

CHART SHOWING COURSE OF VOYAGE AND PROBABLE WINTER QUARTERS OF PROFESSOR NORDENSKJÖLD'S EXPEDITION.

A NEW NORTH-EAST VOYAGE.



ORE than three centuries ago, in an age when such adventures were more common than in ours, and attracted greater attention, an expedition, which was followed by many longings and high hopes, was leaving the Thames. The

ships were the *Bona Esperanza*, *Edward Bonaventure*, and *Bona Confidentia*; and the commander of the whole, the famous Sir Hugh Willoughby, of "tall stature" and of "singular skill in the services of war." They were bound on a voyage to the far North, from whence they hoped to find their way around the northern termination of Europe and Asia into the Pacific. In a word, in this venture of 1553 we have the earliest search for the North-east Passage to India—or as the phrase was, to Cathay and Cipango—China and Japan. The enterprise was the outcome of an unrest which had seized the commercial world of Europe. Towards the close of the thirteenth century, wondrous tales, strange Oriental-like stories, were reaching England and other maritime countries, until in time, as the dull ears of the traders caught the drift of the vague narratives, on their drowsy eyes burst a new light.

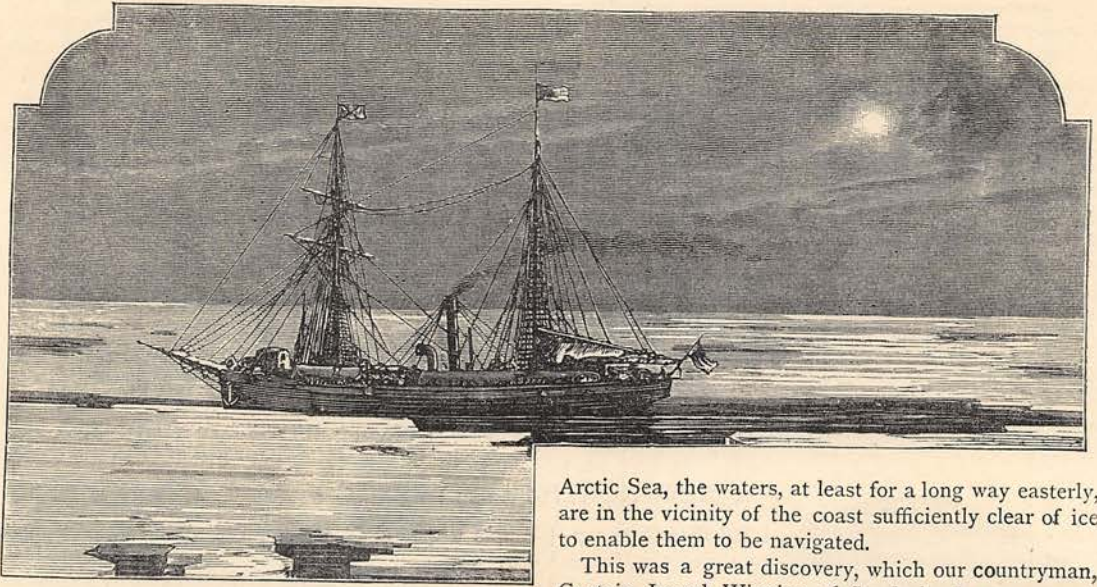
Hitherto, the English foreign trade had been almost confined to the Flemish towns, the island of Iceland, and a limited fishery on the banks of Newfoundland. But Sir Hugh Willoughby and his captains, Richard Chancellor and Cornelius Durfoorth, opened out to the merchants of London and of Bristol a broader horizon and greater thoughts of gains in prospect.

It was a quaint expedition, and withal a picturesque one.

The code of instructions were drawn up by Sebastian Cabot. They are sensible and shrewd in the highest degree. He enjoined strict attention to morals; morning and evening prayers were to be read; there was to be "no ribaldry or ungodly talk, dicing, carding, tabling, nor other devilish games." The natives of the countries visited were "to be considered advisedly, and treated with gentleness and courtesie, without any disdain, laughing, or contempt;" and then it is shrewdly added that, if information was to be obtained, they might be allured on board—such was the *morale* of the age—and "be made drunk with your wine or beer;" and so "you shall know the secrets of their hearts." If the adventurers were invited to dine with any lord or ruler, they were to go well armed and in a posture of defence; and the sailors' best uniforms were to be carefully kept, and not worn except on such high occasions.

