

THE
FRANKLIN EXPEDITION:

OR

CONSIDERATIONS ON MEASURES FOR THE DISCOVERY
AND RELIEF OF OUR ABSENT ADVENTURERS
IN THE ARCTIC REGIONS.

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WITH MAPS.  
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ADVERTISEMENT.

PORTIONS of the following pages have already appeared, in substance, in the columns of the *Morning Herald*, of the 1st, 14th, and 26th of December last. At the solicitation of friends feeling deep interest in the fate of the Franklin Expedition, the Author has been induced to cast the principal parts of these several communications, enlarged by a considerable quantity of fresh materials, into a separate publication. Whilst so doing, he has deemed it important, with the view of more completeness, and, it is hoped, of greater utility, to introduce the variety of new and additional matter—such, for instance, as Chapter IV., on the Middle-ice, a subject not hitherto to be found treated of in print,—which has enlarged his publication to its present extent. Having, however, carefully separated the various matters under different Chapters, so as to enable the reader to turn to any particular topic by itself, he trusts the increase in magnitude will not be found inconvenient for general reference.

ATHENÆUM,

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THE FRANKLIN EXPEDITION.

INTRODUCTORY REMARKS.

THE search for a "North-west Passage," is an enterprise which may be deemed peculiarly *British*. In its original suggestion, indeed, and in its earliest trials, with a simply commercial object—as *the shortest way to China*—the project may not be so claimed: for the enterprises of the Cortereals, and Cabots, undertaken in the fifteenth century, were anterior, for the most part, by almost a century, to our own.

Since the latter part of the sixteenth century, however, commencing with the first voyage of Davis in 1585, the enterprise has become essentially British, and has resulted, it may be said, in all the geographical determinations, before the world, extending, with slight exceptions, northward and westward from Cape Farewell, the southern point of Greenland, to Behring Strait. All the voyages undertaken during the two centuries which elapsed from the time of Baffin, in 1616, to that of the renewal of the enterprise under Captain Ross, amounting to almost thirty, did little more than confirm the researches of the three gallant and daring commanders, Davis, Hudson, and Baffin,—

who, in vessels, for the most part, of little more than fifty tons burden, and some of them much smaller, discovered and explored the ice-encumbered straits and bays which are properly distinguished by their respective names.

The peculiar interest which has attached to the question of a *sea* communication betwixt the Atlantic and Pacific oceans *by the north*, ever since it was first suggested—a period amounting to nearly four centuries of time—is fully proved by the facts, that the speculation has never but once been abandoned by the nations of Europe for more than twenty-five years together, and that there have been only three or four intervals of more than fifteen years in which no expedition was sent out in search of one or other of the supposed passages!

After nearly a hundred different voyages had been undertaken, with a view of discovering the desired communication with the Indian seas, all of which failed, Britian, again, was the nation to revive the project, and to pursue it with a degree of energy, perseverance, and costliness of equipment, which has rendered these modern enterprises conspicuous in the eyes of all civilized nations throughout the world. With the successes and failures of these great, and somewhat, perhaps, ostentatious enterprises, the public is sufficiently acquainted. Thus far, our experience only goes to verify the opinions set forth in 1820, in the “Account of the Arctic Regions,”—that the enterprise was simply commendable, and worthy of appreciation, as *one of geographical and scientific enquiry*, for

“ as affording a navigation to the Pacific Ocean, commercially, the discovery of a North-west Passage would be of no service.”

Notwithstanding, however, the repeated verification of these views by the perpetual failures, as to the main object, of the numerous modern expeditions,—the explorations themselves have ever been regarded by the British public with general, and, not unfrequent, *absorbing* interest. Thus whilst the return of the several expeditions has usually excited the most lively interest with the British public; the fate of long-absent voyagers—especially in the case of the now anxiously contemplated adventurers with Sir John Franklin—has called forth the public solicitude and sympathy throughout the length and breadth of the land. Yea more than this:—for what we ourselves feel, we find to be also felt in regions remote and severed from our territories, as in the case more particularly of the United States of America, where the most generous solicitude and anxiety respecting the fate of Sir John Franklin, and researches for his relief, are found to prevail. And not only to America does this feeling extend, but to Russia also, where we find a strong sympathy on the part of the government, at least, prevailing, with a generous disposition to aid, from their far-west regions, attempts for succour.

In regard to this sympathy on the part of the Americans, we have most gratifying evidences in the variety of notices which have already appeared in the public journals. And, in addition to these, I have myself received information from other

sources, indicating a degree of solicitude among private gentlemen, as well as public officers, scarcely less fervent than with ourselves. For the American public, we find, through their singularly extensive press, has been addressed both by editorial and private appeals to their generous sympathy; whilst the government has been appealed to, or is being appealed to, for some tangible act of sympathising recognition, both by intelligent individuals, and by association of men in influential bodies!

The question of—What can be done for the discovery and relief of our absent adventurers in the Arctic Regions?—involves several distinct *considerations* on which I would venture, in series, to submit the results of much personal reflection. These considerations may be conveniently comprised, perhaps, under the arrangement adopted in the following chapters.

CHAPTER I.

THE PUBLIC DUTY, UNDER STILL EXISTING GROUNDS
OF HOPE, CONCERNING OUR GALLANT COUNTRY-
MEN.

THE general solicitude and anxiety with ourselves, it may be remarked, is but a just tribute of feeling and duty from the British nation. The honour of success, if the great question were answered, would be *our* honour; the glory of the enterprise, were the north-west passage fairly made by our voyagers, would be ours. We have yielded our sympathy, and that freely and generously as a people. It had been *due* from us on the claims of *right* and *justice*, had not a generous impulse of heart, anticipated reflection. It is a simple principle of human and relative obligations,—if we have shared in the honour of an enterprise, there is claim on us as to responsibilities; if we were ready to appropriate to ourselves, as a people, the glory, as it is deemed, of an adventure successfully pursued, we are bound to adopt its reverses, and to help, to the uttermost, the adventurers in their difficulties—to succour them, if it be possible, in their mortal perils!

Hence, in addition to the general claims of the absent ones on our common humanity—claims which we believe to be almost universally recognised; we have the additional demands of plain and obvious duty. The claim of humanity might have called

for serious thought, and active endeavours for yielding help to the (perhaps) otherwise lost; the claims of duty, however, go to the further extent of a deep and *responsible* consideration of the question—What can be done for them?—in order that measures may be taken for such researches being made, as wisdom and experience may devise, and for such relief being sent forth, as generous liberality, and a due sense of relative duty, might stimulate.

Whilst the friends of the missing adventurers, and those who sympathise with them throughout the country generally, naturally look to the Government to take the most prompt and liberal measures for searching the track prescribed to Sir John Franklin,—it is, no doubt, the wisdom of the Government, whilst recognising the duty of doing what human efforts may reasonably undertake for the relief of our imperiled voyagers, 1st, not to pursue, beyond all imaginable hope, researches decided upon as no longer of any use; or, 2dly, not to risk other valuable lives, after all chance of recovery of the absent might be at an end. But the time for neither of these conditions, I do firmly believe, has yet arrived; and for the following reasons:—

1. That *the period for the abandonment of all hope of the recovery of our missing countrymen has not yet arrived*—the prevalent convictions of those best capable of estimating the risks, and of judging on the predominance of the grounds for hopes and fears, might be sufficient for the guidance of the public sympathies. But it is not a mere vague impression by which the *public duty* is to be de-

cided: we have certain reasons, estimable by every mind, by which the recognised principle of duty ought to be stimulated into action.

Greatly augmented, no doubt, the grounds for apprehension are, now that, for the fifth time, the season for Arctic navigation has been closed, whilst the efforts, on the part of two anxiously looked-to expeditions for search, have altogether failed of any advantageous result. Shall we, therefore, allow our increased anxieties to check further enterprise in researches? or shall despair of success be allowed to stultify the impulses of humanity? The grounds of reasonable hope forbid.

(1). Sir John Ross, we cannot fail to remember, was more than four years absent—and unheard of, as well as absent; yet he returned safe, with as many of his people as would probably have survived the ordinary contingencies of life had they suffered no severity. Why, then, should we utterly despair of those who, incomparably better provided, have entered on another year of absence? If one body of men lived out, whilst unheard of, more than four years, why might not another body, better set out, survive a fifth year? The good hand of a gracious Providence being with them, they may survive this further trial, and Britain may yet be privileged to welcome back her all but lost sons to the land of their fathers.

(2). By the case of Sir John Ross, we may account for their not improbable detention, whilst yet safe, through a period of four years; and if so, it must be obvious that a variety of causes, even *be-*

cause the expedition was safe, might explain a still further detention. It is natural to suppose, indeed, that were the ships fixed in the ice, and hopelessly fixed—the anxious voyagers would have left them before this, and hence we have looked for the appearance of some of them, by boats or sledges, within the scope of research of our navigators or whalers, or overland explorers. We yet know not, indeed, whether by the western outlet of Behring Strait, that hope may not have been actually realized, but if not, we cannot determine whether an unsuccessful effort—perhaps too long protracted last summer—may not have induced return to their ships or to some residue of stores? Disappointment, a lingering hope of the rescue of the ships, or some other cause, utterly beyond our estimation, may have extended their stay, whilst yet unheard of, without a necessary destruction of hope.

(3). That the crews of the two ships could not be *summarily lost*, is a circumstance highly favourable, in this instance, as a ground of hope. In the case of the gallant navigator, La Perouse, such a catastrophe actually happened. The two vessels of the expedition sailing close in company, were involved, it appears, during the perplexity of fog or the obscurity of the night, in a common destruction on the rocks of an unknown shore: the calamity was so summary and universal that no one of the unhappy adventurers remained to tell the sad tale. But in Arctic explorations within the confined seas being navigated by our adventurous countrymen—no such summary calamity could occur. There are

no heavy seas which could prevent escape from a shipwreck; nor could any imaginable catastrophe, by the ice of these regions, suddenly overwhelm two entire crews. For in this latter case, the very ice which might destroy the discovery ships, would yield a solid platform for refuge from the present danger, so as to give time for ulterior measures for improving, by deliberate consideration, the opportunity of escape.

And (4), we may add, the consoling consideration, in the way of hope, that it is hardly to be supposed that out of nearly 140 men,—surrounded by all the appliances of modern science, all the experience of repeated adventure, and all the endurance of practised hardihood,—some little party of the most energetic or vigorous should not have been able to make their way, by boats or sledges, a distance of from one to two hundred leagues,—a distance, which we should presume might suffice to have taken them from any reasonably supposable position, either within range of our returned expeditions, of the Baffin Bay whalers, or of some hunting-station, or tribe of migratory Esquimaux, from whom we might have had tidings concerning them!

2. If the first admitted reason which might justify the suspending or abridging philanthropic efforts for the discovery of our missing countrymen—that is, the termination of the period of rational hope—does not, as yet, avail; neither, I will be bold to say, does the second; viz. *the special risking of other valuable lives, after all chance of recovery of the absent might, perhaps, be at an end.*

If all chance of benefit to the absent, from additional search, had been clearly at an end ; or if such additional search could not be made without a risk of life equivalent to that encountered by the missing party,—occasion might be offered, with strict propriety, for the not very tenderly but quaintly expressed objection,—“ Why spend good lives upon bad ones ? ”

But we are prepared to shew that very effective operations for search *may* be carried on with singularly moderate danger to the parties engaged therein. For researches—as most abundant and elaborate experiment has proved—may be made in these frozen regions, of the most arduous and enterprising kind, with but small comparative risk of human life. For up to the present absent expedition—except, in the individual instance of the first land enterprise to the Frozen Ocean, where neither experience nor due preparation for safety were existing, with a small loss of hands in the expedition recently returned, which has been ascribed, and it is supposed justly, to a defect in the quality of the provisions,—we have scarcely, I believe, lost a man beyond the ordinary contingencies of a seafaring life ; nay, more, though I have not accurately investigated the question, I will venture to assert the personal persuasion that, taking the whole of our modern Arctic expeditions, from 1818 downwards, a much larger number of men have returned from these enterprises in safety and health, than would have been found alive after a corresponding period of ordinary service in a tropical climate !

If, in the public judgment, these considerations and views find approval, support will, I trust, be yielded by the public philanthropy for encouraging, on the part of the Government, not only the researches now in progress by the expedition to Behring Strait, and the search overland to the Arctic Ocean; but still further researches after our absent voyagers, and these of as ample and varied a description as the nature of the case may reasonably admit, and the desperateness of the case may fairly demand. For, though at the risk of some repetition, I would respectfully submit to my countrymen, that Sir John Franklin and his brave associates are the legitimate objects of a national duty and care. They are on the public service; and though sent out technically under the orders and origination of the Admiralty, it was so only as to a department. And not only is this a Government expedition, and therefore national, but by the general interest given to its objects, and the universal sympathy yielded to its perils, by the British public, *we*, as the people, *have recognised it as our own*. Shall we not, then, in our respective places and capacity, do what we may to encourage and stimulate the most *complete* measures of research, in humble trust, under the Divine favour, of their proving, though at the last hour, measures of effective relief?

CHAPTER II.

HISTORICAL SKETCH OF THE PLAN AND OUTSET OF
THE MISSING EXPEDITION, AND OF RESEARCHES,
HITHERTO MADE, FOR ITS RELIEF.

It may be a convenience to general readers, and matter of information to some, to preface the suggestions I have to submit, as to further measures of search, with a few particulars respecting the plan and history of Sir John Franklin's expedition, and of the several searching expeditions to which the public anxiety concerning the fate of our missing adventurers, has hitherto given rise.

It was in the summer of 1845, that Her Majesty's Government sent out this last exploring expedition to the Arctic Regions, in further search of the long, and heretofore vainly, sought navigable passage, by the north-west, betwixt the Atlantic and Pacific Oceans.

The expedition consisted of two ships, the *Erebus* and the *Terror*, commanded by Captain Sir John Franklin and Captain Crozier, with a complement of officers and men, altogether, of about 138. The ships were victualled for three years.

They sailed from England on the 19th of May, 1845, and were last seen on the 26th of July, of the same year, in latitude $74^{\circ} 48'$, longitude $66^{\circ} 13' W$. (a position approaching the middle of Baffin Bay) moored to an iceberg, waiting for the opening of

the 'Middle Ice,' to cross into Lancaster Sound. These ships have never since been heard of.

