27, 1883, when the party returned safely to San Francisco, having carried out the programme, and obtained valuable observations on the natural history and geography of the region.

7. Jan Mayen Island, at Marie Muss Bay, in latitude 71° 0′, longitude 8° 36′ west of Greenwich. This expedition was sent out from Austria at the expense and under the supervision of Count Wilczek, and was commanded by Lieut. Wohlgemuth of the Austrian navy. It left Tromsö, June 20, 1882, and was safely landed on the island of Jan Mayen by July 13. Observations were begun Aug. 1, and carried out with fidelity and success. They were reached by Aug. 3, 1883, and arrived at Vienna on the 22d, having enjoyed perfect health during their absence, and amassed rich collections of photographs, and of the fauna and flora, etc.

8. Cape Thordsen, Spitzbergen, in latitude 78° 30′, longitude 15° 30′ east of Greenwich, was selected by the Swedish expedition, Mossel Bay being closed by ice. The expenses of this expedition, under the auspices of the Academy of sciences, were defrayed by Mr. O. Smith, a Swedish merchant. It comprised six men, commanded by Mr. Eckholm, who began observations Aug. 23, 1882, and returned Aug. 28 the following year to Tromsö, having carried out the programme without loss or accident.

9. Bossekop, Norway, in latitude 69° 54′, longitude 23° 0′ east of Greenwich. This station, directed by Mr. Steen with four assistants, was established by the Norwegian government under the supervision of the Meteorological office. Observations were carried on during the year beginning Aug. 1, 1882.

10. Sodankylä, Finland, in latitude 67° 24′, and longitude 26° 36′ east of Greenwich. This station was occupied under the auspices of the Finnish scientific society, at the expense of the government, by a party of four observers commanded by Mr. Biese. Observations were carried on from the middle of August, 1882. This station, like the preceding, being situated on the Scandinavian mainland, the position lacked that element of danger inseparable from the navigation of icy seas.

11. Karmakuli station, Moller Bay, Novaia Zemlia. This station, in latitude 72° 30′, longitude 53° 0′ east of Greenwich, was established by Russia under the auspices of the Imperial geographical society, and commanded by Lieut. Andreieff. The international work was carried on, as well as geographical researches. One man died at this station, owing to an amputation of a limb consequent upon an accidental fracture. With the above exception, this party returned safely in September, 1883.

12. Sagastir Island, Lena delta, at the west mouth of the Lena, in latitude 73° 0′, and longitude 124° 42′ east of Greenwich, was the second Russian station. The party under Lieut. Jürgens left St. Petersburg in December, 1881, but did not arrive at its post until the midsummer following. The international programme work was begun in September, 1882; and at the end of the year, all having gone well, the party volunteered for a second year's observations, which should now be about completed. News from the party may be expected in a few months.

13. Dickson Haven, on the north coast of Siberia, near the Yenisei mouth, was to have been occupied by the Dutch expedition, commanded by Professor Snellen of the Meteorological institute, which sailed on the Varna in the summer of 1882. The expedition was beset near Waigat Strait, and was unable to

reach its destination. Observations, except for magnetism, were carried on throughout their stay. The Varna was nipped by the ice, Dec. 24, 1882, but did not sink until the following summer, when the crew and party took refuge on the Dimfna, also beset near by, and later were taken off by the steamer Obi, and reached Hammerfest, Sept. 3, 1883. This was the only expedition which failed to reach the vicinity of the station selected before sailing.

14. In the southern hemisphere, France sent a large party, under Lieut. Courcelle Seneuil, to Orange Harbor, near Cape Horn, in south latitude 55° 48′, longitude 67° 30′ west of Greenwich. Its arrival, successful operations, and return without loss, have already been chronicled in *Science*.

15. Lastly, the German government established on South Georgia, in south latitude 54°, and west longitude 37°, a station under the direction of Dr. C. Schrader. This expedition landed Aug. 21, 1882, and observations were begun early in the following month. It was safely embarked again in the autumn of 1883, without serious accident of any sort, and with the required series of observations, beside large collections in every branch of science.

Beside these extraordinary stations, of whose doings brevity obliges us to give only the barest intimations, nearly all the observatories for magnetism and meteorology in the United States and Europe endeavored to cooperate in the work.

