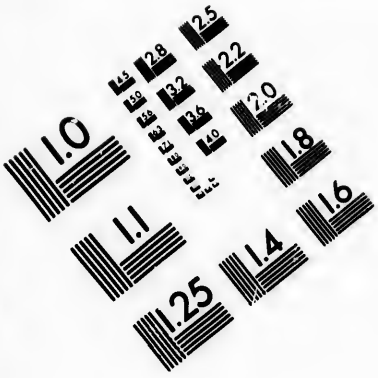

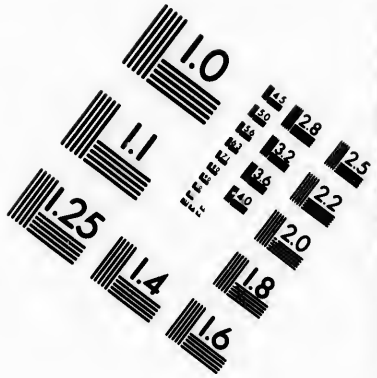

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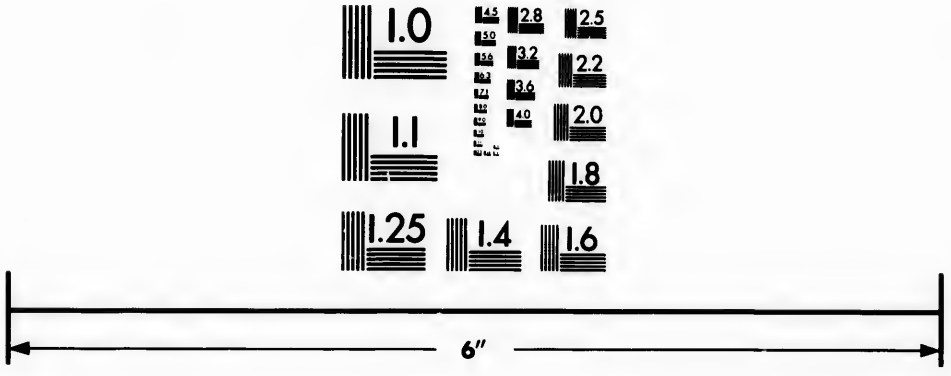

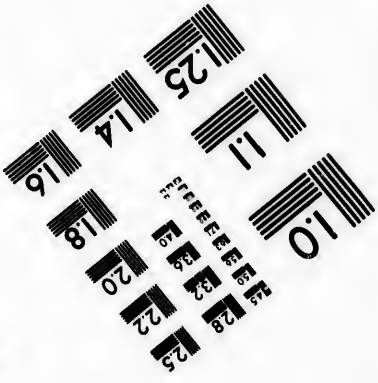

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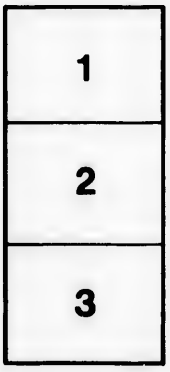

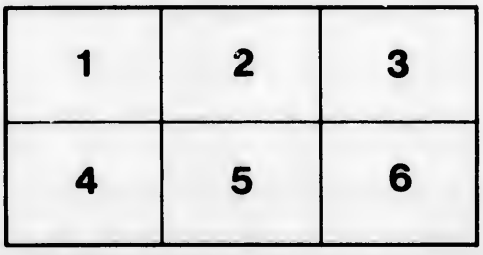

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ART. IX.—*Journal of a Voyage for the Discovery of a North-West Passage from the Atlantic to the Pacific, performed in the Years* 1819—20, *in his Majesty's Ships Hecla and Griper, under the Orders of* William Edward Parry, R.N. F.R.S. *Commander of the Expedition.* With an Appendix, containing the Scientific and other Observations. Published by Authority of the Lords Commissioners of the Admiralty. London. 1821.

IF 'the North-West Passage unto Cathay and lands Orientall,' which for two centuries and a half has scarcely ceased to be an object of anxious research, has not yet been completed, at least we may now say 'the ice is broken,' the door opened, the threshold passed, and the first stage of the journey accomplished. It may be recollected that, on the return of the first expedition, we stated 'our conviction of the existence of a communication between Baffin's Bay and the Polar Sea, and between that and the Pacific,' adding that, 'so far from that conviction being in the smallest degree shaken by any thing that Captain Ross had done, it was considerably strengthened by what he had omitted to do.' And though we could not take upon ourselves to declare positively, with Burleigh, that 'considering Groyneland is *well known* to be an islande, and that it is not conjoyned to America in any part'*—yet we entertained very little doubt that the whole of the western coasts of Davis's Strait and Baffin's Bay were one continued chain of islands; and that little was completely removed from the moment we were certified of the existence of those numerous inlets which Baffin, for want of a fitter word, named Sounds.† It was enough that

* Burleigh Papers. In the Lansdown Collection, British Museum, vol. c. No. 4. This discourse 'Concerning a Straighte to be discovered towards the North-west Passing to Cathaia and the Orientall Indians,' is in Burleigh's own hand-writing.

† If Captain Ross's voyage did nothing more, it at least removed all doubts of the authenticity of Baffin's third voyage, by the extraordinary coincidence of the chart of Baffin's Bay with the same portion of a polar chart annexed to the printed voyage of that old navigator who quaintly calls himself 'the North-West Foxe.' That Captain Luke Foxe did trace this part of his chart from that of Baffin there can be little doubt, as none but Baffin could have laid down such a chart, agreeing, as it does, most remarkably, even to a few minutes of longitude. We state this with great confidence. A map or chart may be faulty in a thousand ways, but can be correct only in one; and as no navigator but Baffin, before Foxe's time, ever was in the bay that bears his name, none but Baffin could draw a correct chart of it. All attempts that we have seen to lay down this bay geographically from the vague journal of Baffin, have utterly failed; some of them have made it to extend from thirty to forty degrees of longitude more than it actually does, while others, unable to trace any thing like an outline from Baffin's description, have left it entirely open to the northward for future discovery. That Foxe was in possession of Baffin's chart, which Purchas found 'somewhat troublesome and too costly to insert' in his collection, we can readily conceive. He tells us indeed that he got acquainted with Mr. Thomas Sterne, globe-maker, 'whom,' says he, 'I have found to have engrossed all those former voyages by relation, manuscripts, and maps,' and he ends his preface by saying, that, when 'brought before his Majestie (King Charles I.) I received

that the mere opening of one of these sounds had been looked into and described, reprehensibly erroneous as the description was, to enable us to form a pretty correct notion of what, at least, it *was not*. No extraordinary degree of scepticism was necessary to deny the existence of mountains gratuitously asserted, or of continuous ice on the surface of a sea a thousand fathoms deep, and of the temperature of 36°—no great penetration was required to reject alleged facts physically impossible, and to disregard assertions that carried with them their own refutation.

In truth, the opinion we had formed of 'Sir James Lancaster's Sound of Baffin' was that of every unprejudiced reader; and, accordingly, we now find, from Captain Parry's instructions, that the examination of this inlet was to be considered as the first and most particular object of his research. The result is highly flattering to this distinguished young officer; and we may, perhaps, be pardoned if, on this occasion, we take some little merit to ourselves for having revived the subject of a North-West Passage; (No. XXXI.) for having kept alive the public attention to it, by collecting and examining such reports and facts as appeared to bear on the question, and to be favourable to its existence and practicability; (No. XXXV.) as well as for having first suggested (in the same Number, by way of higher encouragement) a graduated scale of rewards which, being since adopted by parliament, has conferred some little pecuniary benefit, in addition to an honourable mark of distinction, on the commander of the expedition, and his brave and meritorious associates.

On these grounds we certainly do feel some little exultation; and most of all that the honour of the discovery of an open passage from Baffin's Bay into the Polar Sea has been reserved for the British navy;—for that navy which, after maintaining its share of a twenty years' war with glorious success is, we trust, destined, under the auspices of George IV., to add to those brilliant geographical discoveries (for which the world was so much indebted to it during the reign of George III.,) that last and almost only remaining one —A NORTH-WEST PASSAGE FROM THE ATLANTIC INTO THE PACIFIC; the search for which commenced with Henry VII.,

I received his gracious favour with a map of all my predecessor's discoveries.' It may be remarked, that in this chart of Foxe three islands are laid down to the northward of Spitzbergen, called the Shefferde's Orcades, in latitude 82°½. Baffin was the ablest and most scientific navigator of his day, and is the first on record who practically deduced the longitude from observations compared with the moon's place in the heavens at a given time and place. He was, therefore, not only a good mariner but a good mathematician; and it appears from 'a briefe discourse of Master Brigges,' that he died in the practice of his favourite pursuit, at the siege of Ormuz, being 'slaine in fight with a shot, as he was trying his mathematicall projects and conclusions.' Such was the man whom a mere dabbler in geography (Pinkerton) has had the effrontery to stigmatize with the name of 'impostor.'

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was warmly patronized by Elizabeth, and never wholly lost sight of in succeeding reigns. The grounds on which we build our hopes, we shall reserve until we have taken a short view of what the last voyage has accomplished, and of the facts and observations which it has supplied for the interests of geography and science.

The narrative of this Voyage is drawn up by Captain Parry in the form of a journal; and after a most attentive perusal we can confidently say, that few books, since the commencement of our labours, have afforded us more to praise or less to censure; and that not one has inspired us with more respect for the character of its author. In this work we find no display of self-importance, no attempt to deceive, or throw dust in the eyes of the public; no marvellous stories to disgust or confound the wise, and make the ignorant stare; no figures set down at random; no lines drawn ad libitum; no representations of objects, the mere fancies of the brain;—but, on the contrary, a plain statement of facts and occurrences, and a detail of scientific observations, made with unimpeachable accuracy, and recorded in the clearest and most simple and unaffected language.

The two ships, the Hecla, bomb, and Griper, gun-brig, were ready to proceed on the 4th of May, 1819; and as Lieutenant (now Captain) Parry was extremely anxious to arrive as early as possible in Davis's Strait, they were towed by a steam-boat (the wind being unfavourable) as far as Northfleet. On the 20th of the same month they passed the Orkneys, and on the 24th came in sight of the small solitary crag called Rockal; on which occasion Captain Parry observes,—'There is, perhaps, no more striking proof of the infinite value of chronometers at sea than the certainty with which a ship may sail directly for a single rock like this, rising like a speck out of the ocean, and at the distance of forty-seven leagues from any other land.'

On the 15th of June they had a view of Cape Farewell at the great distance of more than forty leagues; this they attributed to the combined effects of a clear and humid atmosphere, together with the refraction and the loftiness of the Cape itself. Three days after, they fell in with the first stream of ice, in which were several icebergs, and experienced at once a reduction of 3° of Fahrenheit. The temperature of the bottom of the sea, or at certain great depths, which had hitherto been uniformly lower than, or just equal to, that of the surface, was now, at the depth of 260 fathoms, higher, being 39°, whilst that of the surface was only 37°, and of the air 35°; the latitude at the time of these experiments was 59° 40′:—and it may here be observed, once for all, that the temperature of the bottom of the sea, or at considerable depths, was found invariably to be higher than that of the surface-water, when the

latter was at or near the freezing point, during the whole voyage; which is just the contrary of what takes place within the seas of the temperate and torrid zones.

On the 24th, in lat. 63° 34′ 24″, long. 61° 34′ 28″, the ships approached a long chain of icebergs, intermixed with floes of ice, the former apparently aground in 120 fathoms. Here the ice, which, to the westward, presented one uniform unbroken surface, without the least appearance of water, closed upon them. The roll of the sea forced the heavy masses against the rudders and counters with such violence as would have endangered the safety of the best ships built in the ordinary way; strengthened as these were, however, they escaped without the smallest injury. While thus beset, the people of the Griper killed a bear which had been attracted by the smell of some red herrings accidentally frying at the time, a practice purposely resorted to by the Greenland fishermen to entice these animals near them. It was not till the fifth day that, with every exertion, they succeeded in getting back to the eastward into clear water.

Proceeding to the northward along the edge of the ice, the ships crossed the arctic circle on the 3d July, having, on that day, passed at least fifty icebergs of large dimensions; and on the following, a more extensive chain and of superior size, against which a heavy southerly swell, 'dashing the loose ice with tremendous force, sometimes raised a white spray over them to the height of more than one hundred feet, and, being accompanied with a loud noise, exactly resembling the roar of distant thunder, presented a scene at once sublime and terrific.' Here Captain Parry again pushed the ships into the ice, with the view of crossing over to the western shore, but it fell calm, and they could make no way; and he remarks that it invariably happened, however fresh the breeze outside the ice, that it died away on entering it, even on approaching floes of small extent, and of little height above the sea. He was, therefore, again compelled to back out and stand farther to the northward, passing several icebergs, from which streams of the purest water were pouring down on every side. Between one of these icebergs, in lat. 72° 57′ 31″, and a floe of ice drifting by a southerly current towards it, the Hecla had nearly, as the whalers' phrase is, been 'nipped,' that is to say, squeezed flat. This iceberg was about 140 feet high in one part, and, from the soundings obtained near it, must have been aground in 120 fathoms, so that its whole height probably exceeded 800 feet. The ships were now surrounded by an immense number of those masses of ice, of which Captain Parry says he counted no less than eighty-eight.

