

HOW I DISCOVERED THE NORTH POLE.

(Dedicated to M. Jules Verne.)

BY J. MUNRO, AUTHOR OF "THE ROMANCE OF ELECTRICITY."



It can be done, and England ought to do it!"

Such was the title of a picture by a well-known artist which attracted much attention at the time of our last expedition towards the North Pole, under Captain (now Sir George) Nares.

The canvas represented an old "salt" looking up from a chart of the Arctic regions and delivering his mind in these emphatic words, which came from the very heart of a people who had done more than any other to explore the great ice-caps of the world. True, there were some who regarded, or affected to regard, the attainment of the Pole as a childish and fantastic aim, in comparison with the scientific explorations of the neighbouring coasts.

The Pole is a mere Abstraction, they said; and what does it matter if Captain Nares does not reach it, so long as he is able to extend the geography of the Polar Basin?

Perhaps they were sincere, but the argument sounded rather like an attempt to discount a possible defeat. Be that as it may, the general public, not so philosophical, were more interested in the adventure than in the science. They hoped that our sailors would accomplish this feat of the ages, and plant the British flag on the very crown of the planet. And why not?

Why should there not be a generous rivalry amongst nations, as amongst individuals, making them compete for renown? Is the world so old that it does not matter who does this or that? Surely the attempt to reach the Pole is commendable, if only because it fosters manliness, and a youthful enterprising spirit!

Nares explored the upper channels of Smith's Sound, and brought home a budget of scientific observations, but he failed to reach the Pole, although his lieutenant, Markham, made a bold dash for it across the ice, and carried the Union Jack further north than any man had been before. A Polar expedition is a costly game, and even a wealthy State cannot afford the luxury often.

Hence Britain has been content ever since to look on while other nations tried their hands, in the attitude of one who says: "Beat that, if you can." It has been done. Of several attempts to reach the Pole by all three avenues into the Arctic Basin, that of Lieutenant Greeley, by way of Smith's Sound, has planted the Stars and Stripes in a higher latitude than "Markham's Farthest."

The difficulty of taking the Pole by storm has led to plans for approaching it by sap and mine: that is to say, by founding stations 100 or 200 miles in advance of each other. Lieutenant Peary has shown how easy it is to winter in the Arctic now, and the project is certainly feasible, provided there is land or fixed ice on the road; but obviously, it must be a work of time.

Dr. Nansen has conceived the daring idea of running



"A SUBMARINE VESSEL À LA JULES VERNE MIGHT BE CONSTRUCTED" (p. 484).

his ship into the ice to the northward of Siberia, and drifting with the current across the Arctic Sea, as near to the Pole as possible. I was present when he unfolded his plans to a brilliant meeting of the Royal Geographical Society last winter, and could not but admire his Columbian faith in his own theory and perfect confidence in the result, although experienced Arctic men, while wishing him "God speed," did not conceal their fears that he was leading a forlorn hope.

He intended to proceed the following summer in his little vessel, the *Fram*, and enter the ice somewhere between Cape Chelyuskin and the New Siberian Islands. There he and his twelve companions would spend the Arctic winter in the usual way, with the addition of an electric light on the mast-head, which would be kept going by a windmill, and the daily exercise of the men in a sort of gin. Little progress would be made during the winter, but in the ensuing spring and summer the drainage of the Siberian rivers, especially the Lena, and the pressure of the southerly winds on the pack-ice, would move the vessel towards the Pole.

In the event of a crush, he could save his boats and take up his quarters on the ice. If provisions failed, he could support his party on the minute crustaceans which flourish in the Arctic Sea. The time he would be gone depended on the speed of the drift, and he might be heard of in the Norwegian Sea, between Spitzbergen and Greenland, any time from next summer to five years hence. In concluding, he asked his audience to give him and his comrades in exile their kind thoughts; and assuredly there are many who will often picture to themselves that lonely vessel and its weird electric star of civilisation shining on the frozen roof of the world during the long Arctic night.