PSYCHIC FORCE.

Although it may be regarded as doubtful whether the society for the investigation of psychic force, proposed at the recent meeting of the American association, will result in any new discoveries, yet the philosophy of the subject is of sufficient interest to merit general consideration. The first and greatest obstacle we meet with in such investigations is the absence of clear ideas of what it is we are to look for, and how we are to distinguish between real relations of cause and effect and mere chance coincidences. The state of mind of the community at large is also unfavorable to the attainment of any result. If we take out of it two classes holding quite opposite views, — the one comprising those who look upon the subject with that sentiment of credulity and wonder which is fatal to all scientific accuracy; and the other, those who think it all nonsense, and unworthy the attention of common-sense people, — we shall have but few left for patient research.

If, however, this remnant is going to investigate the subject in a scientific spirit, they are entitled to all the light that can be thrown upon it. We begin by warning them against a kind of inquiry which can lead to absolutely no conclusion. We refer to such inquiries as those made in the following extract in the New-York *Nation* of Aug. 28, 1884: —

Thought-transference, apparitions, etc.

"The Society for psychical research will be grateful for any good evidence bearing on such phenomena as thought-reading, clairvoyance, presentiments, and dreams, noted at the time of occurrence, and afterwards confirmed; unexplained disturbances in places supposed to be haunted; apparitions at the moment of death or otherwise; and of such other abnormal events as may seem to fall under somewhat the same categories."

It would be difficult for the society to put forth any thing better fitted than this advertisement to lower the estimation in which their work is held by common-sense people. Let us make a little calculation showing how often coincidences of the kind sought for must really occur in our country. Numerical exactness in our data cannot, of course, be reached: all we can do is to make rough estimates which shall not be unreasonably far from the probable truth. Any physician, we apprehend, will consider it quite within the bounds of probability that one per cent of the population of the country are subject to remarkably vivid dreams, illusions, visions, etc. This will make half a million such people in the United States. Each of these persons may be supposed to have fifty friends or relations, of whom one per annum dies. If they are subject to a dream or vision once a week, there is one chance out of seven that they have one on the same day that the friend dies. Let us suppose that it takes a combination of eight separate and independent points of resemblance, between the vision and the circumstances attending the death of the friend, to constitute a remarkable coincidence, and that each of these has a probability of one-half. We shall have, in one case out of two hundred and fifty-six, a remarkable combination of coincidences. Putting these results together, we may infer, that, as a matter of fact, some case of extraordinary coincidence between the circumstances of death, and the dream or vision by a friend of the dying person, does occur somewhere in the country nearly every day in the year. Thus, what the Psychical society will find, will be what we know must exist as the result of chance coinci-