Their instructions were to proceed to Baffin Bay, and as soon as the ice permitted to enter Lancaster Sound, and proceed westward through Barrow Strait in the latitude of about $74\frac{1}{4}^{\circ}$, until they reached the longitude of Cape Walker, or about 98° west. They were then to use every effort to penetrate southward and westward towards Behring Strait; and it was in this part that their greatest difficulties were apprehended. If these were proved to be insurmountable they were next directed to return to Barrow Strait, and proceed northwards, by the broad channel between North Devon and Cornwallis' Island, commonly called Wellington Channel, provided it appeared open and clear of ice. It is evident that their ability to follow either of these courses must have depended upon local circumstances of which we have no cognizance.

In the year 1848, researches in three different quarters, and by three separate expeditions, were appointed to be undertaken by the Government.

By Behring Strait, the *Plover*, Commander Moore, was ordered on the search; whilst Captain Kellett, of the *Herald*, surveying-vessel, then in the Pacific, was instructed to take the *Plover* under his direction, for joint research after, and relief of, the expedition under Sir John Franklin.

The *Plover* left England on the 31st of January, 1848, but, being a wretched sailer, made such slow progress that she did not reach Woahoo, in the

Sandwich Islands, until the 22d of August—a period of the year too late for any effective operations within the Arctic circle.*

The *Herald*, meanwhile, went northward as far as Cape Krusenstern, Kotzebue Sound, which she left for the southward—not being prepared to winter, nor for explorations among ice—on the 29th of September. The Plover was not met with during this progress of the *Herald*, nor any tidings heard of the missing expedition of Sir John Franklin.

The second division, for search, was the overland and boat expedition, under Sir John Richardson, for the exploration of the Arctic Sea betwixt the Mackenzie and Coppermine Rivers, east and west; and intermediate between the northern coast of the American continent, and lands lying proximate thereto, north and south;—it being supposed that, if Sir John Franklin's party had been compelled to abandon their ships and take to their boats, they might very probably make for this coast.

In preparation for this expedition, the men and the stores, for the most part, designed for the enterprise, were embarked at Gravesend, on board of ships of the Hudson's Bay Company, on the 4th of June, 1847. The Commander of the expedition, accompanied by Dr. Rae, left Liverpool on the 25th of March, 1848; and they succeeded in forming a junction with Mr. Bell, in charge of the boats and the men designed for the adventure, at Methy Portage, on the 20th of June.

* An abstract of the important researches of the summer of 1849, by and connected with the Plover, is reserved for the Appendix.

Reaching the last portage on Slave River, in the middle of July, the sea-going party embarked in their boats, and proceeded by that river, into Slave Lake, and from thence, north-westward by the Mackenzie, till they reached the sea, on the 4th of August. Coasting eastward, after rounding Cape Bathurst, they reached the gulf into which the Coppermine River flows, by the end of the month. Their boats were abandoned at the commencement of their land journey, on their return by the line of the Coppermine southward,—on which journey they set out on the 3rd of September, and on the 13th they reached their destined quarters at Fort Confidence at the north-east corner of Great Bear Lake.

In this enterprise, the coast line from the Mackenzie to the Coppermine, was, according to Sir John Richardson's instructions, carefully examined; whilst several hundreds of Esquimaux (comprising numerous parties and various tribes) were communicated with in respect of the object of their search, but without any trace of the missing expedition being met with, or any tidings of it being obtained. The encumbrance of the navigation by ice, in the latter part of their progress along the coast to the eastward, prevented the carrying out of that portion of the Admiralty Instructions which relates to the examination of the western and southern shores of Wollaston Land,—lying northward of the Coppermine.

Sir John Richardson, after wintering at Fort Confidence, commenced, along with the Europeans and some others of the party, their return homeward,

in the beginning of May, and arrived in England on the 6th of November, 1849, —having left Dr. Rae, with a small but effective party, who volunteered for the service, to make the unaccomplished researches during the summer of that year. These searches were, if possible, designed to extend to the examination of the passages between Wollaston, and Banks, and Victoria Lands,—so as to cross the routes of some of the detached parties expected to have been sent out by Sir James C. Ross.

The third, and most expensively appointed, section of the expeditions for search, was that under Sir James Ross and Captain Bird—comprising two ships, the *Enterprize* and *Investigator*. These left the Thames on the 12th of May, 1848; entered Baffin Bay early in July; left the Danish settlement of Upernavik on the 13th of that month; cleared the Middle Ice, August the 20th, and entered the harbour of Port Leopold, where they wintered (and, it may be added, summered too) on the 11th of September. During the months of May and June, 1849, the north and west coasts of North Somerset were explored, and some other journeys, of little importance, made. It was not till *August* the 28th, that the ships succeeded in getting clear of their harbour—having been there detained for a year, lacking only a fortnight! On the 1st of September—the fourth day after their release—the ships got unfortunately beset in a pack of floating ice, where, helplessly detained, they were drifted along with it fairly out of Lancaster Sound into Baffin Bay, and did not obtain their release till the 24th or 25th of

September,—a period deemed too late to attempt any further enterprises in these frigid regions. On the 3rd of November they arrived off Scarborough.

The foregoing particulars, in respect of the different expeditions for search after Sir John Franklin, are, it might be presumed, sufficiently well known; but this abstract has been inserted here for convenience of reference.

Finally, we have to notice, the sending out of the *North Star*, store-ship, Mr. James Saunders, master commanding, into Baffin Bay, in the summer of 1849,—laden with supplies designed for the previous expedition.

The *North Star* sailed from the Thames on the 16th May, 1849, and was seen July 19th, in latitude $74^{\circ} 3' N.$, longitude $59^{\circ} 40' W.$, off Devil's Point, waiting for a passage round, or through, the Middle Ice of Baffin Bay, and has not since been heard of.

“The main object of the voyage,” with the *North Star*, “was, first, by replenishing the stock of provisions in the ships of Sir James Ross, to prevent the return of the *Investigator*, Captain Bird, to England in the summer of 1849; in order that Captain Bird with his ship might continue to co-operate with Sir James Ross in prosecuting his search, during the summer of 1850; and, secondly, in case of not meeting with the *Investigator*, or her boats, to land the necessary supplies at Possession Bay, Cape Hay, Cape Crawford, and Cape York, or Whaler Point,”—all being places on the south side of Lancaster Sound and Barrow Strait. But of these several places, a decided preference was to be given

to *Whaler Point*, at the entrance of Port Leopold, if attainable. And, in the event of the ship not being able to reach any of these places, Pond's Bay, or Agnes Monument, might be adopted for the deposit of stores.

Should time permit—after the completion of her primary services—the *North Star* might run up, if the ice were open, to the head of Baffin Bay, and look into Smith's and Jones' Sound for any traces of Sir John Franklin's ships. But it was ordered, and the order was reiterated, that the commander of the *North Star* “should carefully avoid risking all hazard of being detained throughout the winter.”

In giving an abstract of these instructions, I cannot refrain from quoting the concluding paragraph, as peculiarly honourable to the framers of a document of this kind, usually so formal,—“and we earnestly hope that, by the care of a wise and merciful Providence, you will be enabled to render important assistance to the expeditions which have preceded you; and that your endeavours, as well as theirs, may be crowned with success.”

The extreme lateness of the period to which the *North Star* must have been detained before she succeeded in getting across Baffin Bay—if she succeeded at all?—must have prevented the possibility of the accomplishment of the essential design of her being sent out, and returning the same season. Should she have crossed to the westward at the close of the season for navigation—it is not impossible but that the zeal of her commander for the performance of his instructions, might lead him to

attempt to reach Leopold Island, or other more advanced station in Barrow Strait, for the landing of stores, so as to involve the ship in a constrained wintering by accidental besetment, or being arrested by the formation of bay ice.

Now what has been gained—it is important here to enquire, because of its essential bearing on the subsequent suggestions—by these various expeditions, as thus far, reported?

The expedition of 1848 and 1849, by Behring Strait, obtained strong assurance, that none of the Franklin party had, as yet, passed that way, or were then passing within a large extent, in longitude, to the eastward of Point Barrow.

In regard to the expedition of Sir John Richardson, a *negative*, as to the position of the missing expedition, has been clearly determined by actual examination within certain coast limits, which limits, through the medium of numerous parties of Esquimaux, have, by reasonable inference and probability, been considerably extended.

The researches of Sir James Ross have, in like manner, determined a negative as to other positions about the coast of North Somerset, and within certain tracts in Regent Inlet and Barrow Strait.

Within Barrow Strait, however, little investigation, in any of the directions in which traces of the missing ships might have been expected, was accomplished. The lateness of the time of arrival of the ships in Lancaster Sound in 1848; the unfor-

tunate selection of Port Leopold as a winter-harbour for ships designed for active service *at the earliest possible period* after the relaxation of the ice-bound channels; and their subsequent besetment in, and involuntary ejection from, Barrow Strait,—constituted, altogether, such a combination of untoward circumstances as entirely to prevent any useful researches being made within the navigable spaces of intended operations for the expedition, during the two seasons of its absence. Had not Sir James Ross, indeed, been so driven out of the sphere appointed for investigation, he would, no doubt, have carried out his intentions, and have examined, during the autumn of 1849, or the spring of 1850, the regions about Wellington Channel, and those about and beyond the notified headland—Cape Walker.

As a circumstance of fact and experience, working, in the case of Sir James Ross' expedition, most disadvantageously,—I have ventured to remark on the adoption of Port Leopold as a winter harbour. As a safe and commodious wintering-place, and as a position easily to be *approached* on almost any summer, Port Leopold seems to possess many advantages; and is therefore well adapted for a grand dépôt and station connected with a complete series of searching operations; but its position is, unquestionably, unfavourable for the early removal of the usual impediments to navigation. For, it is a very general and well-known fact, in connection with Arctic navigation, that the ice is disposed to separate earliest from the western sides of the land, and to make heaviest and most continuous

lodgments upon their eastern shores. The converse is, of course, the general fact in respect to the different sides of bays, straits, or other navigable channels. Hence, Baffin Bay is the earliest clear on the eastern side, and Regent Inlet is often quite clear of ice, along a great extent of coast on the east side, whilst from Port Leopold, inclusive, downward to the bottom of this singular bight, the shore is inaccessible to ships.

For *ships*, therefore, designed for active operations, a harbour should be sought on the eastern, or north-eastern? side of any bay, inlet, or channel designed for wintering in; in other words, on the western or north-western coast of the proximate lands. These well-known facts being, from peculiar circumstances, perhaps, overlooked, or their due importance overruled—occasioned the detention of the recent searching expedition in Port Leopold, until the 28th of August; whilst a whaler, sailing from Aberdeen in the early spring, was free in the western waters of Baffin Bay by the 13th of June, and one or two others in Barrow Strait, within sight of Leopold Island, in the beginning of August! It is but justice, however, to our late searching expedition, to remark, that ships wintering in any of the harbours within these severely frozen regions, are always in a disadvantageous position for early operations—a circumstance well brought out by Sir John Barrow in his abstract of one of Captain Parry's Voyages.

In urging now the *necessity* for further search for

the Franklin expedition, equally by the direction recently tried by Sir James Ross, as elsewhere,—it may be proper to notice, that neither of the two starting points of new discovery, where traces of the missing ships were most reasonably expected to be met with,—viz. the entrance of Wellington Channel and Cape Walker—have been at all examined. For neither the visit of a party of men to Cape Hurd, lying much to the eastward of the entrance of this inlet, nor the intercepted, and therefore imperfect, examination with the ships, subsequently, yield us any useful information, positive or negative, as to the missing expedition having passed that way.

Nor are we yet better informed in respect of the missing ships, or traces of the adventurers, being to be met with *near* Cape Walker. For, as far as the accounts yet published enable one to judge, no nearer approximation was made to Cape Walker, the headland towards which Sir John Franklin was, by his instructions, expressly directed to make—than about forty geographical miles. How far across this space the view obtained by Sir James Ross would extend, no certain guide is before us, as we do not know the height of “the high land in the neighbourhood of Cape Bunny,” from whence the ice-covered region westward and northward was observed. It is important, however, in forming any judgment on the subject, to bear in mind, that it would have required an elevation of 1000 feet to render, in the clearest state of the atmosphere, and under the ordinary quantity of refraction, the *mast-head* of any discovery ship visible

above the horizon. The probability I suppose to be that the height ascended was greatly less, and, if so, the distance overlooked must have been proportionally shorter.

Whilst referring to this particular, it may advantageously, perhaps, be stated, that very much *uncertainty* prevails as to judgments formed in regard to the *nature* of the ice, or of its *compactness*, when viewed at great distances; so much so, that where the ice, when in extensive bodies, might clearly appear to the eye not greatly elevated, to be perfectly compact and unbroken, or of a peculiar quality, such as hummocky or smooth, there might be wide channels of water, at the proper season, or the quality of the ice, in the remoter part of the region apparently within view, might be totally different from that assumed. In my own experience, the fact of this exceeding deceptiveness of vision, in judging of the condition of the ice beyond moderate limits, has been proved in almost numberless cases; so that I have found men of very much experience sometimes greatly misled in assuming the state of the ice *actually* to be what, by clear and distinct vision and telescopic examination, it *appears* to be.

The object of the foregoing remarks will, it is hoped, be clearly understood, not as having *any reference* to the conduct of the expedition recently returned, but simply to the establishment of this important proposition,—viz. that, notwithstanding what has been done, researches are yet as urgently called for *as at first*, by the eastern inlet from Baffin

Bay, through Lancaster Sound, and by the western outlet through Behring Strait, as well as by the extension of overland and boating researches northward, if possible, beyond Wollaston and Victoria Lands. For such further researches the public sympathy and common humanity, yea, common *justice*, too, to those whom we have sent upon the adventure, urgently call; and such further researches these principles likewise claim to be made—to *the most liberal extent* consistent with reasonable practicability, remaining hope, and the fair prospect of safety to new adventurers.

There remains only to be noticed, in connection with these records of the results of the means for search hitherto put into operation, the rewards which have been offered, for the stimulating of private, as well as public, enterprise in this cause of humanity.