As they had now reached the latitude of 73°, after many ineffectual attempts to cross the stream of ice which occupies the central

central part of Davis's Strait and Baffin's Bay, and Captain Parry was unwilling to pass the latitude of Sir James Lancaster's Sound, to which his instructions, in a particular manner, directed him, he once more determined to make the attempt to penetrate through the icy barrier, in order to get into the open sea which the experience of the former voyage induced him to believe would be found on the western coast; and, on the seventh day after entering it, he happily succeeded in reaching the open water, not a little gratified to find that he had now passed every impediment which had hitherto obstructed his passage to the entrance of the Sound. The breadth of this barrier of ice was found to be about eighty miles, through which, by the aid of sailing, tracking, heaving by the capstans, and sawing, they made good, on an average, about twelve miles a day, or half a mile an hour.

The sea had now deepened so much that no bottom could be found with 310 fathoms of line; the ships, too, had acquired a pitching motion; the swell increased considerably; no ice was to be seen in any direction, and the temperature of the water had risen from 31° and 33° to 37°; but it again fell, on approaching two or three icebergs near the mouth of the sound, to 32° and 33°. They seemed now, also, to have got into the great resort of whales—no less than eighty-two large ones having been counted in the course of the day. On the 30th July they made the high land round Possession Bay, just one month earlier than in 1818, though the Expedition of that year left England above a fortnight sooner—an advantage which Captain Parry attributes entirely to the confidence he felt, (as we have just observed,) that an open sea would be found to the westward of the barrier of ice; without which indeed it would have been little short of madness to attempt a passage through so compact a body.

On the 31st July they landed at the spot which they had visited the preceding year. The flag-staff was still standing; the ground was free from ice or snow; and the old marks of their shoes were as fresh on the banks of a stream of water as if they had been imprinted but a few days before; a circumstance which makes it almost certain that very little either of sleet or snow could have fallen since their last visit. Considerable tufts of moss and grass were observed in the valley, and tracks of bears and rein-deer; but the only living creatures seen were a fox, a raven, a few ring-plovers, snow-buntings, and a wild bee. The longitude by the chronometers differed only one minute and a half from that deduced from one of Earnshaw the preceding year; and observations for the variation and dip of the magnetic needle gave very nearly the same results.

Our navigators were now about to enter and to explore that great

Sound or Inlet which has obtained such celebrity from the opposite opinions held with regard to its extent and termination. 'We all felt,' says Captain Parry, 'it was that point of the voyage which was to determine the success or failure of the expedition, according as one or other of the opposite opinions alluded to should be corroborated.' This was soon to be decided, for an easterly breeze, and a crowd of sail, carried them rapidly to the westward.

'It is more easy to imagine than to describe the almost breathless anxiety which was now visible in every countenance, while, as the breeze increased to a fresh gale, we ran quickly up the Sound. The mast-heads were crowded by the officers and men during the whole afternoon; and an unconcerned observer, if any could have been unconcerned on such an occasion, would have been amused by the eagerness with which the various reports from the crow's-nest were received, all however hitherto favourable to our most sanguine hopes.'—p. 31.

Before midnight they were pretty well relieved from all anxiety respecting the alleged continuity of land round the supposed extremity of this magnificent inlet, and fully convinced that the intrepid assertions, descriptions, and *paintings*, the produce of the preceding voyage, were wholly gratuitous:—in this they could not be deceived; for the weather being remarkably clear, and the ships having reached the longitude of 85° 12′, the two shores of the passage were observed to continue full fifty miles apart, and not a vestige of land could be discovered to the westward. To a large opening into the northern shore, Captain Parry gave the name of Croker's Bay, being anxious to seize, as it would seem, the earliest ·rtunity of making some compensation for having transformed, ·th a touch of Harlequin's sword, the magnificent and insuperable range of mountains, which a former expedition had assigned to one Secretary of the Admiralty, into a broad and uninterrupted passage, bearing the name of the other Secretary. In fact, neither mountain nor ice, nor other obstacle, real or imaginary, opposed the progress of Captain Parry.

In this noble strait or passage, the Expedition proceeded rapidly to the westward; and as no land was in sight in the direction of their course, no bottom to be reached with 170 fathoms of line, and the whole surface of the sea as free from ice as any part of the Atlantic, 'we began,' says Captain Parry, 'to flatter ourselves that we had fairly entered the Polar Sea, and some of the most sanguine among us had even calculated the bearing and distance of Icy Cape, as a matter of no very difficult or improbable accomplishment. This pleasing prospect,' he adds, 'was rendered the more flattering by the sea having, as we thought, regained the usual oceanic colour, and by a long swell which was rolling in from the southward and eastward.' A further advance, however, disturbed these

these pleasing prospects; land was seen ahead; and though a nearer approach enabled them to ascertain that it was only a small island, they had the mortification to discover that a floe of ice extended from it to the northern shore.

They had now reached long. 89° 18′ 40″; and the weather being calm, the people employed themselves in endeavouring to kill one of the numerous white whales which were playing round the ships; the animals, however, were too wary to suffer themselves to be approached. They are described as generally about eighteen or twenty feet in length:—several times, it is stated, they were heard to emit a shrill ringing sound, not unlike that of musical glasses badly played; this sound was most distinct when the animal was directly beneath the boat, and several feet below it, and ceased altogether on its coming to the surface.

A large inlet on the southern shore, not less than ten leagues wide at its mouth, and without any land visible in the line of its direction, induced Captain Parry to stand down its eastern side along the edge of the ice, in a broad and open channel, in the hope that it might lead to a clearer passage to the westward, in a lower latitude than the parallel of Barrow's Strait. Our navigators had observed that, from the moment they entered Sir James Lancaster's Sound, the sluggish movement of the compass-cards, and the irregularity occasioned by the attraction of the ships' iron, had uniformly and rapidly increased as they moved westward; but in descending this inlet, their power of motion became less as they proceeded; and when they had reached lat. 73°, 'we witnessed,' says Captain Parry, 'for the first time, the curious phenomenon of the directive power of the needle becoming so weak as to be completely overcome by the attraction of the ship; so that the needle might now be properly said to point to the north pole of the ship.' For all the purposes of navigation, therefore, the compasses were henceforth little better than useless lumber. A needle, in which the friction was almost entirely removed by a thread suspension, was observed to move round with the ship, always pointing steadily to her head in whatever direction it happened to be. No magnetical observations, therefore, from this period, were attempted to be made on board, but the instruments were carried on shore, or (where it could be done) to an iceberg, or field of ice; and even here the directive power was so sluggish that the most delicately suspended needles required tapping with the hand to make them move. An observation, taken on shore, in lat. 72° 45′ 15″, long. 89° 41′ 22″, gave 88° 26′ 42″ for the dip, and 118° 23′ 37″ W. for the variation.

Prince Regent's Inlet (for so Captain Parry has named it) increased in width as they proceeded to the southward, and with it

their hopes of a passage, especially as the land on the western side trended more and more to the south-westward as they advanced.

'I have before observed,' Captain Parry says, 'that the east and west lands which form this grand inlet are probably islands: and, on an inspection of the charts, I think it will also appear highly probable that a communication will one day be found to exist between this inlet and Hudson's Bay, either through the broad and unexplored channel called Sir Thomas Rowe's Welcome, or through Repulse Bay, which has not yet been satisfactorily examined. It is also probable, that a channel will be found to exist between the western land and the northern coast of America; in which case the flood tide which came from the southward may have proceeded round the southern point of the west land and out of the Polar sea, part of it setting up the inlet, and part down the Welcome, according to the unanimous testimony of all the old navigators, who have advanced up the latter channel considerably to the northward.'—p. 41.

Unfortunately, however, where the land appeared to terminate on the S. W. side, a floe of ice was perceived to stretch away to the southward, beyond which no water was in sight; neither was any land to be seen to the south-west, though the horizon was so clear in that quarter, that, had any of moderate height existed, it must have been visible at the distance of ten or twelve leagues. Captain Parry saw no reason, he says, 'to doubt the practicability of ships penetrating much farther to the south by watching the occasional openings in the ice;' he deemed it, however, more advisable (and very properly, we think) to take the opportunity of a breeze of wind to return to the wide westerly passage which he had quitted; and on the 9th August he made sail accordingly to the northward. The southernmost point to which the ships had proceeded on the eastern side of the inlet was lat. 71° 53′ 30″, long. 90° 03′ 45″, and the distance from its entrance about one hundred and twenty miles.

Owing to contrary and baffling winds, with snow and heavy fogs, floes of ice, want of sun, and useless compasses, it was not till the 19th that they reached the northern shore of Barrow's Strait. Here, however, nothing occurred to interrupt their progress. The curiously formed buttresses of limestone which the southern fronts of land presented were free from snow; and the sea, which was equally free from ice, was 'so perfectly clear,' Captain Parry says, 'that it was almost impossible to believe it to be the same part of the sea which, but a day or two before, had been completely covered with floes to the utmost extent of our view.' Fogs and light winds, however, made their progress slow; but appearances were highly satisfactory. On the 22d, being in long. 92¼°, the continuity of the northern land was interrupted by a magnificent opening eight leagues

leagues in width, in looking up which, on a beautifully clear evening, neither land nor ice could be seen from the mast head; it was named Wellington Channel.

'The arrival off this grand opening was an event for which we had long been looking with much anxiety and impatience; for the continuity of land to the northward had always been a source of uneasiness to us, principally from the possibility that it might take a turn to the southward and unite with the coast of America. The appearance of this broad opening, free from ice, and of the land on each side of it, more especially that on the west, leaving scarcely a doubt in our minds of the latter being an island, relieved us from all anxiety on that score; and every one felt that we were now finally disentangled from the land which forms the western side of Baffin's Bay; and that, in fact, we had actually entered the Polar sea.' Captain Parry adds, 'Though two thirds of the month of August had now elapsed, I had every reason to be satisfied with the progress which we had hitherto made. I calculated upon the sea being still navigable for six weeks to come, and probably more, if the state of the ice would permit us to edge away to the southward in our progress westerly: our prospects, indeed, were truly exhilarating; the ships had suffered no injury; we had plenty of provisions; crews in high health and spirits; a sea, if not open, at least navigable; and a zealous and unanimous determination in both officers and men to accomplish, by all possible means, the grand object on which we had the happiness to be employed.'—pp. 51, 52.

On the 23d, a little beyond the western point of Wellington Channel, the ships had to 'bore' through a narrow stream of ice. The formation of the land to the northward of them had now assumed a different structure, and, instead of rising precipitously from the sea, offered a sloping sandy beach. It was now evident that the passage was studded with islands, and that their further progress, from the shoaling of the water, the occasional fogs, and the floes of ice, would require the greatest vigilance and circumspection. The islands were of moderate height and entirely clear of snow; yet it was remarked, with some degree of unpleasant feeling, that for a whole day (26th), neither sea nor land had presented to their view a single living creature of any description. Still, however, though the sea to the southward of them was for the most part covered with a compact and undivided body of ice, it was encouraging to observe that a channel of sufficient width was open between it and the shore of a large island, named, by Captain Parry, Bathurst's Island. On the eastern point of another island beyond this (called Byam Martin's) Captain Sabine and a party landed to make observations, and to examine the natural productions. They found the remains of four Esquimaux habitations, consisting of stones rudely piled in an elliptical form, like those seen at Hare Island the preceding year. Very little snow remained

on the ground; and the valleys were covered with luxuriant moss and other vegetation, similar to that noticed at Possession Bay. Recent traces of the rein-deer and musk-ox were seen in many places. The fixed rock was sandstone, and pieces of granite and red feld-spar were strewed on the surface. Captain Sabine found that the directive power of the compasses was weaker, (at least the cards were more sluggish,) than at the place of observation in Regent's Inlet, where the dip was nearly the same; but that, when they had settled, they indicated the meridian with more precision. The result is highly interesting.