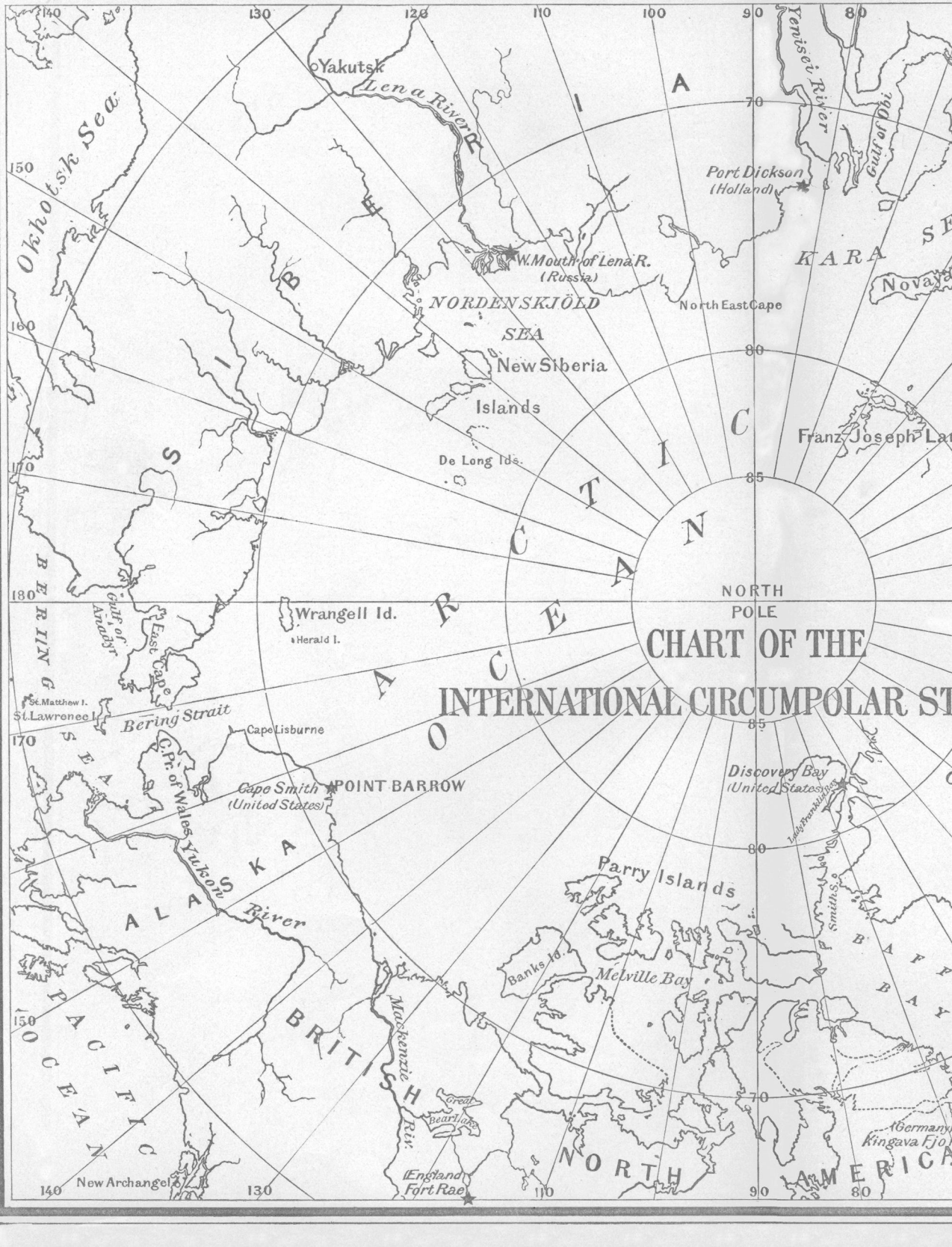
CHART OF THE
INTERNATIONAL CIRCUMPOLAR ST
NORTH POLE
ARCTIC OCEAN
Yakutsk
Lena River
Okhotsk Sea
Yenisei River
Gulf of Ob
Port Dickson (Holland)
W. Mouth of Lena R. (Russia)
NORDENSKJÖLD SEA
North East Cape
KARA SE
Nova
New Siberia Islands
De Long Ids.
Franz Joseph La
SIBERIA
BERING SEA
Gulf of Anadyr
East Cape
Wrangell Id.
Herald I.
St. Matthew I.
St. Lawrence I.
Bering Strait
Cape Lisburne
C. Pr. of Wales
Cape Smith (United States)
POINT BARROW
Yukon River
ALASKA
PACIFIC OCEAN
Discovery Bay (United States)
Lady Franklin Bay
Smith Sd.
Parry Islands
Banks Id.
Melville Bay
BAFFIN BAY
Mackenzie Riv.
Great Bear Lake
BRITISH
NORTH AMERICA
Germany
Kingava Fjo
England
Fort Rae
New Archangel
140
130
120
110
100
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150
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170
180
85