The devoted and persevering wife of the commander of the missing expedition, was the first to endeavour, by her private means, to stimulate research on the part of the whalers, by offering, in 1848, a reward of £2000, and in 1849, one of £3000, “or a proportion thereof according to services rendered, to any ship or ships, which, departing from the usual fishing grounds, might discover, and, if needed, afford effectual relief to the missing expedition, or any portion of it.” The reward, if claimable, it was most judiciously proposed, should be distributed among the owners, captains, officers, and seamen, in the same proportions *as if similar*

value of produce from the fishery had been obtained—a plan, which was calculated (from the arrangements made with the crews of the whalers in rendering their wages in considerable measure dependent on success) to reward every one rateably, according to his equitable claims and position.

By Her Majesty's Government, another pecuniary reward, £20,000, was offered in March, 1849, with the view of a further stimulation of enterprise. This sum was assured "to such private ship, or by distribution among such private ships, or to any exploring party or parties, of any country, as might, in the judgment of the Board of Admiralty, have rendered efficient assistance to Sir John Franklin, his ships, or their crews, and might have contributed directly to extricate them from the ice."

These rewards utterly failed in producing any effective efforts for search on the part of the whalers,—and for reasons easy to be understood. First, the Government reward was too late in point of time, in being offered, as it was not promulgated until the 23rd of March, *after* most of the whalers had sailed, and were therefore without orders or authority for departing from the usual fishing ground. And, secondly, the reward was only claimable on the absolute condition of a *successful search*,—a contingency so great as by no means to justify, in a commercial adventure, the sacrificing of the interests of a voyage undertaken at so much cost and risk. Had there been a provision for rewarding (as Lady Franklin in her private offering judiciously proposed) extraordinary efforts, or special researches

in quarters remote from the ordinary fishing grounds, for the purpose designated, — something effective would, no doubt, have been attempted. Encouragements of this nature, — proportionate or reasonable rewards for judicious and energetic efforts beyond the line of whale-fishing operations — could alone serve, where the reward for success was, for a Government reward, but moderate, to turn the commercial enterprise of that region into aids for more extensive search. The difficulty of remunerating too many competitors, or of adjudicating on the merits of different claims, might, perhaps, be met, by requiring researches beyond specified limits, or the discovery of any *traces* of the Franklin expedition, as a condition of any claim at all, and by appointing a board of honorary adjudicators, (after the manner proposed by Lady Franklin) for investigating the several cases and apportioning rewards to the efforts made and the services performed.

CHAPTER III.

CONSIDERATIONS AS TO PRESENT MEASURES FOR THE
DISCOVERY AND RELIEF OF THE FRANKLIN EXPE-
DITION.

RATIONAL measures for relief must naturally have relation to well-considered *probability* in respect of the existing position of the absent expedition. But whilst certain limits may thus be set to the sphere of desirable research, all assumptions of deciding on any part of the extent lying betwixt Cape Walker, on the east, and the range of the Plover's researches, on the west, must be mere speculation. As to certain parts, where the expedition under Sir John Franklin assuredly is *not*, the recent researches of Sir James Ross and Sir John Richardson have, within their very limited ranges, afforded conclusive results. But as to the regions proximate to Cape Walker, and from thence, westward, in a parallel *remote* from the northern face of the American continent, we yet have ascertained nothing; and, therefore, even *probable determinations* can amount to no more than uncertain conjecture. Within any part of this wide expanse—above 1000 geographical miles in width, east and west, reckoned as far west as Point Barrow, and of three or four degrees of latitude in extent, north and south,—the expedition, if locked up in the ices *remote* from the American coast, may be reasonably sought for.

And even *out* of these limits—assuming the admitted possibility of the expedition failing in its primary direction, having tried Wellington Channel, or some other of the proximate inlets promising the chance of a passage north about Parry Islands—research might wisely be directed to more northern positions, and, consequently, over a wider range.

The impression, indeed, seems to have gone abroad, that the missing expedition must have made such progress in the line of the Admiralty instructions, as to render research for it *now* most desirable by Behring Strait; and, moreover, that in case of the ships being hopelessly hampered, though safe, the adventurers most likely abandoning their ships, would, before the present period, be probably in progress of the endeavour to make their way over the ice, or by boats, in the same western direction.

To this direction, therefore, the minds of many very naturally look with hope, as not unlikely to be that in which successful research may yet be pursued. It is, indeed, by no means beyond all hope that our brave fellows may themselves, by boats, if not with ships, still succeed in making the progress which constituted the grand design of their bold enterprise. And in this view, hope has been, in some degree, revived, and that not unreasonably, by the very failure of the recent efforts to find any traces of their progress. The opinion is now hardly to be resisted that, at an early period of their adventures, not improbably in the summer of 1845, or at all events in that of 1846, Sir John Franklin's

ships *entered upon new ground*, near Cape Walker, and penetrated beyond it into hitherto unknown regions. If so, subsequent summers may have stimulated their exertions and added to their progress westward, till hope, even if struggling against apparent impossibilities, might urge the perseverance, summer after summer, to the present time, for the chance of still accomplishing, by all means, or by any means, by ship, by boats, or by sledges, the grand adventure. But if such were their encouragements, and such their aim, which would account for the hanging together of all the party, that all hands might unite in the general triumph, it might be of vital importance to endeavour, by most effective arrangement, to meet them from a western position, so as to yield to them the earliest possible succour.

Whilst these prevalent ideas seem to be so exceedingly well-founded, as urgently to call for the prompt and efficient search already provided for by the Government, by the way of the Pacific, they can afford no satisfactory grounds, I conceive, for the abridgment, much less for the abandonment, of the *most energetic pursuit* of the Baffin Bay route; for should the fact be even so, that Sir John Franklin had abandoned his ships and taken to the ice on any direction of travel, yet, even in such case, we conceive that *the ships should be sought for*.

If the adventurers, *as a body*, should have abandoned their ships, is it not still more than probable, that, under the anxieties and severities which they must have endured, there may be those among them

who, paralysed by deprivations and hardships, or debilitated and wasted by disease, would be incapable of the like enterprise, and must, therefore, by necessity, stick to the ships to the last! Nay more; painful as such an idea may be, we must not, whilst considering the means of succour, shrink from the contemplation of the sad *possibility* that the whole party, under the morbid influence of cheerless despondency, might be reduced into a like condition of personal helplessness, so as to be incapable of rescuing themselves! Admitting, as inevitably we must admit, a *possibility* of this kind—we find an additional claim on our common humanity to provide not only *some* means, but *all* reasonable and available means, for meeting, so far as human judgment may, the various anxious contingencies in every quarter at once.

In venturing to submit to the public a *general plan of search for the missing expedition*, I cannot but feel a shrinking from the supposition of any assumption of superiority of judgment in a matter in which there are so many, who, by positive experience in the icy-regions of the north-west, are much better qualified for the task than myself. But I have been urged to the undertaking by the solicitation or encouragement of those whose position and judgment are such as to claim my deepest consideration; whilst much attention to Arctic researches, both by considerable experience and careful investigation, have so far cleared my own mind, on a variety of practical points, as to render it a

question, whether, by the blessing of Providence on my humble endeavour, I might not be enabled, in some small degree at least, to aid in the cause of philanthropy and humanity, with reference to our gallant commiserated countrymen?

A comprehensive scheme of research must, obviously, embrace, at least, all the lines or directions of advance into the ice-bound regions, which occasioned the employment of the several expeditions, projected and undertaken by the Government, in the year 1848. These expeditions, the history of which we have already sketched, advancing from widely separated quarters into the region of desirable investigation; that is by Behring Strait, by the Mackenzie River, and by Baffin Bay,—were designed to combine into one grand and comprehensive plan;—a plan which, had not most untoward circumstances defeated it, must, in all human probability, have obtained, by this time, satisfactory information concerning our missing countrymen.

As a general plan, therefore, and one so well digested and ably arranged, I have little to suggest in the way of essential alteration. For what I should deem it necessary and fitting to submit relates rather to the manner of carrying out a great and effective scheme of search, to the details of operations and aids to transglacial journeys,—rather than to the general lines of search, or to points for special examination.

The original scheme of the Admiralty, as is well known, consisted of a series of three distinct enterprises,—the renewal of the *whole* of which, with

some modifications, by the Government, this publication is designed most strenuously to plead for and urge. Taking up the consideration of each of these diverse directions in order, we shall be enabled at once to describe the general plan, and to embody the modifications by which, it is believed, the entire scheme may be rendered satisfactory and effective.

I. *As to the direction of search by Behring Strait.*

To this line of search, the attention of the Government has been already directed so as to result in the appointment of a well-fitted expedition, consisting of the two ships returned from Baffin Bay. The expedition, already on its way, proceeded to sea from Greenhithe on the 12th of the current month, January; the *Enterprize*, under the command of Captain Collinson, C.B., and the *Investigator*, under Commander Maclure, who had served as first-lieutenant of the *Enterprize*, in her preceding voyage.

These ships, somewhat unfortunately, are dull sailers,—a deteriorating quality by reason of which (in her extreme degree) the *Plover's* enterprise of 1848 was so sadly retarded. But in this case, there was no choice, as no other ships at the command of Government, fit for the special service, could be got ready in time. Besides, it must be satisfactory to the public generally to know, that measures have judiciously been taken for the giving of these ships the aid of steamers in more than one quarter (it is hoped for the passage of the Magellan Strait), so that we may confidently expect them, under the

blessing of Providence, to be on the ground of commencing operations sufficiently early to have the best advantage of the ensuing season for the navigation of Behring Strait, and for the renewal of the search of, and beyond, its eastern shores.

Notwithstanding what has been done by the *Plover*, and her effective voluntary consort, in researches by Behring Strait; it is by no means to be understood that the further researches, designed for the *Enterprize* and *Investigator*, are no longer necessary. For a continuance of search, it is submitted, is still demanded by the voice of humanity and justice, so long as we have no conclusive result, or as any possibility for hope may remain. And for this maintaining of the philanthropic work by the way of Behring Strait, it is understood that the Admiralty designs to provide; so that beyond the time directly prescribed to Captain Collinson for his contemplated operations, a point of succour should be maintained in the western region, for a year or two longer, if needful, both for the relief of our missing countrymen, should they yet make their way by that outlet, and for the renovating of the instrumentality for exploration by Behring Strait.

II. *As to boating and travelling search, from the Arctic face of the American continent, northward.*

The portion of the plan of search, appointed for Sir John Richardson, which he was unable to accomplish in the summer of 1848, was left, as we have seen, to the enterprise of Dr. Rae, and a small

select party for the summer of 1849. His instructions directed him "to descend the Coppermine River (about the middle of July, when the sea generally begins to break up), and to cross, as soon as possible, from Cape Krusenstern to Wollaston Land, and to endeavour to penetrate to the northward, towards, or up to, Banks' Land."

Further instructions, it is understood, have been sent out to Dr. Rae, to continue his search in the same direction, (if any essential part should have been left unaccomplished) in the season of the present year. And, it is fervently to be hoped, that measures will be taken, of an anticipatory nature, for retaining an explorer of so much tact and zeal, as Dr. Rae, in the same region, so that his researches may be extended, if unhappily found needful, through the season also of 1851.

If, as the opinion of several of those most experienced in Arctic adventure inclines, the Franklin Expedition be "shut up in some of the passages between Victoria, Banks', and Wollaston Lands," the line of search proposed for Dr. Rae, is one of much promise as to the meeting with some traces of our missing adventurers.

But this line of search *alone*, as a mere cursory inspection of the Arctic Polar Map will shew, will leave a large space to the westward, equally promising and equally easy of access, untouched. For there is another line, capable of being traced by a small party—if there were time for its due equipment—proceeding, by the outlet of the Mackenzie, from Cape Bathurst, in the direction of Banks'

Land, which fills an important gap in any great and complete plan of searching operations. Because this line of search, as to me it appears, affords as good a prospect of crossing the track of the missing expedition, as almost any other in contemplation. It would not be a costly undertaking, as it might be done by a very few hands; whilst the zeal of an enterprising young officer, who has long been anxious to undertake this special service—Lieutenant Osborne—would herein find most advantageous employment.

Surely, if the time be not absolutely past, and it is believed that it is not, some arrangement might be made with the Hudson's Bay Company, by the Admiralty, for the effectual furthering of such an enterprise to its ground of operations before the end of next July? I cannot but believe it to be of much encouragement, and therefore of much importance. For why mar a grand chain of human efforts by the omission of one little link, which might happen to be *the link* of successful dependence?

There is still another line, within the northern face of the American continent, to which our attention has been directed, from whence researches, in aid of other means, might, if thought desirable, be easily made. That is from the River Colville, having its outlet into the Arctic Ocean of magnificent expanse (said to be two miles wide), in the longitude of about 151° west. From Norton Sound, just below Behring Strait, there is a line of forts or trading posts established by the Russians, by means

of which communication can be easily pushed into the Colville, and from that outlet into the Arctic Ocean northward and eastward. They have here, too, a species of boat—the baidar—which is considered to be well adapted for the service required in navigating the contiguous Arctic Seas. Should the Russian Government, which has indicated a kindly interest in the fate of our gallant countrymen, be disposed to aid in the search; their friendly zeal might, in a line of this kind, be usefully engaged, by some arrangement for a look-out from the mouth of the Colville, and for occasional investigations of the north-eastern regions accessible from thence.

III. *As to the renewal of search in the direction of Baffin Bay.*

The renewal of search by this commencement and direction, we have already urged. The recent information received from the searching vessels in the Behring Strait quarter, gives additional force to the reasons on which the demand for a renewed search by Baffin Bay has heretofore been grounded. For whilst the extensive space already traversed in this direction affords encouragement to Captain Collinson's expedition, that they may still find access into positions of useful research: the failure of the search, as to the discovery of any traces of the Franklin Expedition, by the western route, gives an increased encouragement to the endeavour to find it by the way in which it originally penetrated. Such search, obviously, I think, needs to be made,

and *well made*. It is the impression of many, in common with myself, that this enterprise is of *grand importance*. *Without* it, it may not improbably prove that, notwithstanding the putting into operation the other projects, nothing effective has been done;—*with* it, every reasonable mind will yield the praise, that all that a paternal Government, deeply solicitous for the safety and recovery of its enterprising and imperilled sons, could do for their recovery, has been done.

The plan of search, in this hopeful direction, which I venture to submit, comprehends the employment of four vessels, together with one or two boats, or steam-launches, for detached parties in the proposed investigations.