"It can be done, and England ought to do it!" The words kept ringing in my ears that evening; and verily it seemed that if England were to do it she had no time to lose. But how could she? On getting home, I sat down with one of Nansen's maps, which I had brought from the meeting, before me, and thought the matter over. A dash for the Pole in dog sledges might be more successful now that a wire could be laid along the ice-field to keep the pioneers always in communication with the ship or other headquarters, and supply them with electricity (alternating currents, at least) for heat, light, and even motive power.

There was little or no chance, however, of the Government sending out another expedition on what many would regard as a wild goose chase. A submarine vessel *à la* Jules Verne might, indeed, be constructed, and supposing the surface at the Pole to be frozen hard, it might be possible to blast the ice with dynamite, and allow the vessel to emerge from the water.

Again, a steering balloon with a closed and heated car, or a flying-machine, were possible means of journeying through the air. Such conveyances, however, were still in a rudimentary condition, and belonged

to the future. Then it struck me: Why need we go there at all, since we can despatch an automatic explorer in the shape of a small balloon, provided with a self-acting photographic camera to take a view of the Pole, and self-acting instruments to make scientific observations?

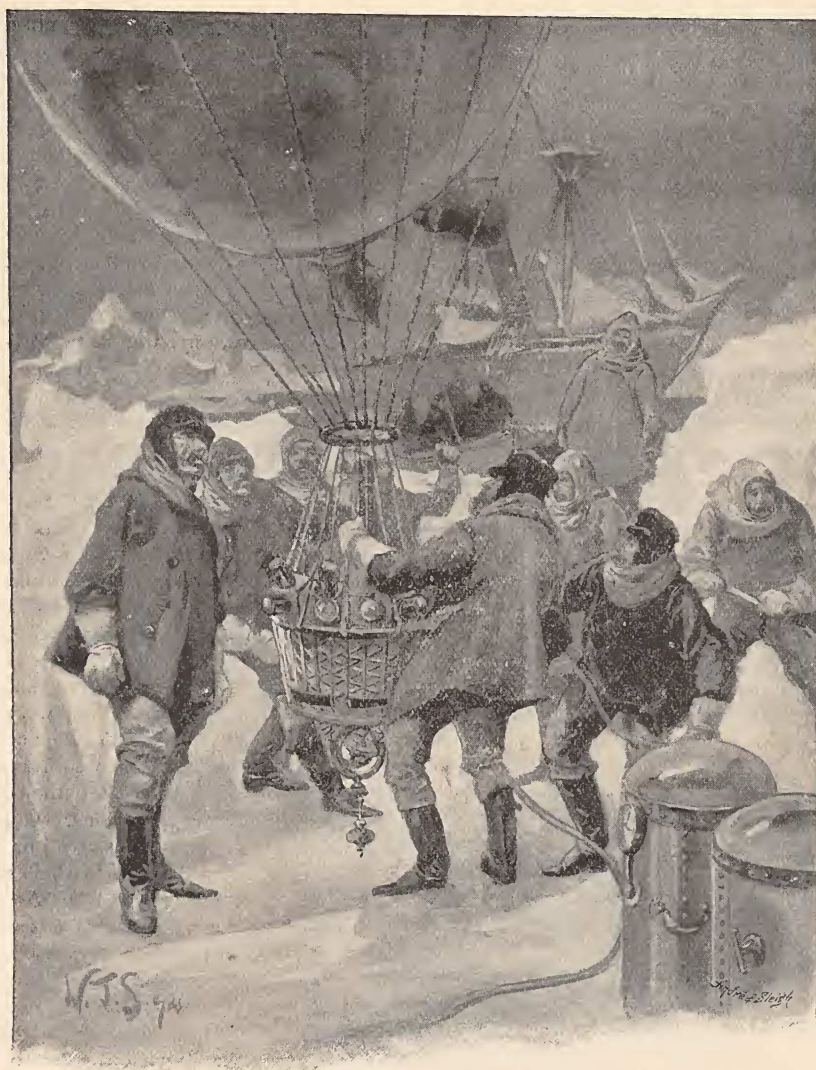
In the coming summer, if the ice was at all open, a ship would be able to get within five or six hundred miles of the Pole, and when the wind was favourable, let fly a number of these balloons at different points of the Arctic Basin. At middle heights the prevailing wind there is northerly: that is to say, from the Pole, but at high altitudes, and also at the surface, the currents are in general towards the Pole. On these southerly winds I rested my hopes, and if I should not succeed in discovering the Pole itself, I might come very near it, or at least add something to our knowledge of the Polar Sea.