No man ever saw brave Sir Hugh Willoughby and his gallant crew alive again; but fairer fortune attended Chancellor. Soon after Chancellor's voyage, the people of the White Sea got their tea and silk *viâ* the Thames instead of *viâ* the Siberian rivers. All of which may be read in the ponderous tomes of Master Hakluyt, of Christ Church, clerk.

This voyage is interesting not only in itself, but because it was the first of a long series of similar attempts. Of the many successors to this ill-fated one, some were almost as disastrous, but few any more successful in accomplishing the object for which they were despatched. The passage "to the Indies" was sought in the North-west and in the North-east. Navigators as courageous as Willoughby met as sad a fate as his on the shores of Hudson's Bay, or in the archipelago off King William's Land. Hudson, Blyot, Baffin, Barents, Parry, Ross, and Franklin all searched for it, but in vain. "A passage" no doubt existed, but experience proved that save in very exceptional years it must be choked with ice, and be too dangerous to navigate, even could it be relied



AMID THE ICE.

upon. Vessels entered from Behring Straits and from Baffin's Bay, but not one ever sailed through the North-west Passage, or, in other words, from the Pacific into the Atlantic by way of the northern shores of America. Neither was the effort to sail by the North-east Passage—that is, along the northern shores of Europe and Asia—any more successful. The vessels which attempted it rarely got beyond Novai Zemlia; and, indeed, this scheme was abandoned long before the North-west idea was considered chimerical. Of late years we have had many Arctic voyages, but until recently none of them had in view the practicability of finding a shorter sea-route from Europe to Asia. Indeed, by even the most enthusiastic advocates of these "searches" it was never pretended that any "practical" purpose was to be achieved; they were mere geographical voyages by which science alone, and perhaps humanity also were to be gainers. The Polar extremity of America had been traced in a rough manner by vessels which had sailed along it a little way from either side, or by explorers who had passed down the McKenzie and other rivers flowing into the Arctic Sea, and crept either in sledges or in boats along the coast. Among such names those of Hearne, Franklin, Simpson, Back, Richardson, and Rae occupy the first places. In like manner the broad northern coasts of Europe and Asia had been outlined, but chiefly by explorers who had struck in here and there from the landward side, and done their work piece-meal, and necessarily imperfectly.

But within the last few years the Norwegian walrus-hunters have penetrated into the Kara Sea, which had been sealed waters to the Dutch and English adventurers of the sixteenth century, and have shown that the early explorers had attempted the passage too soon, for during the autumn months, owing to the great warm currents flowing out of the rivers debouching into the

Arctic Sea, the waters, at least for a long way easterly, are in the vicinity of the coast sufficiently clear of ice to enable them to be navigated.

This was a great discovery, which our countryman, Captain Joseph Wiggins, of Sunderland, was prompt to take advantage of, and to him the credit of sailing in one season from Europe direct to the mouth of the great Yenisei River in Siberia and back again was due. Hitherto the products of Siberia—its timber, wheat, ores, &c.—could not reach the Western markets except at a cost for freight which rendered their chance of a profitable sale out of the question. The overland journey by pack-horse or carriage is fearfully expensive. Railways there are none, and even were there, carriage by rail must be necessarily heavy. But once allow those great rivers which, like the Yenisei and the Obi, flow through the



ARCTIC BIRDS.

continent, north and south, on to the confines of China, to be utilised fully, by vessels being able to reach their mouth and thence bring, by way of the hitherto shut Arctic Sea, freights to Europe, then a bright future is in store for Siberia, and for the empire of which it is a part. These facts were known to Professor Nordenskjöld, of Stockholm, an eminent

mineralogist, and an Arctic explorer of the greatest experience. From the data before him he drew the conclusion that, for some weeks every autumn, the route along the shores of Europe and Asia is sufficiently open to permit of vessels sailing even in ordinary years without much difficulty, at least as far as the Yenisei. To test this theory he made two voyages—in 1875 and 1876—from Norway to the Yenisei, returning in the same year, thus showing that it is not to the exceptional state of the ice that the first voyage was due, but to a condition of matters which it is exceptional not to find.