'The latitude of the place of observation was 75° 09′ 23″, and the longitude, by chronometers, 103° 44′ 37″. The dip of the magnetic needle was 88° 25′ .58, and the variation was now found to have changed from 128° 58′ *west*, in the longitude of 91° 48′, where our last observations on shore had been made, to 165° 50′ 09″ *east*, at our present station; so that we had, in sailing over the space included between those two meridians, crossed immediately to the northward of the magnetic pole, and had undoubtedly passed over one of those spots upon the globe, where the needle would have been found to vary 180°, or in other words, where its north pole would have pointed due south. This spot would, in all probability, at this time be somewhere not far from the meridian of 100° west of Greenwich. It would undoubtedly have been extremely interesting to obtain such an observation, and in any other than the very precarious navigation in which we were now engaged, I should have felt it my duty to devote a certain time to this particular purpose; but, under present circumstances, it was impossible for me to regret the cause which alone had prevented it, especially as the importance to science of this observation was not sufficient to compensate the delay which the search after such a spot would necessarily have occasioned, and which could hardly be justified at a moment when we were making, and for two or three days continued to make, a rapid and unobstructed progress towards the accomplishment of our principal object.'—p. 62.

From this place to the farthest westerly extreme of another large island, to which Captain Parry gave the name of Melville Island, the navigation became more and more interrupted by ice, so as now to be effected only through a narrow channel of water between it and the shore, sometimes extended to four or five miles in width, and at others contracted to a few hundred yards. The weather too was observed to become daily worse, the sun being almost constantly obscured by dense fogs, a portion of the nights dark, and the frost severe. By the 4th September, however, they had succeeded in passing the meridian of 110° west longitude in latitude 74° 44′ 20″, which entitled them to the first Sum in the Scale of Rewards granted by parliament, namely five thousand pounds. The ships, at this time, being just opposite a projecting point, it was called by the men Bounty Cape.

Beyond

Beyond this point was another cape, to which the ice was so closely attached as to oppose an apparently impenetrable barrier to all further progress. Nothing, therefore, remained but to bring the ships to anchor; and it most fortunately happened that an excellent roadstead was at hand: to this was proleptically given the appropriate name of the Bay of the Hecla and Griper; not only as it was the first spot at which the ships had dropped anchor since leaving the coast of Norfolk, but that also to which they were doomed to return and pass a long, a wearisome and gloomy winter. As it appeared to mark in a very decided manner the completion of one stage of the voyage, the ensigns and pendants were hoisted; 'and it created in us,' says Captain Parry, 'no ordinary feelings of pleasure' (words which we trust will be read with no *ordinary feelings* of pride) 'to see the British flag waving, for the first time, in these regions, which had hitherto been considered beyond the limits of the habitable part of the world.'

It was now the 7th September, and the thermometer had fallen to 25°, the sea was covered with floes and large masses of ice, and the nights were so dark from ten till two, that it was absolutely necessary to make fast the ships during that interval: yet, as Captain Parry felt that the ultimate accomplishment of the grand object of the voyage mainly depended on the progress to be made in the present season, short as it was, he determined to struggle against all obstacles, and to extend his operations to the latest possible period. The closeness of the ice to the shore, however, would only allow of moving the ships to a more sheltered situation near the beach, as a security from the pressure of the great body of ice without, which was now observed to be setting fast towards them. They fortunately succeeded in pushing within two of those vast masses, which, at the distance of three hundred yards from the beach, were aground in twelve fathoms of water, and from twenty to thirty feet above the surface. The main ice was thus prevented from coming in contact with the ships, which, in such a case, must inevitably have been thrown on the shore, and crushed to atoms. One floe from the westward, catching a corner of the mass within which the Hecla was secured, turned it round as on a pivot.

On the 14th September, whilst vainly struggling to get to the westward, the thermometer descended as low as 9°, a decrease in the temperature as sudden as it was unexpected; and from this day, as it afterwards appeared, may be dated the commencement of their winter. Little prospect now remained of making any further progress, the heavy ice being close in with the shore, and the few contracted pools of water covered with young or bay ice, through which the ships could be moved with difficulty, even with the assistance of a strong breeze; they were in fact at the mercy of the great

great floes, which, closing in with the shore, drove them in whatever direction the impulse was given. Some idea may be formed of their perilous situation from what follows:—

'We now seemed to have got rather within the drift of the main body of ice, which passed us to the westward at the rate of two miles an hour; but, at length, the point of a large field, which had hitherto not approached the shore nearer than two or three hundred yards, was observed to be rapidly nearing us. Immediately to the westward of the spot where the Hecla's anchor had been dropped, some very heavy ice, which, for distinction's sake, we called a berg, projected from the beach to the distance of a hundred and fifty yards. The ships had fortunately been forced by the ice, one on each side of this projecting point; for at eight P. M. the field came in contact with it with a tremendous crash, piling up the enormous fragments of ice in the most awful and terrific manner; this seemed to break, in some degree, the force with which the ice had been driving; a force which may almost be considered incalculable, as we could not see over the field in motion from our mast-head. We were at this time within a hundred yards of the point, and had, therefore, great reason to be thankful for having escaped being carried into a situation in which no human power or skill could have saved the ships from instant destruction.'—p. 91.

The Griper was absolutely forced upon the beach; and, as her situation was one of great danger, Captain Parry sent to take out Lieutenant Liddon, then in a most debilitated state, and convey him on board the Hecla: this young officer, with the true spirit of an English sailor, rejected his kindness, caused himself to be brought upon deck and, seated in his chair, gave the necessary orders, declaring that he would be the last man, instead of the first, to abandon his ship. Soon after, happily, by the retiring of the ice, and the rise of the tide, the Griper floated. It was now, however, too evident that further perseverance would be useless, and probably destructive both of ships and people: the 20th September had arrived, on which day the highest point of the thermometer was only 21°, and the lowest 10½°.

'The advanced period of the season, the unpromising appearance of the ice to the westward, and the risk to the ships with which the navigation had been attended for some days past, naturally led me,' Captain Parry observes, 'to the conclusion that the time had now arrived, when it became absolutely necessary to look out for winter-quarters. Among the circumstances which now rendered this navigation more than usually perilous, and the hope of success proportionally less, there was none which gave more reasonable ground for apprehension than the incredible rapidity with which the young ice formed upon the surface of the sea, during the greater part of the twenty-four hours. It had become evident, indeed, that it could only be attributed to the strong winds which had lately prevailed, that the sea was not at this time permanently frozen over; for, whenever the wind blew less than a gale, that formation

formation took place immediately, and went on with such astonishing rapidity, that had the weather continued calm for more than four-and-twenty hours together, it seemed to me extremely probable, that we must have passed the winter in our present exposed and insecure situation.'—pp. 93, 94.

It was most fortunate that Captain Parry came to this resolution when he did, as a single day later might have been fatal to the expedition; for on arriving at Winter Harbour, at the head of the bay of the Hecla and Griper, the whole of its surface was found so completely covered with new ice, that they were obliged to open a canal with saws to admit the ships; an operation which occupied the greatest part of three days—the average thickness of the ice being seven inches, and the whole length of the cut 4082 yards, or nearly two miles and one third. On the last of these days (the 26th September) the mercury in the thermometer fell one degree below zero, and on the following day the sea was observed from the hills to be frozen over as far as the eye could reach; nor was any open water seen after this period. The canal, therefore, being now completed, the ships were tracked up into their winter-quarters, and the men, says Captain Parry, 'hailed the event with three loud and hearty cheers.'* 'Having now,' he continues, 'reached the station where in all probability we were destined to remain for at least eight or nine months, during three of which we were not to see the face of the sun, my attention was immediately and imperiously called to various important duties:' these consisted principally in putting into execution the best means for the security of the ships, provisions and stores, and for the maintenance of good order and cleanliness, so conducive to the health and comfort of the crews during the long, dark and dreary winter before them. The first operation, after removing all the heavy stores and timber on shore, in order to have a clear deck for exercise, was to house the ships entirely over, and to cover the roof with a thick wadding tilt, such as is used for covering waggons; to bank up the snow as high as the main-chains; and to provide for the warmth and dryness of the births by means of an oven and stove-pipe. Here, however, he had some difficulties to overcome which could not readily have been anticipated. It was found that when the temperature of the atmos-

* With very different feelings, and indeed under very different circumstances, in the same parallel on the coast of Nova Zembla, did the unfortunate Barentz and his companions enter that dismal spot, 'where,' says the writer, 'we were forced, in great cold, povertie, miserie and griefe, to stay all that winter.' The patient resignation with which these poor men bore their sufferings, the orderly conduct, good humour, and even cheerfulness, occasionally displaying itself in the depth of their misery, and the simplicity in which the story is told, render the account of this unfortunate voyage one of the most interesting narratives that was ever written.

phere

phere had fallen considerably below the zero of Fahrenheit, the steam from the cooking coppers, as well as the breath and other vapour generated in the inhabited parts of the ship, began to condense into drops upon the beams and the sides to such a degree as to keep them constantly wet. For some time a current of heated air enabled him to get rid of a great part of the moisture; but when the weather became more severely cold it accumulated in the bed-places to a very serious and alarming degree, so that it was deemed expedient during the depth of winter to allow the frozen vapour to settle by the sides of the ships in a solid plate of dry ice.

The next consideration was how to regulate the distribution of provisions, so as to ward off that most dreadful of all diseases at sea, the scurvy, to which salt meat, want of vegetable food and exercise, cold and dampness, were too well known to be predisposing causes. The regulations established on this head appear to be excellent, and the supplies with which the expedition was furnished most judiciously employed. With regard to the article of fuel, a system of the most rigid economy was necessarily adopted. The men were separated into divisions, over each of which an officer was appointed, who was responsible for their personal cleanliness, and for their clothing being kept in good condition. The crews were mustered and inspected morning and evening, and once a week particularly examined by the medical men, that if the least appearance of scurvy should be detected, it might at once be checked. After breakfast the men were either allowed to take exercise on shore, or, if the weather was too inclement, to run round the deck to the tune of an organ, or to one of their own songs.

For some time after their arrival in Winter Harbour, hunting parties were sent out to kill rein-deer and grouse, but before the end of October all these animals had migrated from Melville island, leaving only the wolves and foxes to bear them company during the winter. On the 17th and 18th the deer were observed in vast numbers, preparatory to their departure over the ice to the coast of America, after which one or two only were seen. The wolves haunted them near the ships for the greater part of the winter, and the females enticed their dogs away; some of which never returned, and one of them came back dreadfully lacerated, having, it was supposed, had an encounter with the males. One fox was caught in a trap; it was perfectly white. A single bear was seen shortly after their entering the harbour; and another was heard just as they were leaving it; and one solitary seal was all that appeared.

A party who had been sent out for game, and had neglected their orders to return before sun-set, caused considerable apprehension for their safety. The effects mentioned in the following extract are precisely

precisely similar to those which occurred to a detachment of the French army sent out one night from Wilna.

'John Pearson, a marine, belonging to the Griper, who was the last that returned on board, had his hands severely frost-bitten, having imprudently gone away without mittens, and with a musket in his hand. A party of our people most providentially found him, although the night was very dark, just as he had fallen down a steep bank of snow, and was beginning to feel that degree of torpor and drowsiness which, if indulged, inevitably proves fatal. When he was brought on board, his fingers were quite stiff, and bent into the shape of that part of the musket which he had been carrying: and the frost had so far destroyed the animation in his fingers on one hand, that it was necessary to amputate three of them a short time after, notwithstanding all the care and attention paid to him by the medical gentlemen. The effect which exposure to severe frost has, in benumbing the mental as well as the corporeal faculties, was very striking in this man, as well as in two of the young gentlemen who returned after dark, and of whom we were anxious to make inquiries respecting Pearson. When I sent for them into my cabin, they looked wild, spoke thick and indistinctly, and it was impossible to draw from them a rational answer to any of our questions. After being on board for a short time, the mental faculties appeared gradually to return with the returning circulation, and it was not till then that a looker-on could easily persuade himself that they had not been drinking too freely.'—pp. 108, 109.

These excursions had afforded exercise and amusement in turns to the people; and Captain Parry, naturally desirous to fill up the hours of leisure and inactivity which resulted from their discontinuance, proposed to the officers to get up a play, occasionally, on board the Hecla, as the best and readiest means of preserving, through the long and dreary interval before them, that cheerfulness and good humour which had hitherto subsisted. To this proposal they immediately assented; and in these amusements, says Captain Parry, 'I gladly undertook a part myself, considering that an example of cheerfulness, by giving a direct countenance to every thing that could contribute to it, was not the least essential part of my duty, under the peculiar circumstances in which we were placed.' The first performance was *Miss in her Teens*, and it was acted on the 5th of November, the day on which the sun sank below the horizon not to rise again for three tedious months. The representation was received with rapturous applause, manifested in a true sailor-like manner, by three hearty cheers; and it evidently afforded so much amusement to the men as to determine Captain Parry to repeat the entertainment once a fortnight during the dark season. Even the occupation of fitting up the theatre, and taking it in pieces again, before and after each performance, was a matter of no little impor-

importance; 'for I dreaded,' says Captain Parry, 'the want employment as one of the worst evils that was likely to befall us. As the stock of plays on board (or rather of farces, for it does not appear that the green-room was in possession of a single piece of five acts) was but scanty, 'our authors,' says Captain Parry, set to work, themselves, and produced, as a Christmas piece, a musical entertainment, expressly adapted to our audience, and having a reference to the service on which we were engaged.' Captain Parry, we have reason to believe, was himself the author; indeed this officer seems to have united in his own person a greater number of qualifications than fall to the generality of mankind.