The more I considered this idea the less chimerical it looked, and I began to make experiments with the aim of putting it in practice. I need not describe these tentative efforts for the purpose of selecting the proper kind of balloon and devising the necessary apparatus to go with it. Nor shall I in this brief article enter into all the details of the typical form which, after a great many experiments and trials, I arrived at as the best. I shall only say that the envelope consisted of gold-beaters' skin in three plies, almost impermeable, and filled with hydrogen or coal gas.

As the weight to be carried was comparatively light, the size was small, but varied according to circumstances. A car, or rather framework, of bamboo and steel was suspended from the netting so as to hang like a plumb-line below it, and keep the vertical as well as might be. On this car I fixed a set of self-acting cameras, for taking photographs of the sea or land below and the sky above. They were magazine cameras, each provided with a stock of plates and long distance lenses of various focal lengths, to allow for different heights of the balloon, and were operated at regular intervals by means of clock-works keeping time.

Those for the sky views were placed at the extremities of the car, so as to be clear of the envelope. Granting, however, that photographs could be taken in this way every ten or fifteen minutes, say, along the track of the balloon, it may be asked: How will you determine the true positions of them or tell when you have reached the Pole? No doubt that was the crux of the problem. During the darkness of the Polar winter it might be easy enough to localise the balloon where a particular photograph of the sea was taken by means of a corresponding photograph of the night sky, and the time, but not in the daylight of the Polar summer.

The probable speed of the balloon, as observed from the wind, and its course, as shown by the magnetic compass, might give a rough-and-ready "dead reckoning," like that obtained from the log-line and compass of a ship, which would be useful as a check, but not at all trustworthy by itself. I therefore fell back on



“LET GO!” (p. 487).

the gyroscope, as employed in the French Navy, and adapted it to serve as a Polar tell-tale. This philosophical spinning-top, like the ordinary top or the Scotch “peerie” of the schoolboy, has the property of keeping its axis of rotation in a fixed position in space wherever it is carried.

Consequently, if I were to set the gyroscope spinning with its axis of rotation parallel to the axis of rotation of the earth—that is to say, parallel to the line joining the north and south Poles—it would follow that when the gyroscope reached the Pole its axis of rotation would be in the same line with the axis of the earth. In other words, at the North Pole the axis of the gyroscope would be in a line with the vertical: that is to say, with a plumb-line hanging freely downwards. I had only to mount a suitable gyroscope and plumb-line on the car of the balloon, with the help

of gimbals, in such a way that when the axis of rotation of the gyroscope became plumb a camera or cameras were brought into action, and photographs taken of the sea and sky.

I devised more than one way of doing this, mechanically as well as electrically, which I will not here particularise; but that which pleased me best was simply an electrical contact established between the axis of the gyroscope when it was vertical and a special form of plumb-line which I adopted. The electrical current from a dry battery, which would not freeze with the intense cold, was thus available to work a self-acting camera or cameras, and photograph both sea and sky. The gyroscope itself, I may add, was kept in rotation by the electric current.

On the car I also installed a number of scientific instruments for determining the conditions of the

atmosphere, including a maximum and minimum spirit thermometer, an aneroid barometer, a hygrometer, a dust-meter, a magnetometer, and a magnetic compass. With the exception of the aneroid, which was self-recording, the indications of the instruments were photographed at intervals by clock-work cameras.

In order to trace and recover the balloon, I appended an automatic distributor of cards or circulars, bearing instructions in different languages, such as English, French, Russian, and Norwegian. Ejected at regular intervals from the receptacle, these notices fluttered down to the earth, and the finder, reading the inscription, was asked to state in the blank space provided when and where he had picked it up; and if he had seen the balloon pass overhead, how high it was, as well as the direction and rate of its travel. If he had found the balloon itself, he was requested to give particulars of the fact, and to preserve it carefully, under promise of a reward, until it should be claimed by its owner. In any case, he was to forward the card, properly filled up, to my address or to certain authorities of his country, which were specified thereon.