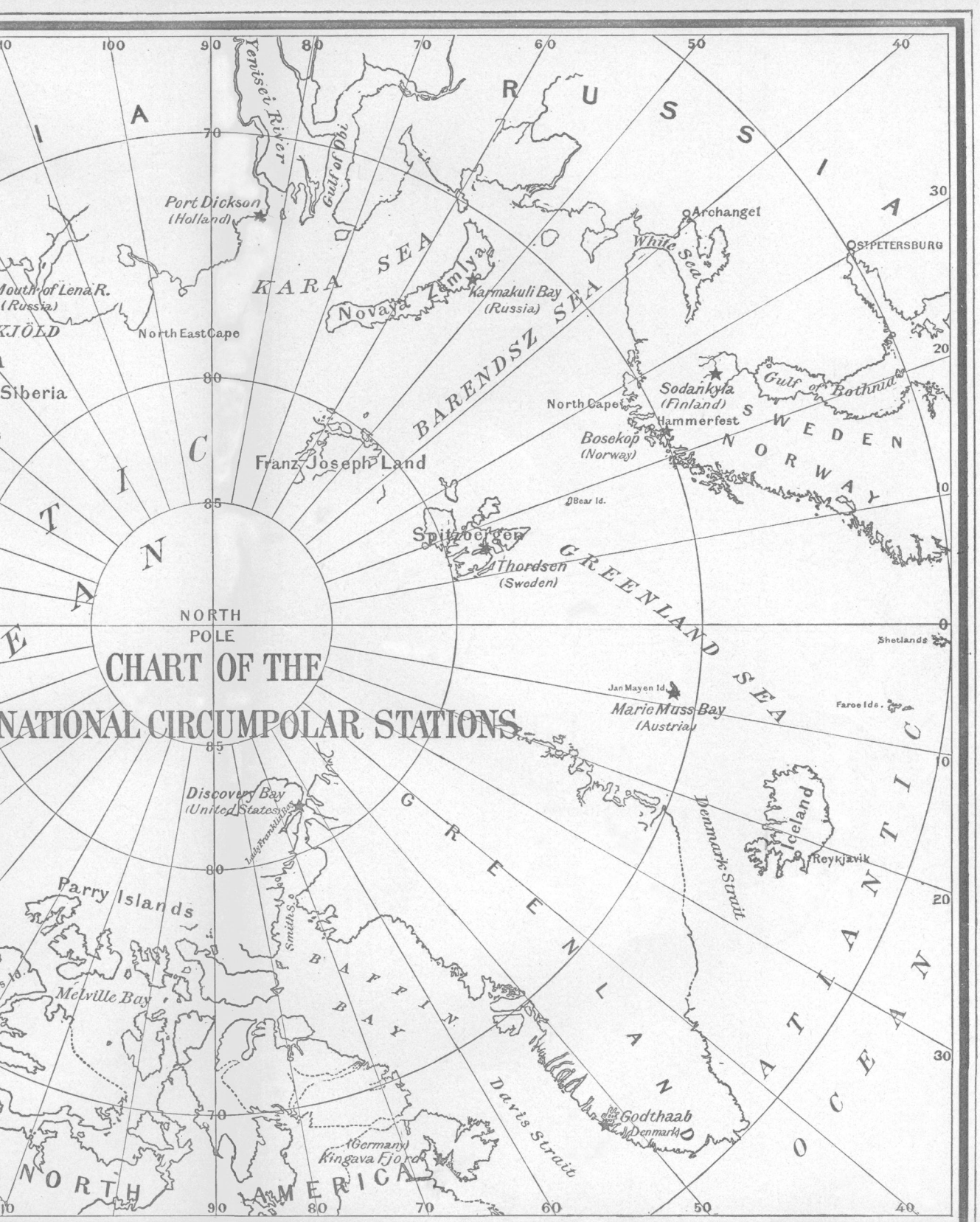
CHART OF THE
NATIONAL CIRCUMPOLAR STATIONS
NORTH POLE
Yenisei River
Gulf of Ob
Port Dickson (Holland)
Mouth of Lena R. (Russia)
KJÖLD
Siberia
North East Cape
KARA SEA
Nova Zemlya
Karmakuli Bay (Russia)
BARENTSZ SEA
White Sea
Archangel
OSTPETERSBURG
RUSSIA
Gulf of Bothnia
Sodankyla (Finland)
North Cape
Hammerfest
Bosekop (Norway)
SWEDEN
NORWAY
Franz Joseph Land
Bear Id.
Spitzbergen
Thordsen (Sweden)
GREENLAND SEA
Shetlands
Jan Mayen Id.
Marie Muss Bay (Austria)
Faroe Ids.
Discovery Bay (United States)
Lady Franklin Bay
Parry Islands
Smith's Sd.
Melville Bay
BAFFIN BAY
GREENLAND
Denmark Strait
Iceland
Reykjavik
Davis Strait
Godthaab (Denmark)
Kingava Fjord (Germany)
NORTH AMERICA
ATLANTIC OCEAN