These amusements necessarily engaged the attention of the officers as well as the men; but Captain Parry conceived that something more might be desirable to divert the minds of the former from dwelling too eagerly on their present situation; and with this view he suggested, as an amusing occupation during the hours of constant darkness, the setting on foot of a weekly newspaper, to be called *The North Georgia Gazette, and Winter Chronicle*, of which Captain Sabine undertook the editorship; 'and I can safely say,' observes Captain Parry, 'that these weekly contributions had the happy effect of employing the leisure hours of those who furnished them, and of diverting the mind from the gloomy prospect which would sometimes obtrude itself on the stoutest heart:' it did more, and 'employed and cheered' not only the minds of the contributors, but of those who, from diffidence of their own talents could not be prevailed on to add their mite to the little stock which was weekly demanded; 'for even they (says Captain Parry) were not unwilling to read, and more ready to criticize than those who wielded the pen; but it was that good humoured sort of criticism that could not give offence.' This Gazette, consisting of twenty-one Numbers, has been printed by the officers in compliance with the wishes of their friends:—and when it is considered at what an early period the officers of the navy are sent to sea (generally at eleven or twelve years of age), and that the education which they receive on board can scarcely be supposed to be on the best or most enlarged plan, it will, we think, be admitted that many of the papers in the North Georgia Gazette are far superior to what might reasonably be expected, and such as would not discredit the more regular scholar and practised writer.

The officers indulged themselves generally for one or two hours in the middle of the day, when the weather would admit of it in rambling on shore, even in the darkest period, though, as may well be imagined, there was little in these walks that could interest or amuse. They were however frequently, and as it were, habitually

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ken, even when the thermometer was 30°, 40°, or even 50° below zero, and without experiencing much inconvenience from this intense degree of cold, provided there was no wind; but the lightest breeze made an exposure to it intolerable, even with the thermometer many degrees above zero. The dull and tedious monotony which day after day presented itself to our navigators, Captain Parry thus describes :—

'To the southward was the sea, covered with one unbroken surface of ice, uniform in its dazzling whiteness, except that, in some parts, a few hummocks were seen thrown up somewhat above the general level. Nor did the land offer much greater variety, being almost entirely covered with snow, except here and there a brown patch of bare ground, in some exposed situations, where the wind had not allowed the snow to remain. When viewed from the summit of the neighbouring hills, on one of those calm and clear days, which not unfrequently occurred during the winter, the scene was such as to induce contemplations, which had, perhaps, more of melancholy than of any other feeling. Not an object was to be seen on which the eye could long rest with pleasure, unless when directed to the spot where the ships lay, and where our little colony was planted. The smoke which there issued from the several fires, affording a certain indication of the presence of man, gave a partial cheerfulness to this part of the prospect; and the sound of voices, which, during the cold weather, could be heard at a much greater distance than usual, served now and then to break the silence which reigned around us, a silence far different from that peaceable composure which characterizes the landscape of a cultivated country; it was the death-like stillness of the most dreary desolation, and the total absence of animated existence. Such, indeed, was the want of objects to afford relief to the eye or amusement to the mind, that a stone of more than usual size appearing above the snow, in the direction to which we were going, immediately became a mark, on which our eyes were unconsciously fixed, and towards which we mechanically advanced.

'Dreary as such a scene must necessarily be, it could not, however, be said to be wholly wanting in interest, especially when associated in the mind with the peculiarity of our situation, the object which had brought us hither, and the hopes which the least sanguine among us sometimes entertained, of spending a part of our next winter in the more genial climate of the South-Sea Islands. Perhaps too, though none of us then ventured to confess it, our thoughts would sometimes involuntarily wander homewards, and institute a comparison between the rugged face of nature in this desolate region, and the livelier aspect of the happy land which we had left behind us.'—pp. 124, 125.

Thus occupied, the shortest day, or more correctly speaking the middle of the long night, came upon them unawares. At a little before and after the noon of that day, there was so much light as would

would enable them to read small print when held toward
southern horizon, and allow them 'to walk comfortably fo
hours.' However slowly the sun was now advancing toward
horizon, the very idea of having got the turn in their favou
highly exhilarating; and dreadfully cold and bleak as Christma
was, they contrived to observe it by the performance of divine
vice, and a social dinner, at which their friends in England we
forgotten.

The old year closed with mild weather; but the month of J
ary was miserably cold, the thermometer never once reachi
high as zero, and generally standing from 30° to 40° below it.
the 3d,' says Captain Parry, 'I received the first unpleasant r
of the scurvy having made its appearance among us.' The p
attacked was Mr. Scallon, gunner of the Hecla, and a conside
degree of uneasiness was manifested at the unequivocal symp
of the complaint. Every attention was paid to the case by the
dical gentlemen; but the disease continued for some tim
gain ground: by a liberal use of antiscorbutics, however, it
checked, and at length happily subdued. Nothing contrib
more, perhaps, to this effect than a daily supply of fresh mu
and cress, which Captain Parry contrived to raise in his cabi
boxes filled with earth, and ranged along the stove-pipe: by
means he was generally able to ensure, even in the severe
which we have just noticed, a crop on the sixth or seventh day
sowing the seed. Though necessarily colourless for want of l
it was just as pungent and aromatic as when grown in the ope

On the 11th January, the thermometer was at 49° below z
yet the weather was perfectly calm, and the officers walked on
without experiencing any of those dreadful effects said to
from exposure to intense cold, by some who have written on
climate of Siberia—such as producing a sensation on the lung
if they were torn asunder. It would appear indeed that the hu
frame is capable of resisting both heat and cold, and of endu
with impunity a much more rapid and violent change from the
to the other than the people of this voyage were subject to.
tain Parry says, that in the severest weather not a single inflam
tory complaint occurred, 'though in passing from the cabins
the open air, and *vice versa*, the men were constantly in the h
for some months of undergoing a change of from 80° to 1
and in several instances 120° of temperature in less than one
nute.'

On the 3d February, by the refractive power of the atm
phere, they had a slight glimpse of the upper limb of the sun,
on the 7th he displayed his full orb above the horizon. This
the signal for making a show, at least, of preparation for the ens
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paign; though they well knew that many tedious months must pass away before the ships would be loosened from their icy ns. The collecting of stones for ballast, to the amount of about nty tons, was the first operation, which occupied a few hours y, when the weather was sufficiently mild to enable them to k without the risk of frost-bites; this, however, was but sel- ; and, on the whole, the month of February was by far the lest which they experienced: the spirit in the thermometer on 15th descended to −55°, and remained for fifteen hours not er than −54°; from which, in fifteen hours more, it gradually with an increasing breeze of wind to −34°; but even in the est degree of cold, while it remained calm, no inconvenience felt from exposure to the open air. 'We amused ourselves,' Captain Parry, 'in freezing some mercury during the continu- e of this cold weather, and by beating it out on an anvil, pre- sly reduced to the temperature of the atmosphere; it did not ear to be very malleable when in this state, usually breaking r two or three blows from the hammer.'

Shortly after their arrival at Winter Harbour, an observatory had n erected on shore, in which the clocks, transit, pendulum, and er instruments were deposited. On the 24th of February, thermometer being from −43° to −44°, this house was dis- ered to be on fire. All hands were instantly at work to extin- sh the flames, by heaping snow upon them. 'The appearance,' s Captain Parry, 'which our faces presented at the fire was a ious one, almost every nose and cheek having become quite te with frost-bites in five minutes after being exposed to the ther; so that it was deemed necessary for the medical gentle- n, together with some others appointed to assist them, to go con- ntly round, while the men were working at the fire, and to rub h snow the parts affected, in order to restore animation.' With ry precaution, however, many severe frost-bites occurred; and no than sixteen were added to the sick lists of the two ships. The atest sufferer, however, was Captain Sabine's servant, who, with jeant Martin, happened to be in the house at the time the fire ke out. In his anxiety to save the dipping-needle he had run without his gloves; in consequence of which, his fingers, in the rse of half an hour, were so benumbed, and the animation so npletely suspended, that, on having his hands plunged into a in of cold water, the surface was immediately covered with a e of ice in consequence of the intensity of the cold thus com- nicated to it: and notwithstanding the humane and unremitting ention of the medical gentlemen, it was found necessary to re- t to the amputation of a part of four fingers on one hand, and ee on the other.

The month of March set in mildly, so that the solid ice, wh for some time had lined the ships' sides, began to melt. It th fore became necessary to scrape off this coating of ice; on wh occasion Captain Parry observes, 'it will perhaps be scar credited, that we this day (8th March) removed above one hun buckets' full, each containing from five to six gallons, being the cumulation which had taken place in an interval of less than weeks; and this immense quantity was the produce chiefly of men's breath, and of the steam of their victuals during meals.' ice formed in a peculiar manner round the heads of the iron b which readily conducted the external cold, so that a sort of icel in miniature was accumulated at each bolt-head. The few c of scurvy which now appeared were evidently occasioned the damp of the bed-places; and so fully were the officers medical men convinced of it, that many of the birth-places taken down, and the men slung in hammocks; a plan which been generally adopted in the ships now engaged on discovery; as a further protection against the cold, a lining of burnt cork been interposed between the ships' sides and the interior coatin fir plank.

The middle of April arrived without any sensible thaw. the 30th, however, so rapid a change took place in the temp ture of the atmosphere, that the thermometer rose to the freez or, as it may perhaps in this climate more properly be called, thawing point, being the first time it had risen so high for months. This increased temperature, to the feelings, was so like that of summer, that it required the authority of the Cap to prevent the men from throwing aside their winter-cloth The difference in twenty days was from $-32°$ to $+32°$ or $64°$.

On the 12th May, the first ptarmigan was seen, and next the first tracks of rein-deer and musk-oxen, indicating their directly to the northward. Thus, it was remarked, the perio their migration had occurred with the first fine weather which place after the commencement of constant day-light. After the birds and quadrupeds became daily more numerous, and hunting excursions were resumed. The snow too began now pidly to leave the ground, and on the 24th, they were most a ably surprized by a smart shower of rain. 'We had been so accustomed,' says Captain Parry, 'to see water naturally in a state at all, and much less to see it fall from the heavens, that an occurrence became a matter of considerable curiosity, and lieve every person on board hastened on deck to witness so inte ing as well as novel a phenomenon.'

Captain Parry now determined on a journey into the inter the island, and fixed on the 1st of June for his departure.