One of the vessels, the principal in magnitude and accommodations, I would propose for serving as a general dépôt, receiving ship, or place of retreat for parties, or crews, of the other vessels. For it has appeared to me, after every consideration which I could myself give to the subject, to be of vast importance, in its bearing on this research of humanity, *to retain to the very last* one effective ship, at least, at some safe position within the range of our former explorations to Melville Island. Port Leopold, however unfavourable for an early escape for vessels designed for active operations, appears to present many advantages for the headquarters of exploring parties in this particular region—“a position,” as described by Sir James Ross, “of all others the most desirable, if any one spot had to be selected, for the purpose of wintering.”

With such an arrangement for a *point d'appui*, vessels of an inferior class, two or three in number, might be safely and advantageously employed for pushing investigation westward of Cape Walker, as well as up the channels extending out of Barrow Strait northward. Vessels of the class or description of the *dockyard lighters*, being strongly built, and of small tonnage, might conveniently serve this purpose; or vessels of a like class, at present employed in the coasting trade, or in the trade with the continent of Europe, being of a burden of 100 to 150 tons (or even below 100 tons might do), and these *fast sailers*, could easily be found for sale, so as to be capable of being fortified and fitted up for the navigating of the Arctic ices, and for an early departure in the ensuing spring.

Could a whaler or two be procured, either by purchase or hire as transports, — as to which I imagine there would, at the present time, be no difficulty, — an advantage might be gained in economy, as well as in the time that would otherwise be requisite for strengthening ordinary vessels for collision with the ice. A vessel of this class would have abundant capacity for the one suggested as a *depôt*. A second vessel, as a *depôt*, might advantageously be planted at Melville Island, which would serve as an additional security for the whole expedition in this quarter, as well as being sufficiently well placed for active operations.

Let us suppose this plan to be adopted; that is, an expedition to be arranged consisting of one or two ships of the class or size of whalers, with two

or three small vessels (four in all), and a well-equipped boat. The arrangements into which these would fall, on the plan contemplated, would be as follows:—

The largest vessel of the series (which might be a whaler) would be appointed to take position in, or not remote from, Port Leopold; another vessel—say the next largest—might take up a position as a second depôt and place of refuge, at Melville Island. A third—a small vessel—would be directed to the west side of Cape Walker, for penetrating from thence, as far as she conveniently might, to the south-westward, should the position of the land and the condition of the ice permit an advance in that direction. The other small vessel would have assigned to her the search of Wellington Channel, and other inlets proceeding out of Barrow Strait northward; whilst the boat, being dropped, after the passage of the ‘middle ice,’ might undertake, with great advantage, the researches which are still requisite within the different indents of the upper part of Baffin Bay (principally that of Jones Sound, and secondarily that of Smith Sound, with any other penetrable channels which might be discovered), such indents seeming to promise additional outlets, westward, after the manner of Lancaster Sound. A project by Mr. R. M'Cormick, R.N., for a boat-search of this region, is already before the Admiralty—which, with some modification, perhaps, would well work in with the general plan herein sketched.

The boat acting *independently* (according to the

general method hereafter proposed) would be no burden on, or encumbrance to, any of the exploring vessels. Whilst an endeavour might be made to pass up Jones Sound to effect a junction, in operations, with the vessel proceeding up Wellington Channel,—there need be no mutual dependency. The boat would seek its own safety at the close of its operations, by going up to the refuge-ship at Port Leopold, or by endeavouring to join some one of the whalers by which the boat's crew might obtain a passage home.

Could the North Star, now on her adventure in Baffin Bay, be confidently calculated on, for being intercepted on her return, she might be made available for working into this plan,—as *the* ship, for instance, proposed to take quarter at Port Leopold. In such case, any of the officers or crew who might volunteer for further service, and for whom useful employment should be devised, might be retained; but it would of course be requisite, according to their just expectations, to provide, either by passage in whalers, or otherwise, for the return of the residue of the people to England.

An arrangement of this kind, for the renewal of the search for Sir John Franklin by the way of Baffin Bay,—it will be obvious, I think, if fully carried out,—would embrace, and that with every prospect of effective operation, *all* that was included in the admirable plan, embodied in the Admiralty Instructions for Sir James Ross, and considerably more.

But whilst these various vessels would, according

to the scheme, constitute, in one respect, a system of combined operations ; in another respect I would earnestly recommend an essential deviation from the plan of former expeditions,—by arranging for the *independent operation of each section of the expedition*. Let the combination, as to plan of operations, be made in England ; but let each Commander be responsible only to Head-quarters for his conduct on the duty specially assigned to him.

Several advantages would be gained by this arrangement. First, it would avoid the loss of time produced by sailing under the orders of a principal officer, generally commanding, which necessarily reduces the progress of the expedition to the speed of the *slowest* ship, and to the measure of activity or tact of the least effective officer or crew. Secondly, it would give each Commander the opportunity of taking the independent advantage of every opening of the ice, or other circumstance, by which his own progress might be facilitated, and the season for navigating the ice-encumbered seas of the north-west, extended. And, thirdly, it would render every section of the expedition, a *principal* ; every Commander would feel himself in the highest and most responsible position ; he, with his officers and crew, would reap the undivided rewards of their own enterprise ; the credit, if any, which their exertions and zeal might earn, would be secure to themselves ; and none of the errors or failures of others could involve them in either undeserved censures, or uselesss and onerous responsibilities.

Another deviation from the ordinary practice, is,

as I conceive, strongly to be recommended ; that is, the employment of men thoroughly familiar with Arctic navigation, such as Captains of whalers, in an independent position, for a portion of the service now suggested. For in respect to this proposition, I would take occasion to express the strong personal conviction, that it is time that the *exclusiveness* of the National or Government departments should be broken into when services are to be performed not strictly departmental, in which others have had more continuous training and experience ; and so, as in an object like that before us, that the merchant navy and its more intelligent and talented officers should receive more consideration, and have a better position. Many naval officers, I believe, there are, who would liberally concur in any reasonable measure for improving the grade of a class of men to whom, as a commercial nation, Britain owes so much, feeling assured that the British navy could *lose nothing* by the occasional bringing into joint operation the two maritime services, whilst a deserving and skilful body of practical navigators would be better appreciated.

The experiment, at least, is worth the trial when so favourable an opportunity presents itself as the present ; when the cause is not geographical research, or astronomical and scientific observation, but the researches of humanity. Among the present Commanders of our northern whalers, there are men who are well known to possess both the inclination and the ability to take a share in an exploration of this kind ; and who, with crews selected out of

their own service, would, I am persuaded, ably perform such duty as might be entrusted to their zeal and perseverance.

Hitherto, I may add, the men of this class who have been employed in our modern discovery-ships, have had an inferior position assigned to them. They have not, therefore, been fairly tried, nor their class of men fairly searched for the most talented and the best. As a general fact, indeed, whoever among the whaling captains might volunteer on such a service, no one, whose talent enabled him to secure an unfailing command, under a good and respectable mercantile firm, would have been justified, personally, in undertaking so inferior a position. But, for the position now suggested, the *best* men, would, of course, be the readiest to offer; and one or more of this description, we happen to know, have already offered, who, did the opportunity permit, would be able to do their country good service.

Should it become an object with the Admiralty, as we fervently trust it will,—for without it the sympathizing country, I may venture to say, would never be satisfied,—to pursue, in the vigorous and comprehensive manner which are due to the importance of the research by Lancaster Sound, some such plan as is here submitted; it would be very practicable, as to me it appears, to explore, with *comparative safety*, a very large extent of those regions, proximate to, and extending from, Barrow Strait, on which the track of Sir John Franklin might be supposed to lie.

Were the principal ship, designed as a *depôt* and refuge, as we have assumed, at Port Leopold, where there are abundant resources; or should she proceed on any limited service during the residue of open-navigation, being careful to return to the specified quarters for the winter,—then the *scout* ships (as we might term them), might proceed, with much confidence, as far as circumstances would enable them, on the lines of search previously assigned them respectively.

Experience has now indicated that, from whatever distance they might proceed beyond the port or ports of refuge, within at least 300 to 400, if not up to 500 miles, the crews, if necessitated, might make their way back to their resources by means of boats or sledges; whilst from the extremity of the positions respectively attained by the scout ships, travelling parties might proceed for some hundreds of miles further in such directions as the trending of the land, or the probable course of navigation, towards the south-west and west, might suggest.

By arrangements of this nature, the various parties would have ‘under their lee,’ to speak in nautical technicality, a place of succour and refuge, so that no more danger would be incurred, except as to repetitions of the stages, by those proceeding to the greatest distance from the head-quarters, than by the others.

No doubt a difficulty might exist as to the securing of the scout ships in safe winter-quarters; but my own impression is that, if they were unable to harbour within shelter of land, they would not be

in very much danger if they were frozen up in the *middle of the pack*, or within a sheet of field ice, so that they were sufficiently remote from the shore. For, *proximity to land*, it is, which is well known to yield the most destructive influence to the movement and pressure of the Arctic ices; a fact, indeed, which has had abundant verification in the history of our modern expeditions for northern research. But a further fact, according, at least, to my strong personal impression, has come out of the same experience—that the practice of seeking proximity with, and clinging to, ice-bound shores, either for the purpose of securing the progress made or under the temptation of making better progress by means of tidal or other frequent openings near the land, has been *very detrimental*—that is, where the progress sought was immediately upon a *western shore*—to the results obtained in more than one of these expeditions.

For the further securing of the safety of the adventurers in the vessels which might advance singly into new, and, perhaps, dangerous regions, or into positions from whence, at the season designed for their return, they might not be able to retreat—it might be permitted them to abandon their vessels, in such case, and make for the nearest depôt, or refuge ship. The moderate value of these vessels, by reason of their smallness, is a circumstance that would be favourable for disposing the Government to make a more hasty sacrifice of property for the benefit of the adventurers, as to their personal safety, in the general enterprise.

In regard to the adaptation of vessels of a much *smaller class* than those recently employed in the Government expeditions, for effective research in ice-encumbered seas,—it is satisfactory to find that the opinion of many experienced officers of the navy now inclines to the views which I always entertained on the subject, and had specially set forth in the “Account of the Arctic Regions,” published about thirty years ago. For in that work (vol. i. pp. 24—27), it is stated, in words or substance, as follows:—

“The class of vessels best adapted for discovery in the Polar Seas, seems to be that of 100 to 200 tons burden. All the great discoveries which have been made [that is prior to the year 1818] have been effected, it may be observed, in vessels still smaller; which kind of ship, in some respects, possesses a material advantage over that of larger dimensions. They are stronger, more easily managed, in less danger of being stove, or crushed by the ice, and are less expensive,”—and, from their smaller size, they require, of course, fewer hands. A comparison made betwixt what a small ship, when driven on a sandy beach may endure, and yet be got off without essential damage, with the destructive effect of mere grounding in a line-of-battle ship,—shows the immense difference in relative strength. The small momentum, too, of vessels of a minor class, when striking against masses of ice, and their more ready yielding to a lifting tendency under *pressure* from ice,—renders them much less liable to damage or loss from the ordinary impediments to naviga-

tion in the icy seas. In actual experience of this advantage, we may allude to the perilous and remarkably disastrous voyage performed by Captain James in 1631—2, when his little vessel, “ of only seventy tons burden, endured six or seven such beatings against rocks and ice, as would doubtless have occasioned the destruction of almost any vessel of such a size as those lately employed for discovery in the Polar Regions.” The record of what she encountered (of which a brief abstract is given in the passage we now quote from) is perfectly wonderful, especially when considered in connection with the important fact, that, after all, “ the little bark took home its crew in safety !”

“ Hence, it is evident (it is added), that a vessel intended for discovery in the Polar Seas, should be just large enough for conveying the requisite stores and provisions, and for affording comfortable accommodation for the navigators, but no larger. Perhaps a vessel of about 150 tons burden would be fully sufficient to answer every purpose.”

Other views, possessing somewhat unusual analogy with those herein submitted, considering the great interval of time that has elapsed, and the immense experience that has been obtained, since the work on the Arctic Regions was written—are comprised in some succeeding pages of that work, which, however, we will not now delay to analyze.

It should not be overlooked, in connection with the proposal for the employment of vessels of a very small class in Arctic explorations, that some importance is to be attached to the *rig*, or style of

equipment in masts and sails, of these vessels. A *sloop-rig*, for instance, comprising mainly and most essentially, 'fore and aft sails,' would be very inconvenient, and, among crowded ice, where it is important to have the power of stopping the head-way by backing the sails, very disadvantageous. A schooner-rig would, in some respects, be much better, because of the means of arresting the head-way by backing the top-sails, and for being well adapted for working to windward in intricate passages. But the rig of the *ketch* might, for all objects, perhaps, be the most desirable,—this species affording such proportion of *square-sails*, as would adapt the vessel for all the requirements of 'backing and filling,' and of power for 'boring' in packed ice, before the wind. But whatever the kind of rig might be, the quality of *fast-sailing*, too often overlooked, would be of singular advantage.

Some allusion, too, perhaps, might here be properly made, to the subject of the employment of *steam*, as an auxiliary propelling power, in Arctic navigation. In calm weather, or light contrary winds, generally, or in such wind and weather with slack but encumbering ice—circumstances which often go together,—the advantage of steam must be obvious. But the encumbrance of space for machinery, and for fuel for generating the requisite steam, are serious drawbacks to the specified advantages; besides the risk of crippling the ship, by the action of the ice on the external apparatus for propulsion, to which, obviously, it must be more or less exposed. In the case of the *screw-propeller*,

one serious objection strikes me very forcibly. The screw itself, we know, can be easily detached and raised up out of the way of damage; but the additional projecting stern-post (below) is left in a condition of much exposure; so that a very slight nip below, or even the pressing of the ship heavily against deeply immersed masses of ice under the lee, in boring through a compact pack or stream, would be very liable to twist or carry off the stern-post, together with that essential machine appended to it, the rudder! A plan proposed by Sir John Ross, of so arranging the usual system of paddle-wheels, that they could be easily raised up clear of any impediments, might, if found feasible, avoid this serious objection to the use of the screw. In making this objection, it should also be mentioned—as the ships under Sir John Franklin are provided with screw-propellers—that we should not apprehend, in the case of the missing expedition, any disastrous consequences from such a cause; since, in the event of the worst result occurring, which we have assumed to be not improbable, the safety of the ships, as to their floating qualities, would not necessarily be endangered.