While preparing the balloons, I also made arrangements for taking them to the Arctic regions and starting them on their aerial mission. My aim was to proceed to the north of Spitzbergen, where the ice is sometimes kept open by the waters of the Gulf Stream, and try to get as near the Pole as I could before letting

them go. Not to confine myself to one locality, however, and, as it were, put all my eggs in one basket, I proposed to continue the voyage to Nova Zembla, and if the season permitted, to make the north-east passage to Behring Straits. In this way I should describe a half-circle round the Pole, and despatch balloons from different points of it as the wind suited, thus attempting an exploration of the entire Polar Sea. To this end I chartered a small steam whaler, the *Lodestar*, belonging to Dundee; and here I must express my gratitude to the whaling captains of that city and Peterhead for the advice and assistance which they were always ready to give me. Captain Macrae, commander of the *Lodestar*, was an experienced Arctic navigator, who had not only been engaged for many years in the whaling and sealing fleets, but had traded as far as the mouth of the Lena. The chief officer had accompanied Mr. Lamont on his sporting trips to Spitzbergen and Nova Zembla in the steam yacht *Diana*, and members of the crew had served with Captain Nares as well as the Greenland whalers.

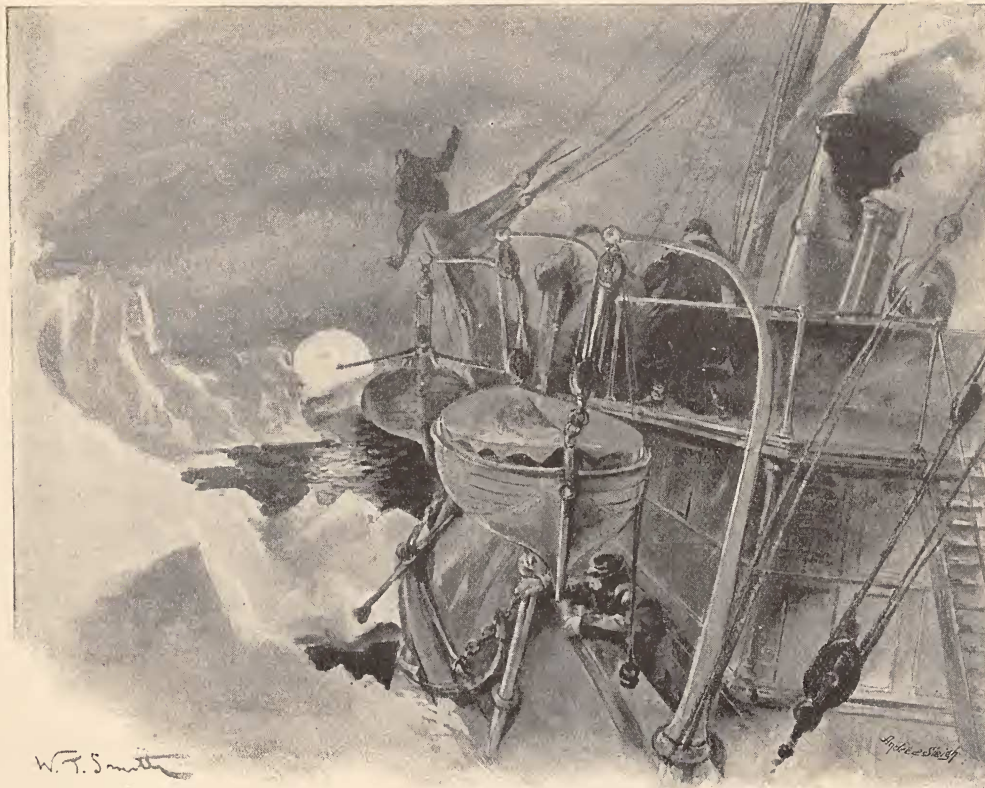
By the 30th of June, 1893, the *Lodestar* was fully equipped and ready for sea. Dr. Nansen had already sailed on his hazardous, not to say foolhardy, expedition, and was far on his way to Cape Chelyuskin.