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ny sensible thaw.
k place in the temp
ter rose to the freez
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uthority of the Cap
their winter-cloth
32° to +32° or 64°.
as seen, and next
, indicating their r
emarked, the perio
ne weather which
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nore numerous, and
ow too began now
they were most a
'We had been so
ater naturally in a
the heavens, that
ble curiosity, and
k to witness so inte

rney into the inter
his departure.

ere out on this journey fifteen days, having crossed the island to
northern extremity without perceiving any land farther to the
rthward or to the westward. The ground being almost entirely
vered with snow, they suffered much from snow-blindness; but
ar the ships they found the sorrel pushing forth its leaves with great
gour, and the ice of the harbour covered with innumerable pools
water. Indeed so rapid now was the thaw that, by the 20th of
ne, the ground in sheltered situations 'was covered with patches of
e handsome purple flower of the *Saxifraga oppositifolia*, which,'
s Captain Parry, 'gave something like cheerfulness and animation
a scene hitherto indescribably dreary in its appearance.' Deer
d musk oxen, hares, ducks, and ptarmigans, were now in great
enty, and every thing indicated the approach of summer. By the
iddle of July the thermometer stood as high as from 56° to 60°:
t it was not till the 1st of August that the ice was sufficiently
moved to allow the ships to escape from Winter Harbour; and
en it was soon perceived that they had only a very narrow chan-
l through which to work their way to the westward, between the
nd and the ice. In short, they found the ice more heavy the
ther they advanced westerly, and both ships were frequently in
minent peril of being dashed to atoms. On one occasion, the
hole body of ice, in coming towards the shore, was received by
e piece of a floe, close to which the ships were secured. 'It
lit across,' says Captain Parry, 'in various directions, with a con-
derable crash, and presently after we saw a part, several hundred
ns in weight, raised slowly and majestically, as if by the application
a screw, and deposited on another part of the floe, from which
had broken;' it measured forty-two feet in thickness.
All their efforts proved of no avail to get beyond the south-west
remity of Melville Island. There is something peculiar in the si-
tion of this point that prevents the ice from leaving the shore,
had in every other part of the voyage been found to be case; it
s owing probably to the discontinuance of land, or to the pre-
ling northerly winds having driven down the main body of ice,
wedged it in among the islands. After struggling till the 16th,
the Griper having been once more thrown on shore, with little
bability of being saved, Captain Parry determined to return to
eastward along the edge of the ice, with the intention of availing
self of any opening that might occur to get to the southward,
if possible, upon the coast of America. The farthest point
had reached in the Polar Sea was lat. 74° 26′ 25″, and long.
° 46′ 43″.5.

t was not till the 26th that the ships got clear of Cape Provi-
ce, after which the channel opened out so as to allow them to
along with a fair breeze, with such rapidity and so little inter-

ruption, that in six days they completely cleared Sir James L
caster's Sound; and having once more gained Baffin's Bay,
stood along the western shore with the view of surveying that sh
which had been so imperfectly seen on the former expedition. T
found it indented with several deep bays or inlets, similar to
fiorden on the coast of Norway. In one of these, about the
tude 70° 22′, they met with a tribe of Esquimaux, of a very supe
race to those seen on the coast of Old Greenland in the exped
of 1818. Captain Parry sums up his interesting account of t
people, by observing,

'Upon the whole, these people may be considered in possessi
every necessary of life, as well as of most of the comforts and con
ences which can be enjoyed in so rude a state of society. In the
ation and circumstances in which the Esquimaux of North Gree
are placed, there is much to excite compassion for the low state to w
human nature appears to be there reduced; a state in few respec
perior to that of the bear or the seal, which they kill for their su
tence. But, with these, it was impossible not to experience a fe
of a more pleasing kind: there was a respectful decency in their
ral behaviour, which at once struck us as very different from that
other untutored Esquimaux, and in their persons there was less of
intolerable filth by which these people are so generally distingui
But the superiority for which they are the most remarkable is, the
fect honesty which characterized all their dealings with us. D
the two hours that the men were on board, and for four or five
that we were subsequently among them on shore, on both which
sions the temptation to steal from us was perhaps stronger than w
well imagine, and the opportunity of doing so by no means wantin
a single instance occurred, to my knowledge, of their pilfering the
trifling article. It is pleasing to record a fact, no less singular in
than honourable to these simple people.'—p. 287.

On the 26th September, Captain Parry took a final leave
ice, and, without any occurrence requiring particular notice, a
in the Thames about the middle of November.

'Such (he says) was the excellent state of health which we
time continued to enjoy on board the Hecla, that, during the wh
our late navigation from Winter Harbour to the coast of Scotland,
a period of thirteen weeks, not a single case had been entered
sick-list, except from one or two accidents of a trifling nature;
had the happiness of seeing every officer and man on board both
(with only one exception out of ninety-four persons) return to the
tive country in as robust health as when they left it, after an abse
nearly eighteen months, during which time we had been living e
on our own resources.'—p. 309.

The interests of science have not been neglected on this v
though geographical discovery was the leading object, ma
and important observations in meteorology, and some curio

leared Sir James L
ned Baffin's Bay,
of surveying that sh
rmer expedition. T
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natural history, have been recorded. Our notice of these, however, must be brief.

Temperature.— Prepared as our explorers were, for a very low degree of temperature during the winter months, they could not have expected, either from previous facts, or from theory, any thing like that intense cold which they experienced at Melville Island. The register of the thermometer was accurately kept for every two hours; but Captain Parry has given only, at the end of each month, a table showing the *maximum*, *minimum*, and *mean* temperature for every day in that month, and the following abstract at the end of the twelve months.

Abstract of the Hecla's *Meteorological Journal for Twelve Kalendar Months, during which Period she was within the Parallels of* 74° *and* 75° *of North Latitude.*

Months.	Mean Temperature of Air in Shade.			Remarks.
	Max.	*Min.*	*Mean.*	
1819, Sept.	+37°	— 1°	+22°.54	During the time that we were in Winter Harbour, it was always found that the thermometer on board stood from 2° to 5° higher than the one on shore, from the warmth created by the fires, &c. The *minimum* temperature for February was —50° on board, but —55° on the ice. On the ice, 14th and 15th of February, the thermometer was at —54° for seventeen hours.
Oct.	+17 .5	—28	— 3 .46	
Nov.	+ 6	—47	—20 .60	
Dec.	+ 6	—43	—21 .79	
1820, Jan.	— 2	—47	—30 .09	
Feb.	—17	—50	—32 .19	
Mar.	+ 6	—40	—18 .10	
Apr.	+32	—32	— 8 .37	
May,	+47	— 4	+16 .66	
June,	+51	+28	+36 .24	
July,	+60	+32	+42 .41	
Aug.	+45	+22	+32 .68	
Annual Temperature			+ 1°.33	The mean annual temperature may be fairly considered as 1° or 2° below zero.

The theory of Mayer, which Leslie has adopted, and on which has been constructed a formula for ascertaining the mean temperature of the globe, has now been found to assign a much less degree of cold to high latitudes than actually exists. It makes, for instance, that of the North Pole 32°, and of the parallel in which Captain Parry passed the winter, 36°; being, therefore, erroneous to fully as many degrees. Doctor Brewster came to a conclusion much nearer the truth. The ingenious Humboldt, in his Memoir on Isothermal Lines, had shown that, in high latitudes, the difference of temperature in the same parallels of the old and new world is very considerable; not less than 13° of Fahrenheit in the parallel

of 50°, and 17° in that of 60°, higher in Europe than in Ameri
He has also shown that the isothermal lines decline under the Ea
ern meridians of Asia. It had indeed long been known, that duri
the season of the fishery, the temperature of the Spitzbergen s
in the latitude of 80°, is higher than that of 70° in Baffin's B
On these grounds, and from comparing the thermometric curve
17° in 78° of latitude on the meridian of Spitzbergen with that
65° on the meridian of Melville Island, Doctor Brewster, in a
per of great interest and ingenuity, observes, 'unless we supp
that the climate of these regions is subject to no law, we are for
to conclude that the pole of the globe is not the coldest point
the Arctic hemisphere, and that there are *two points of great
cold*, not many degrees from the pole, and in meridians nearly
right angles to that which passes through the west of Europe.'

The exact position of these poles is not ascertained; but Doc
Brewster thinks they are situated in about 80° N. latitude,
95° E. and 100° W. longitudes, or the one 5° to the north of G
ham Moore's Bay; and the other 1° to the north of the Bay
Taimura, near the North-East Cape. The recent discoveries
the connection between electricity and magnetism, and the meteo
logical phenomena observed by Captain Parry, had suggested,
other quarters, the probability of the two points of greatest c
being the two magnetic poles; and the same idea occurred to D
tor Brewster, who thinks that, 'imperfect as the analogy is
tween the isothermal and the magnetic centres, it is yet too imp
tant to be passed over without notice.'* If, then, there be
truth in the above-mentioned theory, we may conclude that
place where the expedition wintered, is one of the coldest spot
the face of the globe.

The meteorological phenomena and other effects produced by
extraordinary degree of cold, we may briefly enumerate. It
first be observed, that such was the extreme dryness of the at
phere, that, during the winter months, no snow whatever fell,
was any thing in the shape of a cloud formed; but whatever
moisture might be in the air, was seen floating about in
minute *spiculæ*, assuming various forms of crystallization.
was frequently remarked, that these spiculæ, on the clearest w
days, came down and remained on the surface of the ground
the ice like very light snow, which, in falling, was scarcely
ceptible, except when interposed between the eye and a dark
ject. These *spiculæ* were visible in the brightest sunshine, a
their floating about in the atmosphere may unquestionabl
ascribed the numerous and beautiful parhelia, halos, parase

* The same idea suggested itself, many years ago, to the late Sir Charles B
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prismatic arches, and other meteorological appearances, which Captain Parry has described and illustrated by figures, with minute precision.

When the thermometer sunk to —34°, it became painful to touch any thing metallic, and required the utmost caution in handling the extants, and other instruments, particularly the eye-pieces of the elescopes, which, if suffered to touch the face, occasioned an intense burning pain; and if the instrument, after being used, was brought into the cabin, the vapour condensing around it had the ppearance of smoking, and the glasses were instantly covered with thin coating of ice. But it was never observed that the admission of the external air into the warm cabins condensed the vapour nto a snow shower, as has been asserted to be the case in the neighbourhood of Hudson's Bay; though, under such circumstances, he vapour was condensed into a visible form like a very thick moke, which, on settling against the sides and ceiling, became a ake of ice. Even at a much less temperature than that above-nentioned, the breath of a person, at a little distance, looked exctly like the smoke of a musket just fired; and Captain Parry tates that a party of men employed on the ice appeared as if nveloped in a thick white cloud.

During the low degree of temperature, a very considerable difficulty occurred in the taking of lunar distances, not merely from xposure to cold, but from the circumstance of its being necessary o hold the breath very carefully during the time of making the obervation; for if the least vapour was suffered to touch the instruent, it immediately became a coat of ice, which dimmed the lasses and rendered the instrument unserviceable: the cold also racked the silver on the horizon and index-glasses; and at —36° he mercury of the artificial horizons froze into a solid mass, probably from its impurity, as it ought to have remained liquid as low —39°.

When the weather was warm, and the thermometer about —24°, upwards, the smoke from the funnels was observed not to rise, t to skim nearly horizontally, and to continue so for miles even eyond the ships. The same effect, Captain Parry observes, is oticed in a meteorological journal in his possession, kept at Fort ork, in Hudson's Bay; but the phenomenon there did not occur ll the thermometer was down to —36°. It was also remarked at, during the continuance of intense cold, sounds were distinctly udible at much greater distances than they possibly could be heard a higher degree of temperature.

The almost total absence of animated beings, during the intense old, did not allow Captain Parry to ascertain the truth of those xtraordinary statements made by Hearne and Ellis, respecting the

the late Sir Charles Bla
prisu

freezing and reviving of certain cold-blooded animals; and w
many have called in question. We entertain, however, no dou
the fact. An experiment, indeed, was made at the Royal Ins
tion in December last, in freezing a frog to death by plunging it
a mixture of the temperature of 20° below zero, and shortly a
wards reviving it by exposure to a gentle heat; it so far succe
as to restore the animal to life, but its legs remained paraly
another experiment failed altogether; but it must be recolle
that the creatures were roused from a state of torpidity, and
jected to excessive cold almost instantaneously, whereas, wh
a state of nature, they burrow under the banks of rivers and l
as the winter approaches, and are gradually frozen. Leeches
know, may be frozen stiff like pieces of ice, and readily reste
but a leech has no heart. A fact no less curious we are en
to state on the authority of Captain Buchan of the Navy.
the interior of Newfoundland, he fell in with a frozen lake
watery surface of which, during the powerful rays of a March
appeared one vast sheet of moving matter. In the evening, as
as frozen over, all was calm and still; but on the following
when the sun had dissolved the upper surface of the ice, all
again in a state of animation; and on a closer inspection, it
observed that myriads of flies were skimming about, and o
embodied in the solid ice, and that these frozen insects, as
became loosened from durance, were re-animated by the ra
the sun. A similar fact is mentioned by Ellis, who says t
large black torpid mass like coal or peat, when placed befor
fire, was dissolved into a cloud of living mosquitoes.