In the carrying out of researches under the views above set forth, two points will strike the reflecting and sympathising reader as of vital importance, viz.—*promptness* in the setting forth of the expedition yet to be provided, and *liberality* in the provision of means for carrying out the requisite researches. In regard to the importance of PROMPT-

NESS in DESPATCH, as to the measures designed, it may be observed, that the capability of reaching the scene of commencing operations, before the time when the navigation becomes usually open, is of vast importance, in order to the benefiting, in full measure, by the brief season available for navigation in these frigid regions. Promptness in arranging for an expedition in the direction of Baffin Bay, is essential for the providing of proper vessels, and for their due and effective preparation for their object. It is most important, likewise, for the securing of the services of the men and officers best experienced in the navigation of these peculiar regions; for even those among the captains or seamen ordinarily engaged in the northern whale-fishery, who might strongly be disposed to embark on this enterprise of humanity, cannot be expected to keep themselves disengaged much longer, now that the time for fitting out the whalers is so near at hand.

As to LIBERALITY in these measures, which have become a *national duty*, need it be urged that it would be pitiful in a great nation—our stopping to inquire at what cost the work of public duty and moral obligation can be effected? Profuseness and wastefulness are equally to be deprecated by good sense, as now they prevalently are by public feeling; but a niggard contraction of means for the accomplishment of a national duty is still more to be deprecated, and that both by common honesty and Christian duty—for the abridgment of cost, so as to leave *anything undone* which may or can reasonably

be done, is, in a case of this kind, an abandonment, by leaving a part which might be *the real* part, of the *whole* Christian duty ; whilst the contraction of measures, so as to render them inefficacious, is but a *plausible cheat* !

CHAPTER IV.

THE PASSAGE OF THE MIDDLE ICE—OR THE CROSSING
OF BAFFIN BAY.

A GRAND difficulty, in north-western adventure, lies almost at the very entrance of the ice-encumbered regions;—*the passage of the middle ice* of Baffin Bay. The eastern side of Davis Strait, at the termination of the spring of the year, may, perhaps, be quite open to navigation; and the northern and north-western parts of Baffin Bay, with a considerable space within Lancaster Sound, may, at the same time, be clear of ice, whilst a formidable, and often an impenetrable, barrier—that of the middle ice—lies between. The important bearing which the accomplishment of the passage across Baffin Bay, to the westward, has on the limited extent of the season which may be subsequently devoted to researches, or other operations, encourages me to devote a chapter to this particular subject, with the hope that the facts herein brought together may be of some utility in regard to the navigation of this formidably embarrassed region.

In consequence of this opposing barrier, the western side of Baffin Bay is not known to be accessible to ships coming in from the southward and eastward until *after the spring* of the year. The body of ice referred to, generally occupies, during the winter and spring seasons, the greater part, if

not the entire, of this Bay and region, with the channels, straits, sounds, bays, or other inlets, connected therewith. The same body or continuity of ice, too, extends to the southward into Davis Strait — filling Hudson Bay, usually forming a packed sea-board along the shores of Labrador, filling the Strait of Belleisle, and partly embracing the island of Newfoundland.

This ice consists of ‘heavy’ and ‘light’ packed-ice, and floes, with bergs, and fragments of bergs, interspersed throughout. The icebergs, supplied in immense fragments, not unfrequently 400 to 600 feet in thickness or more, from the glaciers of the north, may be considered, in respect to their periods of growth, as millennial, or vastly more ancient still; the ‘heavy’ packed-ice, must be derived from the salt-water produce of several years duration, either within the great basin of the Polar Seas, or within sheltered inlets where the results of the icy formation are but seldom dislodged; whilst the main body, which occupies, chiefly, the northern and western parts of this extensive surface of sheltered and inland seas, is but of perennial growth.

The grand produce in ice, of the several prevailing species, as it may hence be inferred, is commonly destroyed year by year,—being partly dissolved, within the district of its origination, by the warmth of the sun, and partly destroyed by the higher temperature and more disturbed seas of the parallels, southward, into which it is emptied out by the simple operation of the prevailing currents coming down from the north. Hence, it is,

that the Banks of Newfoundland, and the navigation of the Atlantic to a considerable extent southward and westward from thence, are so often encumbered by bodies of packed ice, or icebergs, comprising, in considerable part, the overflow of the ice-harvest of the North.

The fact of this prevalent destruction of the Baffin Bay ice is strikingly shown, by the astonishing change which takes place in the navigation during the autumn of the year. Ordinarily, this change is such, that encumbrances of ice which may have detained the navigators, pressing westward across the Bay, until the very end of summer, will often be found, a month or two later, to have ceased to present difficulties, and sometimes to have almost vanished. So that lands to the westward, which had been throughout ice-bound, to a width of many degrees of longitude, in the months of June and July, or even later, may, not unfrequently, be coasted along, with little or no obstruction, in September or October, and sometimes in August, from the head of Baffin Bay, down to the southward of Labrador, approaching the 50th parallel, or along the whole extent of the previous encumbrance!

In consequence of this annual destruction of ice, the ice of Baffin Bay is found to be far *lighter*, for the most part, than that of the Greenland Sea,—the floes in Baffin Bay being, ordinarily, hardly a fourth-part the thickness of those occupying the seas westward of Spitzbergen, and, very prevalently, indeed, of even a lower proportion. For the floes, coming down from the northward and eastward,

betwixt Spitzbergen and the east coast of Greenland, are not unfrequently, in single sheets of solid transparent ice, from twenty to thirty, or even approaching forty feet in thickness. All persons who have frequented the Greenland whale-fishery must have met with, occasionally, large sheets and floes presenting a wall of ice, and rising three, four, if not five feet, in solid substance, above the surface of the water in which the ice was afloat. Now, from experiments which I formerly made on the specific gravity and flotation of ice (described in vol. i. of the Account of the Arctic Regions, page 233, and in page (82) of the Appendix), I found, that the proportion floating *above* to that *below* the surface, was, in *fresh-water*, at a freezing temperature, as 1 to 11·5, and in *sea-water*, as 1 to 8·2; that is, for one part above the surface of the sea, when near a freezing temperature, there would be, in a square or evenly formed mass, above eight parts below.*

The *sheet-ice* of Baffin Bay—speaking in contradistinction to the massive or lumpy ice of bergs—does not usually, unless it be *overlaid*, exceed, I believe, five or six feet in thickness; floes of eight or ten feet thick, which are sometimes met with, being of but rare occurrence, whilst *bay-floes*, of the thickness of only a few inches, occur in all parts of the middle-ice, occupying, more or less,

* A cubic inch of compact ice, temperature 30°, I found to weigh 231·5 grains; and a cubic inch of *Greenland sea-water* at a freezing temperature, or 28° (specific gravity of the water, taken at temperature 60°, being 1·0264) was found to weigh 259·58 grains.

the corners and interstices amid the heavier masses. We here speak of the northern ice, as it is met with in the spring and early part of the summer.

The *land-ice*—that is the ice immediately attached to the coast, and resting in the position in which it has had its winter formation—varies considerably in thickness according to the locality in which it is generated,—being thickest in the most sheltered situations and in the shallowest water. Measured on one occasion in Melville Bay, on the 24th of June,—the land-ice, at the distance of thirty or forty miles from the shore, was found to be three feet five inches in thickness, where single and undisturbed. The same general sheet of ice, however, was found, but three weeks later, to be reduced by the summer heat to about two feet.

At the region in Davis Strait, called the *south-west* by the whale fishers, comprising the ices below the 65th or 66th parallel, as also in the *interior* of the middle-ice, occasionally, for several degrees northward, the drift or packed ice is often *heavy*—approximating the character of that of ordinary occurrence in the south-western portions of the Greenland Seas. But within Baffin Bay, generally, these lighter perennial ices are mostly met with. The separate masses do not so frequently extend into the vast, and, apparently, interminable surface of '*fields*,' as in the Greenland Sea, being comprised, as to single sheets, mainly of moderate sized floes. Very large sheets, indeed, are liable to be broken up in their drift down to the southward, by their not unfrequent contact with the

icebergs which are dotted almost all over, though more numerous in positions of shallow water. Collision with bergs, and more especially with grounded bergs, produces upon the drifting floes a strange and tremendous work of disruption or destruction. Their edges frequently bear witness of the unequal contest of strength in which they have been engaged; whilst the force with which they have been compressed by wind or current against the permanent shore, or equally unyielding grounded icebergs, often runs sheet over sheet, or piles edge upon edge, till the comparatively light floe assumes, in portions of the surface, the heaviness characteristic of Greenland ice, or, in the ridges formed on the margins of compression, the massiveness of miniature bergs.

Our national enterprise in the whale-fishery of recent years, having been mainly carried on in the sea *beyond*, or westward of the middle-ice of Baffin Bay,—that barrier has become as familiar to our fishermen, as to its character and varieties, as long ago was the ice-barrier, on the south-west of Spitzbergen, to the whale-fishers of Greenland. With the experience, by our whalers, now extending through a period of about thirty years,—I have taken some pains to make myself acquainted, and, with the results of my enquiries, the reader is herein presented.*

The passage of the middle-ice is usually accom-

* The sources from whence these results were drawn are fully specified in connection with an article in the Appendix.

plished, though at no inconsiderable risk to the ships engaging in that adventure, by rounding the northern part of the barrier, after the main body has become detached and considerably removed from the top of the Bay. This was, in fact, the course originally pursued with so much success, by the adventurous and enterprising W. Baffin, when, in the year 1616, he discovered this Bay, and circumnavigated it through its entire extent.

In this enterprise of passing the icy-barrier by the north, the coast of Greenland is kept aboard until the main body is doubled, or some narrow isthmus of it may be intersected in a high parallel,—usually about the latitude of 76° . But a passage has occasionally been made, in some lower parallels—such as the latitude of 70° to 74° ,—where the width of the barrier is about the greatest, and the practicability of passing it, until late in the season, is ordinarily very questionable. And, sometimes, the passage has been made by entering a parallel corresponding with, or even to the southward of Cape Walsingham (a position in about $66^{\circ} 30' N.$, constituting the narrowest part of Davis Strait), and then persevering northward, if possible, along the western side of Baffin Bay, betwixt the middle-ice and the land.

Towards the *north-about* passage, the navigation, as we have said, is open to a considerable extent along the Greenland shore, forming the eastern boundary of the Bay, in the early spring. In the early part of the season an interruption is not unfrequently met with near Holsteinborg, where,

the strait being the narrowest, the descending body of northern ice necessarily tends to produce a block. Subsequent interruptions, after this position is passed, are liable to be met with, where projecting headlands, clusters of islands, or ranges of grounded icebergs encroach on the usual direction of drift of the eastern margin of ice. Thus, interruptions are commonly met with at, or immediately beyond, Disco Island, Hare Island, Women Islands, Baffin Islands, the Devil's Thumb or Point, as well as in the rounding of Melville Bay, and especially, and lastly, in getting sufficiently up towards Cape York, so as to be beyond the ordinary extension of the main pack of the icy barrier.

The progress thus made, as to its latter and more difficult portions, is in the channels of water—from time to time produced by the wind and other circumstances acting favourably,—betwixt the *fixed* land-ice or land-floes, and the *floating* body constituting the middle-ice. The land-ice, in particular positions, may extend, off shore, a distance of twenty or thirty, or even fifty miles. As the fixedness of its exterior edge shows the effect of the least slackening or receding of the main-ice—the retention of its continuity with the land, where the principal stoppages occur, is, ordinarily, deemed essential for a rapid or successful progress northward.

The north-easterly winds, which most commonly prevail in the early spring, and continue, as in the Greenland Seas, to be the prevailing winds during April and May—act, of course, favourably towards the opening of the eastern navigation; though it

rarely happens that any ship makes its way beyond the middle-ice, northward, *before the middle of June*. A passage, indeed, accomplished at any time in June, is deemed an early one.

Within the period from 1817 to 1849 inclusive, (lacking only 1820, 22, 24, 26, 41 and 42), in which I have records of the course taken by the leading ships employed in the fishery, or otherwise,—I find that, in twenty-three out of the twenty-seven years, the *northern passage* was effected by some vessel, and not unfrequently by the whole fleet of whalers. The *earliest* passages into the western-water of which I have records, were, as to the leading ship of the year, effected by the St. Andrew, Captain Dring, of Aberdeen, June 12th, 1849; by the Neptune, Penny, of Aberdeen, June 13th, 1838; by the Bon-accord, Lee, the Abram, Jackson, etc., June 21st, 1833; and by the Abram, Coultray, June 22nd, 1845. Various other ships, on most occasions, passed the barrier, at or near about the same time; the ship of Captain Parker was very early through on an occasion in which my records fail; and the main fleet in 1834 passed across by the 28th of June. The *first* ship ever known to have passed this barrier, north-westward, since the time of Baffin, was the *Larkins*, of Leith, in 1817; she was followed by the Elizabeth, of Aberdeen. The *latest* period to which I find the leading whaler having persevered, by this course, to a successful issue, was early in August.

The *average* period, as taken from my list of twenty-three years, in which the first ships suc-

ceeded in passing the barrier by the Melville Bay route, is July 13th. Baffin, it is worthy of remark, was, notwithstanding the entire newness of the adventure, and the comparative insignificance of his little vessel, in advance of the period at which the navigation is now ordinarily effected, under all the advantages of familiarity with these regions and strong and effective ships! For the gallant little 'Discovery,' as his vessel of fifty-five tons was named, came "into an open sea," in latitude $75^{\circ} 40'$ N.,—very near to the identical parallel in which the passage across is now usually effected, — on the 1st of July, or almost a fortnight before the average passage of the earliest ships of the present day!

By the *middle-parallel* (latitude 70° to 74°), the passage through the wide body of the icy-barrier, westward, is not very often accomplished or pursued. In the disastrous year of 1830, to which we refer further on, four ships took a more westerly course than usual, and succeeded in making that passage; and, on some other occasions, the transit of the middle-parallel appears to have been made. But, unless under peculiarly favourable circumstances, such as of strong and prevalent winds from the south-eastward, tending to relax the usual central compactness, the attempt is attended with considerable risk, at least with the whalers, of the loss of the fishery by a too-lengthened detention in the ice. Even when ships have attempted to cross too low down in Melville Bay, though close upon the position for doubling the pack by the north, they some-

times, by getting beset and being carried away with the ice, have missed the passage altogether.