We left Dundee on the 1st of July, and after calling at Lerwick for fresh meat and vegetables, crossed to Hammerfest, in Norway, where we took in coal, then steamed due north for Spitzbergen. The weather was fine, the wind fair, and the crispy sea a lovely azure blue. Only a glimpse of the fulmar petrel or the spouting of a "finner" whale told us that we were in the Arctic regions. Soon, however, a covey of auks surrounded the vessel, and a flock of snow-buntings perched on the rigging. The bleak hills of Bear Island, usually hid in fog, were plainly visible. Later on, we found ourselves in dirty-green water swarming with minute organisms, and knew that we had left the genial tide of the Gulf Stream. Floes dotted with black specks, in the shape of seal and walrus, began to appear, and on the 9th we sighted the peaks and glaciers of Spitzbergen. Traversing the Thousand Islands, we skirted the east coast in seas of floating ice, and reached the North Cape in two days. There was drift-ice between us and the Seven Islands, but not enough to prevent us forcing a passage to the north end of Parry's Island, where we anchored in lat. $80^{\circ} 40' N.$, long. $21^{\circ} E.$

The island consists of two mountains covered with Arctic herbage, and was surrounded by a belt of



"I CLIMBED A LOW HILL AND SPIED AN OPEN SEA" (p. 488).



"WE HAD BEEN CAUGHT AS IN A TRAP" (p. 488).

solid ice. Scouts were sent to climb the hills and report on the state of the sea to the northward, and as the wind was favourable, I prepared to despatch No. 1 balloon from the ice-foot, which gave us more room than the deck of the ship. A fresh southerly breeze was blowing at the rate of twenty-five or thirty miles an hour, and as we lay about 560 nautical miles from the Pole, she ought to reach it in some twenty-four hours at the same speed. My calculations as to the buoyancy of the balloon and the adjustment of the cameras were soon made; the envelope was rapidly filled with coal-gas from the steel cylinders in which it was compressed, and the apparatus affixed to the car, each in its proper place. At 3 p.m. all was ready, and the inflated silk swaying in the air under the restraint of the ropes to which the men clung, waiting for the word.

"Let go!" I cried, and instantly the swelling balloon shot upwards, with the car dangling beneath her, and sailed majestically away in the direction of the Pole. "Hurrah!" cheered the men; and as we stood there eagerly watching the pearly drop vanishing into space, I found myself muttering: "It can be done, and England ought to do it!"

A scout having reported thick ice to the northward, I decided to stay there for the present and despatch a second balloon. When this had been done, however, another scout brought word that the ice had become

looser to the northward, and that a "water-sky" could be discerned beyond it. Being anxious to get as far north as possible, we started again, and by dint of doubling and charging the bergs, got through a zone of thick ice and into an open stretch of sea, which took us into lat. $81^{\circ} 43' N.$, and long. $22^{\circ} E.$: our northmost point, where we let fly a third balloon from the deck of the ship. She had only about 500 miles to cover, but the breeze had become moderate, and seemed to be dying away. Our position was a risky one, for the pack-ice, broken up by the southerly wind, was closing in again as it fell; and since we had no time to lose, I gave orders to steer for Nova Zembla.

Our course took us past the mysterious Gillis Land, whose dome-shaped mountains could be seen across the unbroken ice-field around it. The wind had changed to the north-east, and there were signs of a snowstorm; but I was loth to leave the Far North without making another trial, and sent up a pilot balloon, to see whether or not there was a southerly wind at a higher altitude. Finding the surmise correct, I despatched a fourth balloon of greater buoyancy, which, after ascending through the lower wind, caught the upper current, and was hurried rapidly towards the Pole. Our position at the time (July 13th) was in lat. $80^{\circ} N.$ and long. $35^{\circ} 10' E.$

We then bore away southward through the drift-ice, and eastward to the Admiralty Peninsula of Nova Zembla (lat. $75^{\circ} 5' N.$, long. $54^{\circ} E.$), where we anchored on July 21st. The state of the ice prevented us from going further north to Cape Nassau, if not beyond it, and a strong easterly gale, with heavy snow-storms, kept us lying idle. In two days, however, it moderated, and after another day of calm and fog, a southerly breeze sprang up, which enabled us to launch two balloons. We then turned southward, and finding the Matoschkin Straits open, steered through into the Kara Sea.