The *Aurora Borealis*.—The faint but frequent appearanc
this splendid meteor rather disappointed the expectations of
navigators. The coruscations were neither so vivid nor so r
nor was the phenomenon attended with such a blaze of ligh
those usually seen from about the parallel of 60° to the arctic c
But their frequency enabled them to make many observa
some of which seemed to be at variance with opinions very gen
adopted. It was never attended with the least crackling or rus
noise; it invariably dimmed the lustre of the stars; and inste
Borealis it might more properly be named Aurora *Aust*
appearing almost always toward the southern horizon. The d
vations made by Captain Franklin and his officers on the con
of America confirm those of Captain Parry. At Cumbe
House, in lat. about 54° N., as soon as the frost began to b
up, the Aurora was visible almost every night, especially in
weather; but a gale of wind did not appear to disturb it in the
or to affect its motions. He attended particularly while the ch
were most vivid and the coruscations most rapid, but could no

ded animals; and we least noise, yet all the residents assured him they had frequently
ain, however, no doubt ard a rustling sound; indeed we are pretty well persuaded, nu-
ade at the Royal Inst erous and respectable as the testimonies to this fact may be, that
death by plunging it e opinion has arisen from mere association of the idea of sound
w zero, and shortly a connection with rapidity of motion. It is somewhat curious
heat; it so far succe at the same writers, who contend for the noise, assume the place
legs remained paraly the Aurora beyond the limits of the atmosphere, some making it
ut it must be recolle or 70, and others 150 miles high,—distances that would render
te of torpidity, and e conveyance of sound utterly impossible, (even if an atmosphere
eously, whereas, whas not wanting,) and wholly incompatible with the celerity of its
banks of rivers and lotions, which will frequently carry a flash from the horizon to
lly frozen. Leeche e zenith in less than a second of time.
ice, and readily reste Captain Parry had no doubt of the Aurora being within the
s curious we are en nits of the atmosphere, though in that region of it where it is much
Buchan of the Navy. tenuated: but Captain Franklin and his assistants have placed this
n with a frozen lake int beyond the possibility of question. By several observations
erful rays of a March the angular altitude of the luminous arch made at the same mo-
. In the evening, as ent of time, as marked by chronometers, and by two persons at
out on the following e distances of 20, 50, and even 60 miles apart, and the Aurora
surface of the ice, all tween them, the result invariably gave from 6 to 7 or 8 miles
a closer inspection, it altitude from the earth's surface. Neither Franklin nor Parry
imming about, and ound that the centres of the arches observed any particular rule,
ese frozen insects, as that they were generally in the magnetic meridian, as has been
re-animated by the rated; nor were the cylindrical beams always parallel with the
by Ellis, who says rection of the dipping-needle. If any general rule seemed to
at, when placed befo evail, it was that of the greatest extent and most permanent light
mosquitoes. pearing to cross the meridian, or to extend from east to west,
ut frequent appearan the coruscations to dart from south to north.
d the expectations of *Atmospherical Electricity*.—If, as there now seems some rea-
ther so vivid nor so n to suppose, the electricity of the atmosphere be communicated
such a blaze of ligh the action of the solar rays, it will not be difficult to account
of 60° to the arctic c the nightly sheets of fire that illumine the regions of the torrid
make many observan e, the occasional thunder-storms of more temperate climates,
ith opinions very gen d the almost total absence of electrical phenomena within the
least crackling or rustic circle; if we except the Aurora, which plays only in the
f the stars; and inste per regions of the atmosphere, more faintly, as we have already
named Aurora *Austr* , but not less frequently, as we advance towards the magnetic
hern horizon. The es: for the experience of eleven months in the parallel of 75°
is officers on the coa proved, that in the lower parts of the atmosphere no indication
Parry. At Cumbe atever was observed of the existence of electricity. Neither in
s the frost began to w or rain, or fog or wind, whether the sky was clear, or covered
night, especially in light fleecy clouds, generally tending to the arched form, was
ar to disturb it in the most delicate gold-leaf electrometer affected at the mast-head
rticularly while the ch board ship, or at the summit of a pole 50 feet high on shore;
t rapid, but could not was there any other indication of electricity. Either, therefore,
it

it did not exist, or the opposite currents, meeting in this neighbo
hood of the magnetic pole, were so nearly balanced as to dest
each other's influence, and reduce their powers to a state of n
trality. Some of the crew fancied that they saw a flash of lig
ning just as the ships were hauled into Winter Harbour; but
nothing like thunder or lightning appeared afterwards, during th
long residence, it was undoubtedly a mistake. In the sum
months, when the clouds became more dense and frequent,
when once, or perhaps twice, a slight shower of rain fell,
gold-leaf electrometer still remained quiescent.

Magnetism.—If we except the geographical discoveries m
on this voyage, there is perhaps no observations that may lea
more important results than those made on the dip and varia
of the magnetic needle. All the observations hitherto recorded
these two variable states of a suspended needle have been mad
considerable distances from the imaginary point named the m
netic pole; but on the late occasion the ships passed this p
both in longitude and latitude, and sailed many hundred miles
one parallel of latitude, interposed the whole way between
North Pole of the earth and the magnetic pole. The follow
results of observations made with great care, and either on sh
or on ice, to avoid all extraneous attraction, are extracted from C
tain Parry's journal:

	Latitude, N.	Longitude, W.	Dip.	Variation.
1.	73° 31′ 16″	77° 22′ 21″	86° 3′ 42″	108° 46′ 35″
2.	74 25 31	80 4 30		106 58 3
3.	72 45 15	89 41 42	88 26 42	118 23 37
4.	73 12 11	89 2 8		114 16 43
5.	73 33 15	88 18 17	87 35 0	115 37 12
6.	74 39 51	91 47 36		128 58 7
7.	75 9 23	103 44 37	88 25 58	165 50 9
8.	74 58	107 3 31		151 30 3
9.	74 46 56	110 33 59	88 29 .91	126 17 18
10.	75 23 25	112 29 30	88 36 .95	117 52 22

It would appear from this table to be no easy matter to
curve lines which would intersect each other in any one p
whether on the earth's surface or beneath it,* and consequently

* As many important discoveries are in progress with regard to magnetism,
some of Captain Parry's readers, and even of our own, may not understand prec
what is meant by *dip* and *variation*, we venture to add a few words explanatory o
subject. If a steel bar, or needle, be suspended, so as to move freely on an axis p
through the middle, and be balanced nicely in an horizontal position, and then
netized, it will retain that position, provided the magnetic virtue be communicated
somewhere from 10° to 20° south latitude, in or near the meridian of London;
this needle thus suspended and magnetized, be then brought to London, or if fir
lanced and then magnetized in London, in either case it will no longer remain ho
tal, but the north pole will dip or incline to the horizon in an angle of about 71°;

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	Variation.		
″	108°	46′	35″ W
	106	58	3
	118	23	37
	114	16	43
	115	37	12
	128	58	7
	165	50	9 E
.91	151	30	3
.95	126	17	18
	117	52	22

no easy matter to
ther in any one p
,* and consequently

recise position of the magnetic pole cannot be ascertained from these observations; but from the sixth and seventh observations by which it appears the variation had changed, in the course of 12° of longitude, from 128° 58′ 7″ *West*, to 165° 50′ 9″ *East*,) Captain Parry may probably not err much in supposing the magnetic meridian to pass through the 100th degree of west longitude in the latitude 74°—75° N. In what degree of latitude the magnetic pole, if it be not a line or area instead of a point, may be situated, does not so clearly appear: a dipping-needle, in fact, is not a very perfect instrument, nor can the observations made by it be entirely depended on; we suspect, therefore, that there must be some error between observation 3. and observation 7., unless, as we have hinted, the source of magnetic attraction, be it what it may, be spread over an extended line or surface, instead of being confined to a point; the latter, that point may perhaps be supposed to reside about latitude 72° in longitude 100° W.

It has been supposed by some, that as the dip of the needle makes effect at such an immense distance, this magnetic pole must be deep-seated in the earth; and from the progressive regularity of the variation, that it performs a revolution round the pole or axis of the earth in a given time, that is to say in seven or eight hundred years. Such an hypothesis can only be supported on the further supposition of a moveable body within that of the earth, a piece of machinery which, it must be owned, is rather incompatible with the general simplicity of nature; and not the less complicated from the probability of the existence of one at least, if not two other revolving poles, situated in the eastern part of our northern hemisphere. The recent experiments of Mr. Oersted, secretary to the Danish Academy of Sciences, bid fair to throw a new light on the mysterious subject of magnetism. It had long been suspected that a connection existed between magnetism and electricity; but this gentleman's experiments, which have been repeated and extended by the most eminent philosophers of Europe, go very far to prove their identity. We have seen that in the parallels of 74° — 75°, no electricity whatever was indicated in the lower strata of the atmosphere, and that the coruscations of the Aurora in the upper regions

pre

ith regard to magnetism, may not understand prec few words explanatory o move freely on an axis p ontal position, and then c virtue be communicate he meridian of London; ught to London, or if fir will no longer remain ho an angle of about 71°;

same needle be carried northwards, towards Baffin's Bay, this angle of the dip or clination will be found to increase at the rate of about one degree for every degree of itude, till on arriving at 70°, or a degree or two higher, it will be found to stand, as we y observe by the table, in a perpendicular direction nearly. Again; if a magnetized dle be placed horizontally on a pivot, it will at the present day turn to the westward the true north, making with our meridian an angle of about 23°½; but about three ndred years ago, a needle so placed made no angle with our meridian, but its thern pole pointed directly to the pole of the earth. This declination from the pole, ng very different in different parts of the world, is usually called *the variation of the dle.*

had

had not the slightest effect on the magnetic needle: 'it might supposed,' says Captain Parry, 'that in these regions (Melv Island), where the directive power of the needle had almost enti ceased, it would be more easily disturbed by any adventitious ca than in those parts of the globe where the directive energy is greater.' The fact however was not so. At Cumberland-Hou in lat. 54° N., Captain Franklin observed the magnetic needle be disturbed, not with that vibratory motion which has b ascribed to it, but by being drawn about a degree out of its u direction when a brilliant Aurora approached the zenith; and i quired from five to six hours after the Aurora ceased, to retur its usual direction. The absence in the one case of electric curr and their existence in the other, (or some particular direction o tribution of these currents in this particular spot,) may, on the ciple of their identity with magnetism, serve to reconcile both nomena. But the experiments said to be made by M. Amper to explain much more than this, if it be true that, by a partic position of the connecting wire in the galvanic pile, he has ceeded in giving to a needle, by the passing of electric currents direction of both dip and variation; and that these two phenom are capable of being explained by electrical currents passing in atmosphere round the earth from east to west. The facts obse by Captain Parry are considered as corroborating the experim now making on the identity of the magnetic and electric curr a subject which may in the result prove of greater importanc physical science than any discovery since that of the princip gravitation.

Astronomical Observations.—It would be superfluous to one word in this place on the utility of observations of moon's distance from the sun or fixed stars, for ascertaining longitude. On the present expedition however, the advant were so peculiar, and the officers availed themselves of them sedulously that the number taken and the accuracy of the re highly deserve to be recorded: these advantages were, the st ness of the ships when fixed in the ice; icebergs aground; an servatory on shore; cloudless skies; and the long duration of a cumvolving moon. In the examination of Captain Edward Sa taken on oath before the Board of Longitude, it appeared, tha longitude of Winter Harbour, by the mean of 6862 lunar obs tions, taken by himself and the other officers, was 110° 48′ 29″; that the rates of five chronometers, determined by a series of observations during three successive months, were found, after ther three months, to agree within less than three seconds of or 35′ of longitude, when compared with the true time obser the Calton Hill observatory, on the ships' arrival at Leith.

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After this extraordinary degree of accuracy, and in a climate too
ere the range of Fahrenheit's thermometer was not less than
0°; and for nine or ten months at a temperature so low as to
ate a reasonable doubt whether a chronometer, with every pre-
tion, would not stop altogether, or, if it continued to go,
ether the irregularity of its rate would not render it utterly use-
s, we need not hesitate to say, with the late Sir Joseph Banks,
t by the excellence to which chronometers had been brought,
he longitude was actually discovered, within the limits assigned by
Board of Longitude which entitled to the reward for its disco-
by time-keepers.' Some of them, it is true, occasionally
pped, and the rates of others were irregular, owing probably to
congealment of the oil. Four of Messrs. Parkinson and Frods-
m,* it is stated, were better prepared for this peculiar service
an any others, not one of them being stopped by the cold; but
severest trials that any time-piece was probably ever subjected
from natural cold were undergone by two pocket chronometers
Arnold, which were used for three or four hours together in
ing lunar distances at the low temperature of −20° to −40°, and
en as low as −45°.

Natural History.†—From the notices of objects in this depart-
nt of science, contained in Captain Parry's book, and from what
have seen, the specimens brought home are more varied and
a more interesting description than might have been supposed to
ist in those dreary regions in which they were collected. Among
e mammalia are the skins of the polar bear, the wolf, the arctic
x, the polar hare, the ermine, the lemming, or Hudson's Bay
ouse, the musk-bull, and the rein-deer; of these the first six are
rpetual residents, the two last migratory.

Of birds, thirty-two different species were collected, consisting of
d and water-birds; among the first were the snowy-owl, the
ven, snow-bunting, musquito-hawk, rock-grous, ptarmigan, plo-
r, sandpiper, &c. The water-fowl consisted of several species of
lls, the wild swan, brent-goose, ducks of four or five different
nds, divers, guillemots and auks.

Of fish, the sea was uncommonly barren. Six kinds only ap-
ar to have been caught, and of each of these not more than two

* There is a dispute as to the real maker of these valuable chronometers; Mr. Molyux, who has long been distinguished for the excellence of his workmanship, having up a claim, which is denied by Parkinson and Frodsham. As far as we are able judge from their contradictory statements, we should say the real operator was ither of them, but some third person.