Having done this, he determined to do more. He conceived that the passage sought so long in vain might be found; or, in brief, that he could sail from Europe to Asia, from the North Sea to Behring Straits, in one season, or, if not so successful, in two. Were the expedition as fortunate as he hoped it to be, great results would spring from it. In the first place, there would be a seaward outlet made for Siberia, and a great country, blessed with the most splendid waterways in the world, would have seaports in practice, as it has all along had in theory. Next, a hitherto almost unknown sea of enormous size would be explored; for every mile beyond the mouth of the Yenisei would be a contribution to our knowledge of the globe. The natural history results could not but be of importance, even should the geographical discoveries not be in all

respects a success; for at present we have scarcely any knowledge of the plant and animal life of the sea which laves the northern coast of Siberia. "In the Siberian Polar Sea, too, the animal and vegetable types probably consist of survivals from the Glacial period, which is not the case in the Polar Sea, where the Gulf Stream distributes its waters, and whither it carries types from more southerly regions. But a complete and certain knowledge of what animal types are of Glacial and what of Asiatic origin is of the greatest importance, not only for zoology and the geography of animals, but also for geological science. Then, again, there is still much that is enigmatical with respect to a number of circumstances connected with the Mammoth period of Siberia, which, perhaps, was contemporaneous with our Glacial period. Our knowledge of the animal and vegetable types which lived at the same time as the mammoth is exceedingly incomplete, although we know that there are small

hills covered with the bones of the mammoth and other contemporaneous animals; and there is found everywhere in that region so-called 'Noah's Wood'—half petrified, or petrified, carbonaceous vegetable remains from several different geological periods. An investigation of the geology of Polar countries is indeed an indispensable condition for a knowledge of the former history of our globe. Then, again, important practical results will be derived from meteorological investigations; for the Polar Sea north of Siberia is a meteorological territory, at the same time of the greatest interest and yet entirely unknown. In addition to these special points, there are geographical discoveries, observations in terrestrial magnetism, and other branches of physics, natural history, ethnological and

hydrographical researches"* to be benefited by an expedition, with properly trained men of science on board, penetrating into these regions. Such a programme put before the magnates of Sweden, backed as it was by the previous successes of an explorer of Nordenskjöld's experience, did not long wait before being taken up. The late English Arctic Expedition cost, it is said, over £130,000. The Swedes were more modest in their equipments: they only asked £20,000, and did not require to go to Parliament for even that. Of this sum, £12,000 was subscribed by Mr. Oscar Dickson, of Gothenburg—a munificent Scotch-Swedish patron of Arctic exploration. The King,



ESQUIMAUX MOTHER AND CHILD.

the Government, and Mr. Alexander Siberiakoff, a wealthy Siberian mine-owner, supplied the rest. The *Vega*, a teak-built steam whaler, was purchased, and on the 4th of July, 1878, the expedition sailed from Gothenburg. The leader was, of course, Nordenskjöld, the naval commander Lieutenant Palander, an old shipmate of his. Three naturalists, two of them old fellow-voyagers also, a lieutenant of the Danish navy, one of the Swedish navy, and a third of the Italian marine, with a Finnish lieutenant and eighteen seamen, completed the equipment, scientific and naval, of this venture. Three hunters were afterwards added to the crew; and it is just possible that if a Samoyede or two can be induced to join, they may also have the privilege of sharing in the honour—which they may not appreciate—and the profit, which is more to the purpose, of this latest North-east Voyage. In addition,

* Markham, in "Proceedings of the Royal Geographical Society, 1879," p. 20.