It was tolerably free of ice, barring some rotten floes; and in spite of contrary winds and cheerless fogs, we arrived at Cape Chelyuskin, or North-east Cape (lat. $77^{\circ} 30' N.$, long. $104^{\circ} E.$), where we anchored on August 17th. In a little bay of this low promontory, which forms the northernmost point of Asia, we came to anchor for three days, waiting for a favourable wind, and amusing ourselves with the Samoyedes, who had an encampment close by, and were able to inform us that Nansen had passed many weeks before. On the 20th

we found there was an upper current for the Pole, and liberated another balloon, to the great amazement of the primitive Samoyedes.

Immediately afterwards we started eastward for the Liachoff, or New Siberian Islands, but owing to the ice and weather, we had to hug the coast a good deal, and it was not until August 30th that we reached Liachoff. Here, in lat. $73^{\circ} 10' N.$, and long. $141^{\circ} E.$, we sent off two balloons (Nos. 8 and 9) on a stiff southerly breeze, and continued our voyage. The open channel between the mainland and the ice-fields to the north grew narrower as we proceeded; but in spite of troublesome fogs and shallows, we reached Bear Islands (lat. $71^{\circ} N.$, long. $161^{\circ} E.$), and sent up another balloon on September 2nd. In attempting to steer eastward to Cape Schlagskoj (lat. $70^{\circ} N.$, long. $171^{\circ} E.$), we found the way blocked by impenetrable ice, and had to keep the narrow lane along the coast. On the 6th we rounded Cape Schlagskoj and anchored, waiting for a wind. Next day, while visiting the tents of some Tchuktchis, I climbed a low hill, and spied an open sea north of the ship, which proved to be a kind

of bay in the ice to the west of Wrangel Land. We therefore sailed northwards, and gained a point in lat. $73^{\circ} 14' N.$, long. $172^{\circ} E.$, where, on September 7th, we despatched our last balloons from the deck. While we stood and watched them slowly vanishing in the far distance, none of us observed that the ice was closing around us, and almost before we were aware of it we had been caught as in a trap. The vessel was cruelly nipped between the grinding floes and bergs, but fortunately, she withstood the tremendous pressure. It was so late in the season that new ice was forming, and I thought we were fairly locked up for the winter, but by dint of cutting and blasting the ice with dynamite, we succeeded in escaping to the south. As we sailed eastward beyond Wrangel Land, the weather became mild and rainy, and on the 18th of September we doubled East Cape and entered Behring Straits. At Vancouver I left the ship to come home by way of Cape Horn, and taking the Canadian Pacific Railway to New York, arrived in London on October 31st, after an absence of four months.

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Time passed without bringing me news of my balloons, and I began to fear that I should never hear any more of them, when, to my surprise, I received a communication from the Hudson Bay Company enclosing a letter addressed to me by the Chief Factor of Fort Enterprise, a fur-post of the Company in Rupert's Land. I opened it with a beating heart, and, to my great joy, found that a balloon had been captured in the neighbourhood of the fort, and was actually on its way home.



"A DOG RIB INDIAN BROUGHT IT DOWN WITH A SHOT FROM HIS GUN" (p. 489).

It appears that a Dog Rib Indian, while out hunting one day at the end of September on the south-east of the Great Bear Lake, had seen it floating overhead, and after overcoming his fright at the mysterious object, brought it down with a shot from his gun. Not knowing what to make of it, and thinking it might be some "strange medicine" of the white man, he and his family had taken it to Fort Enterprise, where the trader examined it, and, finding one of my cards of explanation, had kindly sent it to its destination.