† By an unaccountable delay on the part of some of those to whom the specimens re delivered for the purpose of being scientifically arranged, described, and pubhed in the Appendix, the volume has appeared without any part of the Natural Hisy.

or

or three individuals. Of the genus merlangus, or coal-fish, caught three species; and a small fish brought on board by a who lost their way on Melville Island, from a lake in the in which abounded with them, was supposed to be a species of and was accordingly named Salmo Melvilliensis.

We can say little of the plants, except that the number of ferent species collected on Melville Island are said to have ceeded one hundred, many of them entirely new. Those common were several species of grasses, a most luxuriant sorrel (rumex digynus), very abundant, scurvy-grass (cochle saxifrage (saxifraga oppositifolia), poppy (papaver nudica draba, ranunculus, and, somewhat in the shape of a shrub, dwarf willow. It was quite astonishing to behold, on the of summer, the rapidity with which the various plants of the i pushed forth their leaves and flowers the moment the snow wa the ground. In a few days, from one uniform scene of gl whiteness, several parts of the island exhibited a carpet spa with the most lively colours, chiefly from the poppy, the pu saxifrage and the lilac draba. Whether it was the abundan these flowers, that tempted the musk-oxen and rein-deer to the long journey over the ice, or whether they came to these cluded and peaceable islands to drop their young, is not kn but the musk-ox in particular seemed to riot and gamble as it loped along and cropped the flowers. In a valley formed b stream of a ravine, between Winter Harbour and the western tremity of Melville Island, Captain Parry's party observed the ' luxuriant pasture ground that they had yet met with on Mel Island. It consisted of about a dozen acres of short thick gras termingled with moss, which gave it almost the same lively app ance as that of an English meadow.' A whole herd of musk-o were grazing in this place, ' in which there were many small p of water, and our surprize (says Captain Parry) in some de ceased at the immense distance which these animals must t in the course of their annual visits to these dreary and desolate gions; as such a pasture, affording undisturbed and luxuriant f ing during the summer months, may, in spite of the general app ance of the island, hold out sufficient inducement for their an emigration.'

The rock formation of the islands presented nothing very ex ordinary. The peaks of the high mountains which bound western side of Baffin's Bay appear to be of granite; next to t in proceeding to the westward, were castellated mountains of c pact limestone, then shelly limestone, and lastly sandstone, an which, near the beach of Melville Island, were collected sev specimens of a tolerably good coal.

The knowledge acquired on the late expedition has afforded a guine hope for the complete solution of the interesting problem a north-west passage. Captain Parry has recorded his opinion favour of its accomplishment, and his suggestion has no doubt en adopted on the present voyage. We have a few words offer on this part of the subject. By casting an eye over the lar chart, with the recent discoveries laid down upon it, it will pretty evident that the Polar Sea is an immense circular basin, mmunicating with the Atlantic and Pacific oceans by channels ich divide America from Asia on the one side, and America m Europe on the other; and that, by tracing the northern asts of Europe and Asia, (about one half the circle,) we shall receive that, with the single exception of Cevero Vostochnoi or rth-east Cape, (of which nothing certain is known,) very small rtions of either continent pass beyond the 70th parallel of lati-le. Proceeding in the circle round the northern coast of Ame-, and assuming that the two points laid down on the authority Hearne and Mackenzie, and the Icy Cape on that of Cook, are rrectly placed, (at least sufficiently so for our purpose,) we may nclude that much of that continent does not even reach the th parallel. The extent therefore of this polar sea may be con-dered as about 2400 geographical miles in diameter, or 7200 les in circumference.

Several islands are known to be scattered over this extensive . The largest is undoubtedly that of Old Greenland, a part which juts into it, but to what extent northerly has not yet en ascertained: the others are Nova Zembla, Spitzbergen, those New Siberia, or the Land of Liakhov, the North Georgian ands of Parry, and those which form the western land of Baffin's y. Besides these are a number of small alluvial islands formed the mouths of the several rivers of the two continents; but ether there be any more, or of what description, nearer to e North Pole, we must of course remain ignorant till the sea question has been further explored. If, however, we suppose at clusters of islands continue to be scattered over it on all les, to the very pole or its vicinity, we shall in that case pro-bly not be far from the fact in concluding the whole of this ex-nsive sea to be shallow, choked up with ice, and unnavigable: t if, on the contrary, the islands should terminate to the westward th Melville Island, (and no land was visible in that direction from e highest hill,) and land should not be found, or sparingly found, thin ten or twelve degrees of the pole, it would not be unreason-le to presume that, in this case, the sea would be of great depth, d much less liable to freeze and generally more free from ice than ere it is shallower. Captain Parry seems to have no doubt of

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an open sea to the westward of Melville Island; as whole fie
ice, interminable to the sight, were observed to be moving bod
the westward for several days together.

There are other circumstances stated by Captain Parry w
we think, rather warrant the conjecture of an open sea at no
distance both to the northward and westward of the North
gian Islands. We find, for instance, that the fields and floes
which occupy the middle of Davis's Strait and Baffin's Bay, a
as those which occurred in different parts of Barrow's Strait
as far west as Melville Island, had all flat and comparatively sm
surfaces, in most parts of which, Captain Parry tells us, a s
might be driven without much inconvenience; but beyond Me
Island to the westward, where there was no visible land, th
exhibited a rough irregular surface, covered with what the S
bergen whalers call 'hummocks,' appearing like haycocks in a
and the farther from the land the greater these hummocks evi
were. The same appearance is frequent, we may say con
towards the northern extremity of Spitzbergen; and it is wor
remark that the ice assumed this form also towards the s
westerly extremity of Prince Regent's Inlet. Now, as it ap
to us that these hummocks could be formed only by an ope
agitated sea tossing one mass of ice upon another, and d
them down by the prevailing northerly winds till wedged in b
peculiar situation of islands, we are inclined to infer from th
cumstance, and the probability of a deep ocean to the north
that whatever ice may occasionally be formed on the surfa
such an ocean, it never arrives at any very considerable thick
but is broken up and dispersed by every gust of wind, an
sea left open and navigable as in all the deep parts of Ba
Bay, Sir James Lancaster's Sound and Wellington Channel.

Another circumstance would seem to prove the absence
least any large and high masses of land to the northward o
North Georgian Islands, and of Spitzbergen; namely, the tota
sence of icebergs in both these seas; masses which can be fo
only against the precipitous sides of high land rising abrupt
of a deep ocean, such as is the case on the steep shores of the
side of Baffin's Bay:—here then we have two positions, whic
deem to be indisputable;—hummocks that cannot exist with
neighbouring sea; and icebergs that cannot be formed wi
high land.

These facts tend to corroborate the very general opinion w
from the time of Dr. Hooke, has been entertained of the p
bility, at least of the possibility, of an open sea at the North
But Dr. Brewster, in his ingenious and highly interesting pap
ticed above,* after comparing the results of the expedition

* On the Mean Temperature of the Globe.

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aptain Parry, with those he had drawn from a previous theory, is opinion that 'the hopes which have been so reasonably entertained of reaching the Pole itself,' are thereby 'encouraged;' his nclusion being that 'the mean temperature of the pole of the obe will be about 11°, incomparably warmer than the regions which Captain Parry spent the winter.' 'If the pole,' he adds, is placed in an open sea, the difficulty of reaching it entirely ases; and if it forms part of a frozen continent, those intrepid dividuals, who sustained the rigorous cold of Lancaster Sound, ould experience no hardship under a comparatively milder climate.'

In this opinion, which is certainly that of all the Greenland hermen, from the earliest periods to the present time, we entirely ncur; and we are not therefore surprized, that when the ships on e late expedition opened out Wellington Channel, at the western trenity of Barrow's Strait, free from every particle of ice, as far the eye could reach, on a remarkably clear day, there were not anting those who felt an anxious desire to try for a passage in at direction, which, if found, would not, in point of distance, have ceeded that of a direct westerly course. Captain Parry says—

'Wellington channel, to the northward of us, was as open and navible, to the utmost extent of our view, as any part of the Atlantic, but it lay at right angles to our course, and there was still an opening at ast ten leagues wide to the southward of Cornwallis Island, I could rtunately have no hesitation in deciding which of the two it was our ainess to pursue. If, however, the sea to the westward, which was r direct course, had been obstructed by ice, and the wind had been ourable, such was the tempting appearance of Wellington channel, which there was no visible impediment, that I should probably have en induced to run through it, as a degree more or less to the northrd made little or no difference in the distance we had to run to Icy pe. The open channel to the westward did not, however, reduce me this dilemma.'

Desirable therefore, as it may hereafter be, to look at the state the Polar Sea, beyond Wellington Channel, we conclude it will rdly be thought advisable for the expedition now pending to empt it in the first instance. Neither do we think that the enuous, but unsuccessful endeavours, of the late expedition, in o different seasons, to penetrate to the westward beyond the southst end of Melville Island, afford any hope that the passage will er be effected in that particular parallel of latitude. It can rcely be doubted then, that the attempt is now about to be made, recommended by Captain Parry, in a more southern latitude, and se along the northern coast of America, where they may reasonably hope to meet with a better *summer* climate, and a longer ason for their operations, by at least six weeks.

 There

There is another reason for trying a coast navigation; Cap Parry found by experience, that the navigation among the of the Arctic seas could only be performed with any degree of tainty, where there was a continuity of land. This being the a manifest advantage will be gained, in making the attempt a the northern coast of America, as he will there be certain continuity of land. Aware as we are, that climate dep not solely on degrees of latitude, but is modified by circumsta of locality, unconnected with geographical position, yet it can h be doubted, that many advantages will be found in the paralle 69° or 70°, which did not exist in that of 75°. Among others be mentioned, in addition to the increased length of summer abridgment of winter, the great probability, we might say certa of obtaining fuel,* provisions, and antiscorbutic plants; the quent communications with natives, and the chance of sen home information of their proceedings; together with the co rative facility with which the officers and men may be preserv the event of any irreparable accident happening to the ships: are undoubtedly important considerations, which strongly re mend the trial of this route.

But then comes the question to be solved, as to the best shortest route to get upon the coast of America? From the pearance and circumstances at the southern part of Prince Reg Inlet, there was not a man in the late expedition, who was not vinced that it opened out into the sea which washes the nor coast of this continent. The only objection to this route, i delay which would necessarily be occasioned by proceeding s to the northward as Sir James Lancaster's Sound, in order t into the Regent's Inlet. It is probable however, that either son's Strait, Cumberland Strait, Sir Thomas Roe's Welcom Repulse Bay, or all of them, may afford navigable passages the Polar Sea, and particularly the Welcome, down which cording to the testimony of all the navigators who have enter flows a tide of considerable velocity, being, as Captain Parry poses, part of that flood setting easterly along the coast of Am of which the other part takes a northerly direction, as he it, up Prince Regent's Inlet.

It must, however, be admitted that, probable as this ma pear, our knowledge is not sufficiently accurate to justify mor

* By information, which Captain Franklin has received from the *Red-knife* I who are to accompany him from Bear Lake to the sea coast, with which they acquainted, fir-trees of considerable size border the banks of all the rivers w day's journey of the sea; and plenty of brushwood fit for fuel grows on the low islands off the coast. We know from Allison, who wintered round th *Cape*, in lat. 71°½, that firs, birch, and willows, grew there to the size of a man

strong ground of hope that a passage will be found in some or all of these directions; should this hope on examination prove fallacious, the time spent in the examination may be supposed to bring the season so nearly to a close, as to limit the progress of the first year's exertions, by the old route of Sir James Lancaster's Sound, to some of the harbours of Prince Regent's Inlet: at the same time it is to be remarked, that a passage through Hudson's Strait and the upper part of the bay is practicable a month or six weeks earlier than it appears to be across the central barrier of ice in Davis's Strait or Baffin's Bay.

Arrived on the coast of America, and no obstruction from land occurring, we see no reason why the passage to Icy Cape, which does not exceed 1500 miles, might not easily be accomplished in one season; about 600 of these were actually run on the last voyage in six days. Supposing the theory of Dr. Brewster to be correct, which assigns the greatest degree of cold to the magnetic meridian, the most serious obstruction from ice will probably occur from 90° to 100° of W. longitude; or (setting aside that theory) about midway of the coast, as being the most distant point from the two oceans; it being well known from experience that the proximity of a permanently open sea is a circumstance which, of all others, in high latitudes, tends the most to temper the severity of the climate. On either ground, therefore, it can scarcely be doubted that the climate will be found to improve, and the obstruction to become less, as the ships advance towards the Pacific. Besides it is well known that the westerly coast of every continent and large island (even of our own) enjoys a higher temperature by many degrees than the eastern coast in the same parallels of latitude. On the west coast of America, in 60° N. the climate is infinitely milder than in Newfoundland in 45° N.; and while in the frozen regions of Hudson's Bay, under the parallels of 60°, the ice and snow scarcely ever disappear, navigators have found, under the same degree of latitude on the west coast of America, a delightful climate and a well clothed country. Between 60° and 61° of latitude, Captain Cook found that most delicate of all birds, the humming-bird; and just at the same spot, the companions of the ill-used Maspina (whose voyage is still withheld from the public) give a glowing description of the country and climate.