The Griper and Hecla, discovery ships, in the expedition under Lieut. Parry, in the year 1819, were remarkably successful in penetrating the middle-ice in latitude 73° ,—reaching the western water, by a route and progress then unexampled, on the 28th of July. But in attempting the like passage with the Fury and Hecla, when the season happened to be severe and unfavourable, in 1824, and taking the ice, July 13th, in latitude $71^{\circ} 2'$,—Captain Parry was detained until the 8th of September,—a period of enormous labour extending to nearly eight weeks, before he could attain the western water. In this case, a northward direction was obliged to be pursued, after entering the ice, so that the ships had ascended to the latitude of $74^{\circ} 7'$, before the completion of the transit.

By the most *southern route*, however, that is within and below the 70th parallel of latitude, very early passages across have been effected, and, some of those adventuring upon this course, have occasionally succeeded, by a tolerably easy progress, in getting northward afterwards, betwixt the middle-ice, and the fixed land-ice on the western shore of Davis Strait.

Thus, amongst other instances of which I have obtained records, it appears, that in 1839, several ships crossed over in the 70th parallel, partly doubling the main body of the middle-ice to the southward, and then succeeded in getting to the

northward. The Ellison, Lee, on that occasion, reached the western water on the 21st of July; but the principal part of the fleet, I believe, were much later. In 1844, the Bon-accord, Lee, got through the ice in latitude 67° , on the 16th of June, and succeeded (a rare occurrence) in reaching Pond Bay, within five days afterwards! In 1846, the Prince of Wales, Thomas Lee, crossed again in latitude 67° , and got through on the 16th of July.

Though this direction of transit is annually practicable during some part of the summer or autumn, because of the tendency of the barrier to separate or divide across within this southward region, and though it has in several instances been successfully pursued up to the whale-fishing stations about Pond Bay and beyond; yet it is by no means a *safe course* to the north-western fishery. A simple inspection of the position of Baffin Bay, in the Map, will show that the *west land* advances to the south-eastward, all the way, in its general trending, from Pond Bay to Cape Walsingham, and that Baffin Bay gradually narrows down to the latter position. Hence, not only does the ordinary *southerly drift* of the ice tend to bring the middle-ice heavily against the coast to the westward, but the contraction of the space, as before alluded to, renders the clearing of an *early* channel by the western shore extremely uncertain.

For a considerable number of years—now about thirty or more—the whale-fishery, formerly carried on in Davis Strait, has, in considerable degree, been transferred to the western side of Baffin Bay, Lan-

caster Sound, and even to regions beyond. Hence not only is Lancaster Sound a position prevalently aimed at by the whalers, but Regent Inlet, to a considerable extent downward by the eastern side of it, is frequently visited. Whales, in extraordinary abundance have been found in these regions, and a new encouragement every now and then has been given to the continuance of this enterprise. Checked, however, by the risks and expenses of a lengthened voyage, and the not unfrequent failures—the whale-fishery has so declined, as to have become, as a national commerce and adventure, almost insignificant.

In the more favourable years, however, the opportunities for success, which were always well improved, were extraordinary. I take, at a venture, an instance or two from my notes. The *Isabella*, Humphreys, in the summer of 1832, captured forty-two whales, yielding 280 tons of oil;—twenty-seven were taken in Pond Bay and a little to the northward, and fifteen in, or near to, Admiralty Inlet, in Lancaster Sound. Hundreds of whales were to be seen at once: quite a marvellous sight! The crew of the *Isabella* killed fourteen at one ‘fall’—that is during one period of uninterrupted chase! The ice was very compact above this position, forming so close a barrier, at the time, that the ‘fish’ seem to have been stopped in their progress westward.

In the following year, 1833, the same ship advanced westward, at different times in July and August, within sight of Leopold Island, and on the 28th of August picked up Captain Ross with his

long imperilled crew, near Navy Board Inlet. Meanwhile another ship, the —, Parker, captured twenty-eight whales, and lost fifteen others, betwixt Cape York and Cape Kater, in Regent Inlet. On their arrival in Regent Inlet on the 8th and up to the 15th of July, the sea was literally *swarming with life!* Of the larger kinds of Arctic animals, the numbers seen were such, as to have excited unmixed amazement. Whales, narwals, walruses, seals, bears, etc. (but no ‘finners,’ or sword-fish); whilst birds innumerable, of various species, almost covered the surface of the water!

In adventures of this kind,—arduously, and sometimes almost desperately, pressing forward towards the desired fishing-stations of the north-west, and persevering in the fishery, as many of the whalers have done, until the middle of October, or even later,—great risks are necessarily run, and very much loss in shipping, has, in consequence, ensued. In any case, an early and persevering endeavour to make the western passage by Melville Bay, is attended with more or less risk. Here the *Isabella*, in the first enterprise in our modern explorations by Baffin Bay, got a heavy *nip*, such, as it was assumed, must have crushed a common whaler to atoms!

To one most disastrous instance, however, of peril and loss in the attempt to pass north-westward by Melville Bay—that of the year 1830,—I am tempted to refer more particularly, because of the illustration

it affords of the power of moving bodies of ice, as well as because of the interest naturally pertaining to a circumstance so strangely destructive. Not very many lives, happily, were lost on the calamitous occasion; but no less than a third part of the whole whale-fishing fleet were wrecked within the same general region, whilst attempting, by a similar course, to double the middle-ice by the north.

An abstract of the journal of one of the more favoured adventurers amid this extraordinary calamity, may, perhaps, be of more interest and value, than any attempt, with defective materials, to give a general record of the eventful occasion.

The Cumbrian, Captain Munroe,—whose original log-book has supplied the principal materials for this abstract—sailed from Hull so early as to reach the ice, at the ‘south-west,’ near the beginning of April. From this position, latitude $62^{\circ} 50'$ N., longitude $57^{\circ} 25'$ W., they took the ice along, as they were able, generally beating to windward, up to May the 1st, when they were near to Holsteinborg, where the navigable channel, betwixt the ice and the land, became first a little embarrassed.

Persevering to the northward along shore, meeting with occasional bars of ice, they reached a complete stoppage, northward, on the 31st of May near Baffin Islands. With but few exceptions, the wind was from the north-eastward during the whole of the months of April and May.

In the liability to rapid changes in the position and compactness of the ice, in this region, they were not altogether disappointed. Openings occa-

sionally took place, and now and then a favouring wind occurred, so that, taking advantage of every opportunity for making progress, the Cumbrian had advanced, by the 10th of June, as far as the southern part of Melville Bay,—being in latitude $75^{\circ} 40'$, longitude $62^{\circ} 10'$. Here, when they had just been anticipating a safe and early passage round the ice, they were again stopped. A fleet of forty sail of whalers were then in sight, some making their way to the westward, others retiring among the loose floes to the southward, the others, a considerable proportion, remaining by the land-ice,—experience having shown, that however adventurous and dangerous it might be to pursue a course of this kind over against the *western* land, on this *eastern* side, it was the most promising course to stick to the land, rather than to trust to progress in the loose and moveable body of the middle-ice.

They here remained up to the 22nd of June, and then, under variable light winds producing occasional openings, were enabled to advance some twenty miles to the westward along the land ice. On the 24th, the ice began to close, and that pretty quickly. Aware of the risk of the position, however, in the event of the western body of ice coming down heavily upon them, Captain Munroe immediately commenced operations for sawing a dock into the land-ice,—no difficult undertaking here, where the ice, when not doubled, was only three and a half feet in thickness. After six hours of active labour, a canal of 200 feet in length was completed. In this and subsequent undertakings

of a like kind, the crew of the *Hanseatt* of Bremen, who were put under the orders of Captain Munroe, assisted, on condition of their ship, which was not provided with ice-saws, being permitted to participate in the dock that was formed. This arrangement, indeed, in its result, proved of great service to all; as one ship's company could relieve the other, in the laborious task, so as, when needful, to keep the saws continually in operation.

On the 25th, a storm of no ordinary character was evidently brewing to the southward and westward. The sky, in that quarter, became dark almost to blackness. The barometer had fallen greatly. The ice was still pressing moderately on. But, meanwhile, the two ships were opportunely docked,—a strong piece of ice being placed across the outlet as an additional defence. A section of the general fleet, contiguous to the *Cumbrian*,—being eight sail altogether,—had adopted a similar course, and each one, to different measures in extent, had assumed the hoped-for security of a dock.

In the afternoon of this day—the actual commencement of the eventful period—the storm came on from the south-westward as anticipated. The effect was immediately felt in its terrific results. The body of ice, seaward, came on amain. Floes now overrun floes; or where two equal edges met, they were mutually piled up in huge ridges. The power of the crush soon obliterated the docks that were the least deep or the most exposed. Signals of distress waved in the storm in all directions; but the demands of self-preservation allowed no man to

help his neighbour. The first ships of the little group which 'suffered,' were the Princess of Wales and the Letitia; the ice ran through their broad-sides! At the same time, others among them, were forced into alarming positions,—some thrown upon their 'beam-ends,' some much raised by the pressure. The intermediate ice, especially that immediately *within* the ships, in relation to the shore, was animate with human beings,—about 300 men, appearing scattered abroad in a state of distressful excitement, engaged for the most part in carrying off into a position of safety on the yet unbroken ice, their chests and hammocks or beds, and other personal possessions, constituting, as to the greater part, 'their little all.'

Though the operation of sawing, with a view to the deepening of the dock of the Cumbrian and her consort, was, meanwhile, being energetically carried on by 100 men, these, too, working for their property and wages, and possibly for their lives,—the protecting ice broke away up to the very bows of the Cumbrian before the first great 'run' ceased.

The boisterous wind, from seaward, continuing during the night, the off-ice renewed its destructive progress early in the morning of the 26th. At 6 A.M., the Resolution, of Peterhead, then lying about a mile and a half distant from the Cumbrian, was wrecked;—the ice went through her 'counter' abaft, and, as the ship filled, turned her over upon the floe! The Commerce, a brig, was, about the same time, lifted quite on the ice on her broad-side, and had her stern-post greatly twisted. This

vessel being near to the Cumbrian, and, though so strangely dealt with, being found not to be irreparably damaged,—Captain Munroe sent out thirty men to assist in the endeavour to preserve her. Their services, happily, were not lost.

Towards noon of this second eventful day, the gale abated, and the ice stopped running. The respite from immediate danger, however, was actively improved. A new dock was prepared for the Cumbrian, cut in a zigzag manner, and extended into a firmer part of the land-ice. The ice fortunately slackening off a little in the night, the opportunity was embraced for re-docking the ships, in their improved position. The sadly discomfited sailors, so far as the ships remained fit for sheltering them, returned to their respective quarters, whilst the shipwrecked portion obtained accommodation with their more favoured comrades.

From the 27th to the 30th inclusive, the weather was fine and moderate, with light N.E. winds generally prevailing. The ice, in consequence, slackened its pressure, and so far separated as to leave small and occasional ‘veins of water’ in the western quarters. But, of the forty ships in sight on the 25th, only about twenty-five were now visible; some had, in fact, disappeared, but the greater part of the residue had been driven by the set of the ice, quite out of sight. The land-ice, here too, was found to have broken off and moved westward; but was still retained in its relative position by a chain of icebergs, forming a half circle, corresponding with Melville Bay, off which they

lay about fifty miles from the land. Had it not been, indeed, for the interruption given by these bergs, the ships which suffered in this catastrophe would probably have escaped. In this interval of quiet, some men crossed the ice to considerable distances, and news of further disasters, among other sections of the fleet, was received.

On the 1st. of July, the wind returned to its former destructive quarter, and threatened another storm. Captain Munroe,—having now at his command the crew of the Commerce, which had been got afloat, besides portions of wrecked crews, numbering altogether about 170 men,—was enabled to get the Cumbrian, along with both the Hanseatt and Commerce, deep into, what was considered, a secure dock in the ice;—the dock itself being not only rendered safer by its traverse-like form, but being further sustained by being filled up, as far as practicable, with floating masses of ice.

At night, the ice was seen to be running together again in all directions. Orders were now given, as a still more perillous crisis seemed at hand, to erect tents, and secure stocks of provisions, with the men's clothing and beds, half a mile distant on the firmest of the land-ice. All this was promptly done. The ships, too, were adjusted in one tier, side by side, the Cumbrian in the middle.

The next day, the 2nd, increased the peril of their position. The wind blew a gale from the S. W., with heavy squalls and rain. The ice made repeated starts in running together, sometimes with fearful rapidity and tremendous force. Floe ran

over floe, and immense sheets or sections of sheets of previously solid ice, were turned into huge hummocks or prodigious ridges. At or by 10 A.M., the docks of this district were mostly broken up, and the land-ice began to crack through its solid portions in all directions. At noon, the *Laurel* was squeezed flat, and thrown on her broadside. The *Hope* followed in the great catastrophe, being the last of this particular section, except those with the Cumbrian.

Aided now with an accession of men from the additional wrecks, the position of the Cumbrian and her associates, which had become alarmingly threatened, was improved by the extension of their canal inward;—the men, in general, not knowing that any other refuge might be left, working, as for their lives. Their efforts proved effective until towards midnight, when a new and augmented pressure came upon the land-ice from without, thoroughly breaking up this last refuge, to which an amount of some 400 men had trusted for their preservation through the medium of the residue of ships. The press now fell so heavily on the two outside vessels, that the exposed broadside of each partially gave way. But, the good hand of Providence being upon them, the three ships—the Cumbrian with little or no damage—ultimately escaped. The pressure after continuing in that direction about two hours, then ceased.

By means of the whole body of men engaged in the common object of self-preservation,—the ships, after enormous labour in cutting through the broken

ice into the land-floe, were again placed in apparent security. Provisions, too, were collected, as far as practicable, from the various wrecks, and carried still further along the land-ice as a depôt, in the event of ultimate disaster to the remaining ships.

The residue of this interesting story can here only be conveniently sketched. No renewal of pressure, after that described, took place. The weather becoming fine, and the position of the ships more and more hopeful, the damages of the *Hanseatt* and the *Commerce* were so far repaired, as to render them sea-worthy, and all three were again securely docked in the ice. The shipwrecked men distributed themselves, as to the main body of them, among more remote sections of the fleet by travelling over the ice. The remnant left, only about thirty, consisted chiefly of the weak or the timid. After a depressing detention here until the 1st of September, they observed a southern section of the fleet make sail, and pass out of sight. Under better hopes for themselves, the crews of the *Cumbrian* and associates began to replace the stores on board their respective ships. On the 4th, a swell was perceived coming in from the S.W. The next day they began to move by warping through the somewhat slackened ice. On the 6th, the three ships were under sail, winding their way through the devious openings, or forcing an occasional passage by 'boring;' and on the 7th, making effective progress, they were privileged to accomplish their escape into clear water!