a coal-transport, the *Fraser*; a merchant vessel, the *Express*, the property of Mr. Siberiakoff; and the *Lena*, a small steamer also belonging to Mr. Siberiakoff, and destined for use on the Lena River, where his property is, acted as consorts to the *Vega*. The voyage to the Yenisei River was almost a pleasure-trip.* Dredging in the sea and scientific studies on land varied the monotony of the month occupied in making this part of their course, though none of the old expeditions ever succeeded in getting half the way. The Kara Sea was free from ice, and indeed no ice was seen until Bieloï Island was reached. Even there the floes were so thin as to cause little impediment to navigation, compared with the thick fogs which were experienced. To the east of Bieloï Island the ice disappeared; and on the 6th of August the three vessels were all safely anchored in Dickson Haven, at the mouth of the river. This harbour is, no doubt, destined in future years to be one of the chief ports from whence the products of Siberia will be exported by the new sea-route. Here the *Vega* coaled up from the *Fraser*, which, with the *Express*, left for her destination up the river. The *Express* has since returned to London with a cargo of wheat and rye, and the *Neptune* of Hamburg, and the *Werkworth* of London (Captain Wiggins), have also made successful voyages to the Obi during the past autumn. On the 10th of August the *Vega* and the *Lena* pursued their adventurous voyage along a bare lichen-covered coast, among many unknown islands, and through a sea with either no ice, or ice so "rotten" as to resemble slush more than anything else, and rapidly melting. The sea-bottom was found to be extraordinarily rich in animal life, but few birds were seen. On the snow covering a floating piece of ice were detected minute but beautifully formed crystals, which Professor Nordenskjöld believes to be not of terrestrial origin, but probably "matter crystallised from the seawater during the severe cold of winter." In Actinia Harbour—so called from the multitude of sea-anemones which the dredge brought up from the bottom—they lay from the 14th to the 18th of August. The neighbouring country was covered with mosses and lichens; but reindeer were scarce and shy, not improbably owing to the presence of wolves.

Their course now lay along the shores of the Tscheljuskin† Peninsula, and was all clear sailing, for the little ice that was seen was very rotten, and on the 19th of August they ran into a little cove in lat. 77° 41' N.—in Cape Severo, the most northern point of the Old World. This is the *Promontorium Tabin* of Pliny and the ancient geographers. Inland, mountains rose to the height of 1,000 feet, but were clear of snow. The plains are clay-fields, nearly bare, "and split into more or less regular six-sided figures, while others are clothed with vegetation consisting of grass,

moss, and lichens." The upright slate strata were crossed by great veins of quartz, in which there may be possibly gold. Animal and vegetable life were meagre, the botanists being able to find only twenty-four species of flowering plants on the plains. Barnacle-geese, eider-ducks, and sand-pipers were seen, while in the sea sported, after their clumsy fashion, walruses, seals,‡ and shoals of white whales. After doubling Cape Severo the ice-floes became more frequent, and the dense fog gave much trouble. The explorers had wished to sail east by south in the hope of discovering a western continuation of the Siberian Islands, but they were soon forced to give up this idea, owing to the drift-ice becoming too thick for navigation. The sea now became shallow, the depth six miles from the land being only six to twelve fathoms, so that in all probability the land is rising here and around most of the Polar basin. Their course lay not far from the Taimyr Peninsula, and the vessel sailed with a north-westerly breeze over a perfectly smooth sea without the aid of steam. The coast was low, but inland, mountains at least 2,000 to 3,000 feet high appeared, all free from snow, and presently that peculiar "split cone" appearance, so characteristic of the eastern shore of the Yenisei. The sea was rich in animal life indigenous to the Arctic Ocean, without any invasion of more southern types, as is undoubtedly the case off Spitzbergen. Of the specimens brought up were "overwhelming numbers" of species hitherto only known by rare individuals in one or two museums. The charts—if such a name can be applied to the rude outlines on our maps—were found all wrong. Formerly they had encountered land where sea was marked, but now they were sailing over an area shown on the best Russian maps as land. On the 24th of August they sighted Preobraschenski Island, at the mouth of the River Chatanga—but four degrees to the eastward of the position assigned to it on the charts. The cliffs here were noisy with innumerable looms, and Kittiwake gulls. Bears were shot, and the southern termination of the island was covered with a rich vegetation of the usual Arctic plants. Sailing again eastward they found the sea ice-clear, owing to the mass of warm water discharged into it by the great Siberian rivers. These floods cause a warm and only slightly salt surface current to run along the coast in a north-easterly direction, "and afterwards, under the influence of the rotation of the earth, bend more to the east." These currents commence at the mouth of the Obi, and are carried on all along the coast by the discharge of the Yenisei, Khatanga, Anabara, Olenek, Lena, Yâna, Indigirka, and Kolyma rivers. At the mouth of the Lena the *Vega* parted with the *Lena*, which went up the river to Yakutsk, whence telegrams and despatches were sent to Sweden,§ and proceeded on her voyage, shaping her course for Fadeyef, one of the Liakhof or New Siberian Islands, where Nordenskjöld proposed to remain for a few days.