We take for granted, what scarcely admits of a doubt, that the action of the sun's rays, so much more powerful, and radiated from so much more land along the continuous coast of America, than along the passage discovered by Parry, will produce the same effect of opening a clear channel of water between the coast and the fields of ice. We find this fact indeed asserted by a gentleman belonging to the North West Company, who has resided many

years upon the Mackenzie River; and it is known to be so al
the shores of the islands of Nova Zembla, Spitzbergen, Old Gr
land, and on every shore approached by the two last expeditio
and it is not therefore to be doubted that the same effect, t
greater extent, will be found to take place in the low latitud
the northern shores of North America.

It is not unreasonable then to hope that no very serious obst
tion may occur on the coast of America; but there are those
question the existence of a passage through Behring's Strait.
often hear of Cook's having met with an impenetrable barrier of
Cook, however, met with no such thing; his experience had ta
him that the position of the ice varied from year to year, and
times in the course of the same year; but so far from ascertai
or thinking the ice of Behring's Strait *impenetrable*, he returni
without trying its penetrability late in the season, to the Sandw
Islands to refit his ships, and lay in provisions for a new atte
in the following summer. Cook was too sensible not to know
the accomplishment of a passage at that advanced season of
year was hopeless; and too prudent to persevere, in the begin
of September, for no other purpose but to be caught in the ice
compelled to winter on the coast of America; an event for w
he was wholly unprovided. Of the feeble attempts of his suc
sors we shall say nothing; they candidly avow that, after ar
sence of three years from England, they considered the most
tain, though the longest, passage home, to be the best. A
know of the impenetrable ice is that Cook had passed beyon
Cape before he fell in with any; that Kotzebue, in August,
none on the western shore of Behring's Strait as far as the eye
reach from the entrance of the inlet in lat. 68° N.; and we
recently learned that a Mr. Grimes went, in 1819, in a small
to trade for furs in Kotzebue's Inlet; that he passed the strait
18th of July, and remained in the neighbourhood a whole m
during which time the sea was perfectly free from ice. We
speedily know more of this, as Captain Ricord, of the R
navy, (the same who rescued Golownin from the hands of th
panese,) hired Grimes's vessel, and proceeded in her last su
to explore the seas to the northward of the strait,—which o
counts from Petersburg state he actually passed (with the
Russian frigates sent on discovery) in July, 1820, and that
telligence of their return had reached the capital in the mid
March last.

A notion has been propagated, we know not on what p
ground, that Behring's Strait is closed to the northward by
land, supposed to connect the two continents of Asia and Am
like the bridge of a pair of spectacles. The only reason th

nown to be so al can find assigned for this unnatural connection, is the circum-
zbergen, Old Gre stance of herds of deer being observed to migrate to this supposed
two last expeditio connecting strip of land, and to return at stated periods: such a
e same effect, t circumstance we now know would prove nothing, since deer mi-
in the low latitud grate from America to Melville Island, which is upwards of 300
miles from that continent. Of Captain Burney's attempt to set
very serious obst aside the validity of Deshneff's voyage from the Kovyma to the
t there are those Anadyr, by closing the strait in the same manner, we have already
Behring's Strait. given our opinion; but on this point too we have been favoured
netrable barrier of with some information from our intelligent correspondent at Pe-
experience had ta tersburg. From him we learn that, in the winter of 1819-20,
ear to year, and na party of Tchutsky, under the command of a Russian sailor, set
far from ascertai out from the north-east point of Asia (at the extremity of Beh-
netrable, he returning's Strait) on sledges drawn by dogs, and with rein-deer for
ason, to the Sand wood, directing their course by a compass to the north. They tra-
ons for a new atte velled the first two days over ice whose surface was pretty smooth,
sible not to know ut on the third day it became so rugged, or, as the Greenland
dvanced season of fishermen say, so 'hummocky,' that with difficulty they were able
evere, in the begin make any progress. Alarmed at this unusual appearance, and
e caught in the ice more so at a tremendous noise, resembling claps of thunder, (oc-
ca; an event for w asioned, as the Tchutsky well knew, by the breaking up of the
ttempts of his succe,) which became more loud and frequent as they advanced north-
vow that, after ar ly, and being at the same time enveloped in a thick fog which
nsidered the most revented them from seeing the danger that threatened them, the
be the best. A arty on the fourth day positively refused to advance a step farther,
had passed beyond st they should all perish in the ocean. By the relation of this
tzebue, in August, urney sent to Count Romanzoff, at whose expense it was under-
it as far as the eye aken, it appears that the distance travelled, as calculated by the
. 68° N.; and we chutsky, was 200 werst. This bay then of Captain Burney, in
n 1819, in a small hich Behring's Strait is supposed to terminate, must not only be
passed the strait ot a very deep but an unusually shallow one, supposing land to have
ourhood a whole m isted at the spot where the Tchutsky stopped. The result of this
ee from ice. We pedition was not, however, satisfactory to Count Romanzoff, who
Ricord, of the R thorized Captain Ricord, as already mentioned, to hire Grimes's
om the hands of th hooner and explore the strait to the northward.
ded in her last sur Connected with this subject, we may take occasion to mention
e strait,—which on e of the most daring enterprizes of a single individual since that of
y passed (with the edyard, whose activity and intrepidity he appears to have imbibed.
y, 1820, and that n aptain Dundas Cochrane, a commander in the navy, after peram-
capital in the mid lating every province of Spain and Portugal and a great part of
rance, volunteered to prepare himself as a Mahommedan for a
ow not on what p urney from the source to the termination of the Niger, but on sti-
the northward by lations that could not be complied with. He therefore travelled
nts of Asia and Am foot to St. Petersburg and was introduced to the Emperor,
The only reason th whom he proposed a journey on foot across Siberia, following

the northern land which he supposed to be joined to America, finding that not to be the case, to procure a passage across Behring's Strait, enter Kotzebue's Inlet, and prosecute his journey on foot along the northern coast of America to one of the establishments of the Hudson's Bay Company. The Emperor readily acceded to his project, and he set off with a passport and an order from the Minister of the Interior to all to whom he might apply to afford him every possible assistance. In September last, information was received at Petersburg of his having reached the Altai mountains on the confines of Chinese Tartary; and that from Irkutsk he was bending his way to the northward to avoid interruption from the Chinese, and with the view of reaching Kamtschatska as the most likely place to procure a conveyance across Behring Strait. Coupling, therefore, this extraordinary expedition with one sent officially by the Russian government, under the orders of Lieutenant Baron Wrangel, to ascertain with certainty the existence and precise position of the North-East Cape of Asia,—the land expedition of Lieutenant, now Captain, Franklin, in America, and that of Captain Parry, we cannot but indulge a hope that, in no great lapse of time, the geography of the northern regions of Asia and America will be accurately determined.

The chances of a failure must inseparably be annexed to the enterprizes of the nature of that on which Captain Parry is employed, and in proportion as the expectations of the public have been raised by the result of his last voyage, would such a failure be felt; indeed we have no doubt that any thing short of reaching the Pacific would now be considered as a failure, and cause disappointment, even if it should be discovered that no communication exists between the Atlantic and Pacific. One thing, however, we will fearlessly assert, that, if a passage is to be effected by human means, Captain Parry is the officer most likely to accomplish it. Should he fail, we sincerely believe that it will be useless hereafter for any other to attempt it; and we are quite sure, that, whether he succeeds or not, his exertions will be honourable to himself and satisfactory to his employers.

This is a conclusion which, we think, we are fairly warranted to draw from the work before us. No one, we are persuaded, can rise from its perusal without being impressed with the fullest conviction, that his merits as an officer and scientific navigator are of the highest order; that his talents are not confined to his professional duties; but that the resources of his mind are equal to the most arduous situations, and fertile in expedients under every circumstance however difficult, dangerous, or unexpected. We are proud, and justly proud, of the name of Cook; but we venture to assert, without fear of contradiction, and without meaning to de-

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ecute his journey
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gate one tittle from the merits of that renowned navigator, that in no part of his career of discovery had he occasion to call into action all those personal exertions and mental energies, which were perpetually demanded in, and essential to the safety of, the late expedition.

In the southern Atlantic, Captain Cook entered the loose and floating ice on the 12th December, in lat. 62° 10′; met with icebergs on the 21st, in lat 67°; and, by the end of the same month, had returned to lat. 58°. On the 26th January he was again within the antarctic circle; and on the 30th had reached lat. 71° 10′, whence he returned to the northward the same day, deeming it (as he says) 'a dangerous and rash enterprize' to struggle with icebergs and fields of ice. 'I, (he continues,) who had ambition not only to go farther than any one had been before, but as far as it was possible for man to go, was not sorry at meeting with this interruption.' Captain Cook was perfectly right; for as his object was the search of a continent, and not of a navigable passage, though it was the middle of summer, with constant day-light, mostly clear weather, and the thermometer always above the freezing point, yet it would have been an unnecessary sacrifice to pursue that search any farther; he therefore immediately fell back on the abundant resources of the Marquesas and Otaheite islands. Thus, too, in the northern hemisphere, after an unsuccessful attempt of twelve days in or near the ice, and after reaching lat. 70° 41′ N. he returned, on the 29th August, to the Sandwich islands, to recruit his people with the refreshments supplied by them in profusion, not deeming it, (he says) at so advanced a period of the season, 'consistent with prudence to make any further attempts to find a passage into the Atlantic this year.'

But how stands the case with regard to Captain Parry? After working his way, and struggling almost without intermission for three months, through such fields and floes of ice as were never before encountered by ships with impunity, he was frozen up for ten months in the high latitude of 75°, during three of which the sun never shed one cheerful ray, and the thermometer was generally from 40° to 50° below zero; deprived of all refreshments but what the ships themselves afforded; and without any vegetable substances but the little which he contrived to produce in his cabin, at the time even of the lowest temperature:—under such circumstances it required no small share of mental energy to preserve the health and spirits of the people entrusted to his care, and to prevent a state of despondency so conducive to that most dreadful of all maladies, the sea-scurvy: and his efforts were crowned with such success, that he was enabled to bring home every man (with the exception of one who carried out with him an incurable disease)

in as high health as when they left England, and the two ships perfect nearly as on the day in which they left the docks.

It is due to the officers to remark, that the example set by the excellent commander was most cheerfully followed by all; and to the men, that their conduct throughout the trying situation which they were placed, was most exemplary. On Lieutenants Lyon, Beechey and Hoppner, Captain Parry bestows the most flattering applause. The labours of Captain Sabine of the Royal Artillery speak for themselves; and the Appendix, in which they are arranged, will long be resorted to by men of science, as a most valuable detail of facts and well-digested observations, collected and made in a part of the globe where, in all human probability, may never again fall to the lot of man to repeat them, or to improve others.

These facts and observations, accompanied by the clear and distinct statement of the various circumstances by which they were affected, are worthy of the narrative of the voyage by which they are preceded; and we do not hesitate to say that, taken together, they compose a volume which may proudly maintain its station on the same shelf with those of Cook and Vancouver, the first in rank, as in value, of voyages undertaken for the improvement or extension of nautical and geographical knowledge, in our own or any other language.

ART. X.—*A Chemical and Medical Report of the Properties of the Mineral Waters of Buxton, Matlock, Tunbridge Wells, Harrogate, Bath, Cheltenham, Leamington, Malvern, and Isle of Wight.* By Charles Scudamore, M.D., Member of the Royal College of Physicians; of the Medical and Chirurgical Society of London, &c. &c. London. 8vo. pp. ? 1820.

EVERY man who becomes, as the phrase is, hypped, or as would have been called 100 years back, troubled with the spleen, considers, and with justice according to the theory of the present day, that his disagreeable feelings arise from one or more of the digestive organs not executing their functions properly, and after a trial of the 'blue pill,' and decoction of sarsaparilla, Abernethy, turns his attention to the waters of Harrogate, Cheltenham, &c. It was, therefore, desirable, that the world should be in possession of some such treatise as this before us, both giving the invalid a general view of their effects, and as a book of reference for medical men at a distance. It is not, as they have sometimes seemed to suppose, sufficient for them to know

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