Fort Enterprise is situated on Winter Lake, between the head-waters of the Yellow Knife and Coppermine Rivers, in lat. $64^{\circ} 15' N.$, long. $113^{\circ} 30' W.$; and I must confess I had not expected any of the balloons to turn up in that quarter. As may be supposed, I was intensely curious to learn what record it had kept of its wanderings across the Polar Sea. About a week ago it was delivered to me, and although the apparatus was much damaged, I was glad to find my efforts had not been altogether in vain, and that some of the photographs, on being developed, were fairly legible.

The balloon proved to be No. 9, which, it may be remembered, was one of two despatched from Liachov or Liachoff Island, in lat. $73^{\circ} 10' N.$, long. $141^{\circ} E.$, one of the New Siberian group. According to the compass record, it had pursued a somewhat north-easterly course, and a photograph of the icy sea, taken, as I estimate, in lat. $79^{\circ} N.$, long. $125^{\circ} E.$, has puzzled me a good deal. In the middle of the white waste of the ice it showed a dark blotch, not unlike a ship, with black spots here and there, which I took to be men. On enlarging it, judge of my astonishment to find that it was indeed a vessel caught in the pack, and that in one of the dim figures on deck I fancied I could trace the features of Dr. Nansen, watching the balloon with a telescope to his eye! Considering the improbability of another vessel being ice-locked in that region, I am forced to regard it as a photograph of the *Fram*.

Another plate of much interest shows, to my mind, that a large island or continent exists to the north-east of Nansen's position, and extends towards, if not quite up to, the Pole. Unfortunately, the pictures at this part of the voyage are somewhat blurred and out of focus, but I think I can trace the outlines of snow-covered hills and glaciers.

As for the Pole itself, let me say at once that in the cameras actuated by the gyroscope, or Polar tell-tale, I found several photographs, all more or less indistinct and out of focus, but all representing a frozen waste of snow or ice, and not an open sea. They have been taken from a high altitude, and this, together with the glare of the snow, renders it almost impossible to trace any details. Signs of roughness on the surface are indeed discernible in one picture, but whether it is due to bergs and hummocks, or to land glaciation, I am unable to decide. Be that as it may, I confidently believe that I have discovered the North Pole, and that not exactly in my easy-chair, but at the cost of a pleasure cruise.

In approaching near the Pole the balloon seems to have ascended to a great height (greater than I had allowed for) on an upward current, and then drifted south-eastward with a current from the Pole in the direction of Greenland; and one or two photographs on this course indicate an appearance of land between the Pole and what is now called Grant Land. Whether this land stretches to the Pole, or how far it extends southwards, I am at a loss to say, partly owing to the stock of photographs having come to an end. After that, the balloon seems to have been carried round to the south-westward, until it was shot by the Indian. A full account of the expedition will be given in a book which I am about to publish, including the narrative of our adventures, fac-similes of the photographs, and the scientific observations.

The advantages of this method of automatic exploration are obvious; and perhaps I need hardly point out the future before it, more especially in the discovery of the South Pole and the Antarctic regions, not to speak of other inaccessible or, at least, unexplored mountains and deserts. The pioneer balloon will facilitate rather than supersede personal exploration, by making a preliminary journey, and giving the intending traveller a bird's-eye view of the country he is about to penetrate.

P.S.—While correcting the proofs of this article, I have just received an official telegram from St. Petersburg, informing me that another of my balloons has been picked up near a settlement in the north of Siberia, whose name I cannot decipher, and is now in safe keeping at Yakutsk.

IF ROSY CHEEKS WERE ALL.

AH, love! if rosy cheeks were all!
 If beauty were thy sole estate!
 Though thou shouldst hold the world in thrall,
 The envy of the proud and great,
 And kings should worship at thy shrine—
 I would not sigh to call thee mine.

But since to beauty's self are joined
 Thoughts gentle and desires subdued,
 The graces of a cultured mind,
 And love, the crown of every good—
 I deem my double bliss divine,
 And thank the fates that made thee mine.

MATTHIAS BARR.