* In these notes I follow the letters addressed to Mr. Dickson by Professor Nordenskjöld. Some additional particulars are added from a recent paper of Mr. Clement Markham's, read before the Royal Geographical Society, and from private correspondence.

† Or "Chelyuskin," as it is usually spelled on our maps.

‡ The floe-rat (*Phoca hispida*).

§ This telegram was sent from Irkutsk, the nearest station on the Siberian telegraph line, distant about 2,400 miles from the anchorage of the Swedish exploring vessel.

When first this news reached Europe, high hopes were entertained that soon we should hear of the explorers in Japan, whence they propose to shape their course on reaching Behring Straits. But these anticipations have been disappointed, and the gallant Swedes have not been able to accomplish the North-east Passage in one year. Of late a story has reached Europe to the effect that a vessel believed to be Nordenskjöld's has been seen by the natives jammed in by the ice forty miles from East Cape, the most easterly point of Tuski Land. This possibly may be so, though in the best-informed circles it is considered that the expedition is frozen in near the Liakhof Islands. Indeed, Mr. Siberiakoff has already commissioned Captain Sengstake to equip a vessel and carry succour to the party next summer *viâ* the Pacific and Behring Straits. But already, on the chance of the rumour being true, the Russian Government have issued orders for the Tuski to render what assistance they can, by making a journey over the ice by means of dogs or reindeer, to the beleaguered vessel. Efforts will also be made to reach it *viâ* the south in the course of the winter, though with little hope of success, as the ice does not break up until June or July.

Should our forecast be correct, 1,100 miles still remain to be accomplished before the Expedition reaches Behring Straits; but the whole of this distance has been previously navigated, so that there is every likelihood of the *Vega* being heard of some time in the course of the next four or five months. However, for the present at least, thus ends the uneventful, but still remarkable, '78 voyage of Nordenskjöld. It begins a new era in Arctic exploration, and is remarkable not only for the skill with which it has been conducted, and for the results which have followed it, but for the want of the element of mere "luck" in its success. It was carefully planned; and the necessary experience which has enabled the commander to be so "fortunate" was obtained by more than one tentative voyage. In its equipment the means for obtaining scientific information was the first consideration. Even had the geographical objects failed, the expedition could not, therefore, have been altogether without gain. It shows that a civilian expedition—without a trace of the jealousy of other services—can accomplish more than a mere naval one strangled by service rules, and distinguished by the absence of that scientific element which ought in a

voyage of discovery to be the first consideration. The expedition of the Swedes—let us say at once to Behring Straits—and that of the Austrians to Franz Josef Land will ever rank among the most brilliant voyages of modern times. That of Nordenskjöld will have practical results also. It will lead to an extended exploration of the riches of Siberia. This great land is, perhaps owing to its association with the "exiles of Siberia," and the political arrangements of the Russian Government, usually considered a most forbidding land. In reality it is a much finer country than Canada—blooming forests and yellow corn-fields in the summer, a great snowy waste in the winter, but abounding in some of the richest gold, silver, lead, platinum, zinc, antimony, plumbago, malachite, emerald, topaz, copper, and iron mines in the world. Mr. Seebohm, who accompanied Captain Wiggins on one of his voyages, describes in graphic terms the roads covered with thousands of pack-horses carrying goods between one town and another; the immense rivers flowing through half a continent, but as yet not a quarter utilised—the highway for "country vessels" in the summer, and the great sledge-road when frozen over during the winter. In the valley of the Yenisei dried fish can be bought for "almost nothing;" grouse are 7d. a brace; excellent beef, 2½d. a pound; and a little further south, at Krasnoyarsk, a ton of wheat can be bought for the same price we give for a hundredweight. So extremely cheap are corn and hay on the great steppes between Tomsk and Tyumen, that the hire of horses is only a halfpenny per horse per English mile. At Yeniseisk, a town in the midst of an immense forest, a ship's mast of hard larch, 60 feet long, 3 feet in diameter at the base, and 18 inches at the apex, can be bought for a sovereign, and hundreds can be delivered in a week. It is evident therefore that for Siberia—railway or no railway across the Ourals—there is a great future, and that these discoveries of the Swedes and our countryman Wiggins will aid in the development of its riches. In the Platonic year all things become as they were an æon before. It seems almost as if we were to experience a return of the old days of the seekers for the North-east Passage—not for mere geographical curiosity, but as an actual sea-way through which commerce is to be carried on.

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