The general result of this sad catastrophe—un-

exampled even in the adventurous service of the whale-fishery—was the loss of twenty ships, nineteen British and one Foreign, in the offing of Melville Bay, and one more in a different region; besides about twenty others, more or less damaged. The fishery, too, proved a general failure: only about a third part of the fleet, I believe, succeeded in obtaining any success.

The loss of life, on this sad occasion of hardship and peril, was not very great. The *rum-cask*, as it is wont when surreptitiously resorted to in maritime calamities, did its usual disservice,—cheering those, indeed, who ventured on its temporary stimulus for a short time, but ultimately reacting on the incidentally acquired energy with a more than corresponding depression. The first to suffer by exposure and hardship were generally these self-indulgent; and those who perished in travelling across the ice from the section of ships to which our narrative specially relates, are described as being chiefly the victims of intemperance!

In taking one particular record of this extraordinary event, and specifying only this particular year, 1830, as one of disaster among the whalers,—I have been influenced by the consideration that, whilst the description would, from its speciality, be more interesting, the nature of the dangers of the passage by Melville Bay would be more characteristically developed. But it may be naturally inferred, that the extraordinary action of the ice, in the locality to which our narrative refers, was

but the type of its action elsewhere. Not only, indeed, were the ships in other positions within range of the common disaster as summarily wrecked; but some of them were still more strangely dealt with than the section which suffered near the Cumbrian. One ship, for instance, was reared up by the ice, almost in the position of a rearing horse! Others were thrown fairly over on their broadsides by the ice, and upon the ice, and, then, as in other cases mentioned, actually overrun by the advancing floe and totally buried by it; so that, as to one instance at least, within a few moments of time, there was nothing whatever to be seen of the ill-fated ship but the outer end of her mizen-boom!

Again, as to similar calamities, though of minor extent, the passage of Melville Bay had become so famous as to obtain the quaint designation of 'the Devil's Nip!' One eye-witness of several of these disasters to shipping, Captain Manger, writing however from memory only, mentions the loss of nine ships in the year 1819, about eleven sail within a year or two afterwards, and again twelve or thirteen sail in an immediately succeeding season!

CHAPTER V.

ON AIDS TO THE FURTHERANCE OF RESEARCH.

THE *general scheme* for the ordering of an expedition by Baffin Bay—assumed to be composed of one or two principal, and two or three secondary, or scout, ships, or four altogether—has been pretty fully sketched in a previous chapter.

It now remains to suggest some *practical measures*, more in detail, for the furtherance of research beyond the points which might be reached by the several scout ships themselves; for we have assumed that, whilst the principal or largest ship should take up a secure and generally accessible position, such as that of Port Leopold, so as to be available as a general place of refuge for any shipwrecked, or otherwise endangered crews, the scout ships should be sent forward to and beyond Cape Walker, to Melville Island, and up Wellington Channel; but only so far, should the navigation permit, as the crews might be supposed to be able, if necessitated, to return over the ice to Port Leopold, or to the more remote station at, or near to, Melville Island.

From the several points which might thus be attained, travelling parties could then be sent out, with all the advantages, in ultimate researches, of their *advanced position*; and so as to afford the reasonable probability of researches being extended, should the sea so extend, for perhaps fully *one-half*

the distance (or 600 miles) from Port Leopold to Point Barrow, the north-western headland of the American continent.

Some apology perhaps may be due to those who have had practical experience in *ice-travelling*, for the offering of suggestions by one who, however familiar with icy regions, has had but trifling experience in this arduous service personally. But in addressing himself to the public mind, having no authority from, or responsibility with, departments of the service—he may safely venture on suggestions, appreciable by the intelligent, though (as to Arctic adventure) inexperienced, public;—well assuming that, if anything he has to suggest should be considered in higher quarters, those experienced and practised navigators will, of course, be consulted.

Under the general arrangement herein contemplated, the most important researches, as to their probable efficiency, would devolve on the *ice-travelling parties* to be sent out by the advanced vessels of the Expedition.

Ice-travelling, as we have seen, was successfully pursued by Sir James Ross in his recent voyage, to an extent, in one instance, of a forty days' journey, during which a space—inclusive of the examination of the various indents of the coast of North Somerset—of near 500 miles is said to have been passed over.

A progress *of this extent*—it can, I think, be satisfactorily shown—might, by more than one pro-

cess, be greatly exceeded, and that with but little, if any, additional risk; and not improbably under a smaller measure of personal labour and exhaustion than were endured by the party under Sir James Ross.

Even on the same *general* plan as that adopted by Sir James Ross, the adventure, I conceive, might be greatly furthered by the preliminary establishment of posts on the ice or proximate shores, as dépôts of provisions, and as places for resting on the line of direction proposed to be pursued.

In an ordinarily favourable summer, the scout ship designed for this service, would be able probably to penetrate through Barrow Strait considerably beyond Cape Walker. Having then pursued a western and south-western direction, so far as the ice might permit, until fairly arrested for the winter, such vessel would constitute a *starting point* for ice-travelling far beyond the reach, on plans hitherto adopted, of the ultimate exploration, by setting out from Port Leopold.

From the position thus attained, when the season for travelling might be deemed sufficiently proximate, let provisions, with extra clothing and tents, be sent forward in the line of search determined upon, for a four or five days' distance—say fifty to seventy miles. Instead of a mere mound of snow, as a mark, a pole could be erected as a guide subsequently to the place. Poles made of reeds or bamboo might be the lightest for carriage, which, being steadied by guys or shrouds, would easily sustain a flag, a ball, or, what would be still better, a cylin-

der of red or blue calico, stretched by cane hoops, which would pack in as small a compass almost as a flag, and be better seen in calm weather.

From this first post, a second preliminary party could be pushed forward to another corresponding distance, depositing there also both tents, provisions, and clothing, together with the lighter sledges and other apparatus of the principal travelling party.

From hence, assumed to be an advanced position of 100 to 150 miles, the travelling party might still be accompanied, if found advisable, by a fatigue party for some days beyond, so as to enable the men designed for distant service to commence more fresh than when left to their unaided efforts and resources.

Certain advantages, I conceive, would be derived from a measure of this kind, for the establishment of at least one preliminary post, over the plan of setting out with fatigue parties and the whole expedition at once. As to such advantages, may be noted,—the pioneering of the track for the avoidance of unnecessary detours; the establishment of a good post in anticipation of the best of the season for travelling; the practising of the men, with the view of *the best selection* for the distant service, etc.

To me it appears, that, on some plan of this kind, the party for the distant service, resting at the farthest post for a day or two, might set out from their advanced position comparatively quite fresh. Confident, too, of their having such advanced post to fall back upon—with fresh resources in provisions, tents, and clothing—the men would travel

with more elasticity of spirit, and, by consequence, would be able to accomplish, should circumstances otherwise prove favourable, a much greater distance.

In an arduous and exhausting undertaking of this nature, it would be very important, both from *religious* and *physical* considerations, that strict regard should be had to the *rest* of the Sabbath. In an undertaking where men go, as it were, with their lives in their hands, the due observance of the Lord's-day, *religiously* considered, would, in an especial manner, be found productive of a holy confidence in that gracious Being with whom are the issues of life; whilst *physically* considered, there could be no doubt of a beneficial influence being derived from the observance of an institution manifestly adapted to a general law in the constitution of man, and, indeed, more extensively of nature,—such observance being calculated at once to restore the exhaustion of the over-worked travellers, and, by the Divine blessing, to further the enterprise in which they were engaged.

If, as we have supposed, a travelling party, efficiently provided and arranged, should commence their journey from a position, which we conceive to be *ordinarily attainable*, far advanced in the direction of Melville Island—say 100 to 150 miles to the westward or south-westward of Cape Walker,—their ultimate research, if the character and course of the ice were favourable, might extend 300 to 400 miles further, which would be fully one-half of the interval betwixt Port Leopold and Point Barrow.

In assuming such an advanced position as being ordinarily attainable, when the recent experience of Sir James Ross might seem to indicate otherwise, it may here be sufficient to refer back to our second Chapter (pp. 23—25), merely adding, that even in the two summers occupied in the recent voyage, there is no proof against the supposition that the navigation of a more western longitude was possibly open, had the ships been in a position to avail themselves of it. Hence, we have assumed, that the vessel designed to take post at or near Melville Island, might, likewise, be able to accomplish this extent of navigation. If so, the opportunity would be afforded, by means similar to those already suggested, of pushing researches by ice-travelling parties down to Banks' Land, tracing the coast westward, and, perhaps, eastward, besides sending a small party, during the season for such researches, to explore the sea round the western part of Melville Island towards the north, or rounding, if practicable, the Parry Islands towards the east.

In all this contemplated progress by ice-travelling, which, under ordinarily favourable circumstances of season and ice, we deem to be reasonably practicable, we have relied solely on the unaided efforts of the *men* employed in the enterprise. But we are yet, I am well persuaded, but beginning to learn what may be done under other arrangements by this mode of progress. My own conviction of the applicability of it for research in ice-covered seas has long been such, as to have elicited the pro-

position of the possibility of reaching the Pole by means of sledge-boats drawn by reindeer or dogs, or even by manual force, which was published in the second volume of the "Memoirs of the Wernerian Society of Edinburgh," from a paper read to that Society in the year 1815. And although the attempt made under the orders of our Government some twelve years afterwards failed; yet the failure, being occasioned by circumstances which in the plan originally proposed would have been avoided, proved nothing against the practicability of the scheme, as, indeed, the gallant officer who commanded the expedition has, in a letter published in Sir John Barrow's abstract of recent voyages, himself admitted.*

But there are other modes of facilitating a progress in transglacial journeys of, perhaps, easier applicability than in the use of reindeer or even dogs. One of the simplest which has struck my mind,—from the circumstance of having once seen the surprising efficacy of the agency in drawing a light carriage—is by the use of *kites*. In the instance referred to, the kite was guided in the direc-

* As aided in the progress by reindeer or dogs, we find, as far as the records collected can enable one to judge, that the most rapid and considerable transglacial journeys, yet accomplished, have been made by the Russians. Instances of such journeys are given in "The Account of the Arctic Regions," vol. i. c. 1, s. 4; and also in the Edinburgh New Philosophical Journal, for 1828, vol. v. pp. 22—42 in "Remarks on the probability of reaching the North Pole . . . in order to the enquiry of how far the expedition under Capt. Parry affects the probability of the enterprise."—Another article in the same journal, vol. xx. (for 1835—6) pp. 93—100, "*On circumstances connected with the original suggestion of the Modern Arctic Expeditions,*" will be found to have very close relation to the introductory portion of the present publication.

tion of the road—being oblique to that of the wind—by lateral *guys*, by means of which a range of direction could be commanded of, I think, about ten or twelve points of the compass. The experiment was made on the Downs at Clifton, when, happening to be present, I was allowed to take my seat along with the originator of the scheme and another person, during a very rapid transit of the carriage thus drawn along, over a limited extent of road adopted for the trial; and although no general use of this mode of locomotion could advantageously be made, where the several contingencies of favourable wind, a breeze blowing freshly, but not violently, and a road without undue turnings, must be always requisite, yet it does seem that where the time and circumstances of the outseting of a sledge party could be selected, an important furtherance might be yielded to the progress over favourable ice at the commencement, as well as during any subsequent period in which the requisite circumstances, as to the wind and quality of the ice, should prevail.

Among the variety of schemes and contrivances which have been brought before the public, with the view of furthering Arctic discovery, and of promoting research after our missing adventurers, there is one possessing decided capabilities which it might not be well to pass over without notice,—I refer to the use of *balloons*.

Balloons have long been contemplated as calculated for advantageous employment, (as indeed actual experiment has justified), for the purpose of observation from an elevated position, in warfare;

whilst a like employment of balloons has been suggested in aid of the means hitherto employed for Arctic researches.

As a mode of attaining an elevated site for observation—whether for looking out for the anxiously-sought expedition under Sir John Franklin, or for the more remote inspection of the nature of the ices and lands in the direction contemplated for travelling parties, or parties otherwise engaged in researches, the balloon, it is obvious, might be very advantageously made use of. With a perfectly calm and clear atmosphere, a height of perhaps half a mile, or more, might be ascended with a small balloon, attached by a light rope, or lead line, to the ship; whilst a practised aeronaut, provided with sledge, provisions, and tent, might ascend, when the air was pretty stagnant, very much higher—trusting to the resources carried along with him, for his return, within a limited distance, to the ship.

In respect to the nature and extent of view commanded in aeronautic adventure, considerable mistake seems to prevail, which it may not be unuseful to notice. It had been assumed by a document which recently appeared in some of the public journals, that an elevation of two miles would command a panoramic view of at least 1200 miles—an extent of vision, however, unless singularly aided by a generally elevated region of country beyond the ordinary horizon, greatly overrated. The ordinary horizon—assuming a surface of ocean, or ice-covered sea, or a country on which the position ascended from should be an average one as to

elevation—would be visible (not allowing for refraction), about eighty-three or eighty-four miles from the elevation of one statute mile, or about 118 statute miles, equal to a panorama of about 740 miles, from the elevation of two miles.

Another prevalent mistake, too, is, that such a body as one of the discovery ships would necessarily be discernible, if within view, from such a commanding position. My own impression is, guided by some consideration of the angular measure ordinarily visible, that such a ship, even with all sails set, would not be discernible by the naked eye (that is, in ordinary states of the atmosphere as to refraction) above forty miles off, and a far less distance if lying beset with sails furled. The telescope, indeed, could reveal the otherwise invisible object to the very extent of the visible horizon, or somewhat beyond, but the difficulty would be to catch an object so small within so vast an area of vision. Nevertheless, great advantage might result, though not to the degree popularly assumed, from balloon observation, whilst such means of observation, I apprehend, are abundantly practicable.

As the filling of a balloon with hydrogen gas would not be a matter of great difficulty, where the length of time occupied by the process might not be of importance; and as a balloon so inflated would have a greater ascending power than one filled with the ordinary gas for burning,—it would be quite possible, I conceive, and, it may be added, sufficiently practicable, to set forth a balloon of such capabilities, from an advanced vessel in our

proposed expedition, as to carry a party of *three men*, with provisions, sledge, tent, and apparatus, for a journey of a month or more. Were such a medium of transit adopted, and a favourable occasion as to the direction and force of the wind happily obtained, the outward journey, or the principal part of it, might be accomplished without fatigue, so that the little party would start quite fresh in strength and resources on their return to the ship.

In regard to the employment of so small a party, it may be submitted that, it has yet to be determined, whether very small parties would not be almost as safe as large ones; whilst no doubt could exist as to their economy in means and resources, and the advantage they would afford of researches being made at the same time on several lines of direction.

There is another object connected with such researches as we have been considering, of a very important nature, in which balloons might certainly have very advantageous employment,—viz., as *messenger balloons*.* These need obviously to be only of very small magnitude, and not necessarily made of costly materials, probably *gutta percha*, of

* It was not until some weeks after this suggestion had been written down and prepared for publication, that the Author became aware, through the medium of a friend, of a similar idea being, in other form, before the public. But he feels it due to himself to say, that the great delay which took place in the publication of the letters originally, from whence *this Chapter* is mainly copied, placed him both in this and other respects in a disadvantageous position. Public attention, however, having been greatly drawn to the question—of how the missing expedition might be the most effectually sought out? a correspondence in suggestions for that object, by different individuals, was very naturally elicited.

a thickness not exceeding that of tissue paper, might suffice. These balloons,—having only to carry a despatch, enclosed in a waterproof cover, to which might be appended, if there were ascending power sufficient, a wide square of thin coloured calico, stretched on a light reed, to render the aerial messenger more conspicuous,—could be sent off from an exploring expedition whenever the wind might blow fresh in a direction favourable for reaching the regions of human habitation, and thus might be pretty liberally scattered over the continent of North America, or the regions about Greenland.

It would be quite practicable, too, to make them, in some degree, messengers of *distance*, as well as of direction, whenever the general body of the lower atmosphere, might be moving swiftly in the same line. By means of a pilot balloon of paper, elevated by burning spirit, a tolerable idea might be obtained, both of the uniformity of the current of air at a considerable altitude, and of the velocity of the wind in the track pursued—the latter important object being attainable by sending two or three observers to some distance from the ship in the direction of the wind, to determine the moment of the passage of the zenith, with them, by the balloon.

But the adjustment of the balloon to a *particular altitude*, so as to restrain it from a flight into a too elevated region, would be a matter of no great practical difficulty. It would only require the use of an unelastic material for the balloon, capable of bearing a moderate outward pressure,—for both of which purposes gutta percha, would, I think, be

well adapted. For a balloon completely filled up with gas, and so secured against its escape that its density could not materially change, could only continue to ascend, it is obvious, until the weight of the air displaced by its mass, should cease to be *greater* than the weight of the balloon, with its attachments and gaseous contents. Hence, if the free-ascending power were but small, its upward course would be soon arrested by the gradually diminishing density of the atmosphere, and then, on reaching the point of equilibrium, the balloon must pursue only a horizontal flight. Knowing, therefore, as we very well do, the ratio of diminution of density in the atmosphere by ascending; and being aware, to begin with, of the solid displacement of air by the mass of the balloon when filled, we could so adjust the *free ascending power*, by weighting the buoyant vessel, as to cause it to travel at any determinate altitude we might desire.

Thus provided with the *elements of probable direction and progress*—elements, indeed, which might vary, somewhat, in the different regions that might be traversed, but not materially so, perhaps, within a few hundreds of miles,—the fall of the balloon might be effected at any required distance, reckoned in time, by the connecting of a small time-piece (such as that of the common alarm) with a sufficiently-weighted valve at the top, which would secure the release of the valve and the escape of the gas at any particular interval.*

* The use of *slow-match*, the combustion of which may be tolerably well estimated, has, elsewhere, been suggested for the

Had our anxiously-sought adventurers been provided with apparatus of this kind, it is hardly probable but that some message directly from them would have reached us year by year, and so, not only might any unnecessary anxiety have been prevented, but the direction in which relief might have been afforded clearly and certainly pointed out.

The foregoing considerations, as to measures for searching after our missing countrymen in an eastern direction by Baffin Bay, will of course apply—so far as they relate to ice-travelling and the employment of balloons, or other aids for observation and research—to the furtherance of the like objects from any other quarters. But whilst they may apply generally, they might be carried out perhaps, in the present case, with the greatest effectiveness by an expedition by Baffin Bay, where the time for preparation, if *promptly* set about, is yet sufficient.

Such are the considerations respecting Arctic research, and practical measures for the discovery and relief of our absent adventurers with the Franklin Expedition,—which, amid the numerous plans already set forth by others, I venture now, with much diffidence, to submit to the public.

attainment of this object, which has the recommendation at least of being unexpensive. But watch-work machinery, sufficient for the purpose, could be had at a cost, I believe, of a few shillings for each apparatus.

And it may not, I hope, be presumptuous to say, that, were the various researches, contemplated by the foregoing plan, fairly carried out, some satisfactory or conclusive results might be reasonably and confidently expected. For it is hardly within ordinary probability to suppose that the track, with its deviations, originally prescribed to the missing expedition, could be so extensively pursued and variously intersected, without traces of its progress being met with, or the adventurers themselves discovered and relieved.

The time for hope, though fast passing away, is, we confidently believe, not yet extinct. For besides the grounds of remaining hope already suggested, there is yet one other to which the piously considerate mind will hardly fail to dwell upon with consoling impression to the last. Ordinarily, indeed, we have been encouraged by a happy experience hitherto, to look confidently to the goodness and mercy of the God of Providence, who, in the case of all our other adventurers, has so graciously preserved and returned them in safety. In the instance which now so calls forth our earnest sympathies, there are special reasons for looking, with much hope, to this grand source of power, for the preservation of the imperilled navigators. We all—if our profession of religion be a reality—admit, in the very fact of our public and private devotions, a blessing derivable from Him who heareth and answereth prayer. Now it is cause of much satisfaction to know, that there are those amongst our absent countrymen who are not only God-fearing

men, but eminently men of prayer, among whom the Commander of the Expedition himself is, I well believe, a conspicuous example. And in addition to what we might hope from the personal supplication of the parties involved in perils, we have the additional ground of trust in ‘the effectual fervent prayers of many righteous’ in these realms, which, we are scripturally told, ‘availeth much.’ And if such prayers have been drawn out of the Christian sympathies of many, more especially were they drawn out on one occasion, within the preceding year, when, urged by the wish of the most devoted, persevering, and talented wife of the Commander of the Expedition,—public prayers were offered in sixty or seventy churches on the same day, and at the corresponding service, when, perhaps, some 50,000 worshippers sent forth their combined supplications, before a Throne of Grace, “for the preservation and safe return of the officers and seamen, engaged in the Arctic explorations.” For my own part, I cannot but allude to this happy and pious incident, not only with great consolation, but as a ground of Christian hope for a blessing on the researches yet to be made, and for an answer of mercy; so that yet we might have the privilege of rejoicing over these our imperilled countrymen in their merciful preservation, and happy, happy return. May our gracious Father in Heaven, yield us this blessed result!

APPENDIX.

I.—ON THE RESEARCHES BY THE HERALD AND PLOVER,
BY BEHRING STRAIT, IN THE SUMMER OF 1849.

To complete the historical sketch of measures hitherto undertaken in search of the Franklin Expedition,—the abstract of the proceedings by Behring Strait during the summer of 1849, has been reserved for this position, for the benefit of the Admiralty Despatches, just arrived. From hence we learn, that the Herald, 22, Captain Kellett, C.B., sailed from Oahu, on the 19th of May, and arrived at Petropaulski, on the 24th of June. Proceeding northward, she passed Behring Strait, on the 14th of July, and anchored at Chamisso Island, on the 15th, where the Plover was found at anchor.

The Plover, as was expected, had been so delayed in her progress the year before, that she was unable to reach the position appointed for search. She had wintered at Noovell, on the coast of Kamtchatka,—had cut out of her winter harbour on the 30th of June, and had just succeeded in reaching the appointed rendezvous the day before the arrival of the Herald.

The ships, joined by the Nancy Dawson, yacht, sailed from Chamisso, on their voyage of research, on the 18th of July. On the 20th, they were off Cape Lisburne, and, passing Icy Cape, the boat expedition, under Lieut. Pullen,—consisting of the Herald's Pinnace, decked over, and three other boats,—was despatched on the 25th. These

boats, accompanied by the adventurous yacht, went round, and for some little distance beyond, Point Barrow, together, when, agreeable to instructions, two whale-boats, being fully provisioned and equipped for separate service, proceeded on the search towards Mackenzie River,—it being purposed, should that position be happily attained, of which there was every prospect, that the men should ascend the river to Fort Hope, and return by York Factory, in Hudson Bay, in the summer of 1850.

The Herald, meanwhile, advanced northward, along the edge of the pack, until finally stopped by ice, July 28th, in latitude $72^{\circ} 51'$ N. and longitude $163^{\circ} 48'$ W. From that period until near the end of September, this ship was engaged in active explorations of the region intermediate betwixt the impenetrable Arctic ices, and the American coast, discovering and landing on an island in $71^{\circ} 20'$ N., longitude, $175^{\circ} 16'$ W. besides discovering other lands inaccessible by reason of ice. But no traces of, or information concerning, the Franklin Expedition, were anywhere met with.

On returning to Cape Lisburne, the appointed rendezvous, the two larger boats which had set out with Lieut. Pullen's expedition, were met with, along with the yacht. Having equipped the Plover, which was to winter in Kotzebue Sound, and made some final researches, the Herald left the Sound for the southward on the 29th of September, and passing Behring Strait, on the 2nd of October, reached Mazatlan, from whence her despatches are dated, on the 14th of November last.

II. TIMES OF PASSING THE MIDDLE ICE BY THE LEADING SHIP OR SHIPS.

Year.	SHIP.	CAPTAIN.	PORT.	PASSAGE OF MIDDLE ICE.		
				Route	Latitude	Date.
1616	Discovery . . .	W. Baffin .	. . . . .	N.	75°40'	July 1.
1817	Larkins . . .	. . . . .	Leith . . .	N.	76	Aug.
1818	Isabella . . .	Ross . . .	London . .	N.	76 12	Aug. 18.
1819	Hecla . . .	Parry . . .	London . .	M.	73	July 28.
1820						
1821	Albion . . .	. . . . .	Hull . . .	N.	76	July 12.*
1822						
1823	Albion, Isabella, etc. . . .	. . . . .	. . . . .	N.	76	End June
1824	Hecla . . .	Parry . . .	London . .	M.	74 7	Sept. 9.
1825	Most of the Fleet of Whalers	. . . . .	. . . . .	N.	76	July 20.*
1826						
1827	Several Ships. . . . .	. . . . .	. . . . .	N.	76	July 1.*
1828	All the Fleet of Whalers . .	. . . . .	. . . . .	N.	76	July 1.*
1829	Eclipse, etc. . .	Penny, sen.	Peterhead .	N.	75 50	July 12.
1830	. . . . .	Lee . . .	Hull . . .	N.	76	July 21.
1831	Eclipse . . .	Penny, sen.	Peterhead .	N.	75 40	July 17.
1832	All or most of the Fleet, (the earliest)	. . . . .	. . . . .	N.	76	June 26.*
1833	All or most of the Fleet, (the earliest)	. . . . .	. . . . .	N.	76	June 21.
1834	All the Fleet, (the earliest)	. . . . .	. . . . .	N.	76	June 28.
1835	W. Torr . . .	. . . . .	Hull . . .	S.	69 20	Aug. 15.
1836	Neptune . . .	Penny . . .	Aberdeen .	N.	75 30	July 28.
1837	Hecla . . .	Stewart . .	Kirkcaldy .	N.	76 30	July 20.
1838	Neptune . . .	Penny . . .	Aberdeen .	N.	76	June 13.
1839	Ellison . . .	. . . . .	. . . . .	S.	69 54	July 21.
1840	Hannible . . .	Stewart . .	Peterhead .	N.	75 30	July 25.
1841						
1842						
1843	Horn . . .	Sturrock .	Dundee . .	N.	76 30	July 25.
1844	Bon-accord . .	Lee . . .	Hull . . .	S.	66 32	June 16.
1845	Abram, etc. . .	. . . . .	Hull . . .	N.	76	June 22.
1846	Prince Wales	T. Lee . . .	Hull . . .	S.	67	July 16.
1847	Prince Wales	T. Tee . . .	Hull . . .	N.	76	July 18.
1848	Prince Wales	Lee . . .	Hull . . .	N.	75	Aug. 6.
1849	St. Andrew . .	Dring . . .	Aberdeen .	N.	75 30	June 12.

Note.—Route, N., North Passage by Melville Bay; M., Middle Passage; S. Southern Passage.

* *About* or *near* the day specified. So latitudes, in *degrees* only, are to be understood as near such latitude.



CHART OF THE NORTH POLAR SEA





ARCTIC-AMERICA
SHEET II
Containing
BARROW STRAIT, PRINCE REGENT INLET,
BOOTHIA GULF &c.
with
PLANS OF PORTS.

THE facts and dates of the annexed Table, together with the results given in Chapter IV. of this publication, were derived, as to the greater part of them, from personal communications or correspondence with the Captains and Owners of whalers. Among those with whom I had very satisfactory conferences, or replies to letters, I may mention Thomas Ward, Esq., merchant and whale-ship owner, with other shipowners, particularly Mr. Abby, of Hull; Captains Parker, Lee, Lee, jun., Jackson, Munroe, Humphrey, Manger, Graville, and Coultray, of the same port, and Captain Penny, of Aberdeen. Besides these sources of information in respect to the passage and nature of the middle-ice, the published voyages of our Arctic Discovery Ships, have of course been consulted. In regard to the dates at which the leading ship, or ships of the year, succeeded in passing the barrier, it may have happened that the ship noted, as the *leading ship*, may have had associates, equally in advance, along with her, if not before her, in some instances, as to actual precedence in entering the western water. But still, as a whole, the information herein given, may, I have no doubt, be well relied on, and be received, as to the purpose for which it is designed, with unreserved confidence.

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