

THURSDAY, JULY 17, 1873

THE PAY OF SCIENTIFIC MEN

THERE are a good many points of interest attaching to the Parliamentary paper referring to the pay of the officers of the British Museum, which, thanks to Lord George Hamilton, has been issued during this week.

It shows in a striking manner what the Government thinks of Science and its votaries; nor is this all: it shows in a not less striking manner how it behoves men of Science, if they consider that there should be a career for Science at all, to at once take some action, in order that their real claims may be conceded. Mr. Lowe, in defending not long ago the high rate of pay of Treasury clerks, who "begin" at 250*l.* a year and rise quickly to 1,200*l.* (if they are unfortunate enough not to get a staff appointment with much higher pay, long before they would, in the ordinary course of promotion, reach the senior class), stated that what was principally wanted at the Treasury, over and above the ordinary qualities of a clerk, was a certain "freemasonry," which was best got at the public schools. For this "freemasonry" Mr. Lowe is willing to pay 150*l.* a year over and above the 100*l.* which is the usual commencing pay of a junior clerk in the other Crown offices.

Perhaps it is too much to say that this "Freemasonry" is required in the British Museum. But there is certainly something required in the case of the scientific appointments there, of as special a character; and that is a knowledge of Science.

What then does Mr. Lowe do to secure this specialty? He gives the man of Science who enters the Museum the magnificent sum of 90*l.* per annum on entrance, with the still more magnificent—but, unfortunately, very distant—prospect of attaining an income of 600*l.* So that:—

Public School Freemasonry : Scientific Attainments : : 250*l.* : 90*l.*

This state of things has recently been brought home to the Trustees by petitions from all grades in the Museum, and a sub-committee of the Trustees has reported that, "owing to the insufficiency of the salaries, the slowness of their progressive rise, and the lowness of their maximum, the trustees are losing, and will continue to lose, their best men."

As a result of this report, in which we consider that higher ground might have been taken, the Trustees have proposed a new scale to the Treasury, the only fault of which is that—with the exception of the case of principal Librarian, who is not a specialist, who has no special work to do which could not be done by the keepers acting in turn as Dean, and who already has just double the salary of the most highly-paid keeper—it is far too modest. As the *Daily News* has well put it, a maximum of 500*l.* is "certainly not a too lavish position for a man who must be a scholar and linguist, an archæologist, naturalist, or chemist, and must in most cases be already in middle life."

The men upon whose heads, hands, reputation, and work the success and fame of the Museum depend, are

No. 194—VOL. VIII.

the keepers, whose pay, even as revised, is a mere pittance for such service as they render.

Altogether, the eventual *total* increased annual expenditure would amount to 5,700*l.* a year—the pay of *one* political or legal placeman, who has properly employed his "Freemasonry."

Here is the Treasury reply:—

"Treasury Chambers, March 28, 1873

"My Lords and Gentlemen,—The Lords Commissioners of Her Majesty's Treasury have had before them two letters from Mr. Winter Jones, dated the 4th instant, submitting recommendations for the grant of increase of salary to the principal Librarian and Secretary, and to various other officers of your establishment, and they desire me to say that, after giving their most careful consideration to all the statements put before them, they regret that they would not feel warranted in acceding to any alteration in the present scale of salaries.

"I have, &c.

(Signed) "WILLIAM LAW"

We trust that some determined stand will be made by the Trustees—among whom is the Right Hon. Robert Lowe—against this monstrous letter; and we trust also that some general protest will be made by men of Science and Culture generally against this latest valuation of these acquirements by the Government.

The man of Science serves his country as well as the politician, the lawyer, the soldier, or the sailor, although perhaps his claims are not stated in so blatant a manner, nor are at present so generally acknowledged, whether they will be in the future must to a large extent depend upon men of Science themselves: but whether this be conceded or not, surely in a country where the State remuneration for services performed is extraordinarily high in the upper appointments, our scientific chiefs in the public service should at all events receive the means of a decent livelihood, and such men as are employed in the British Museum, many of whom have world-wide reputations, should at least be treated as well as Government clerks.

Surely this is not to ask too much? Nay, it is already conceded by the Government in many departments where special scientific knowledge is required of no higher order than that which is so shabbily treated in the one Institution of which we have the greatest reason to be proud.

THE "POLARIS" ARCTIC EXPEDITION

WE have just received the printed Report, presented to the President of the United States by the naval authorities, of the result of their examination of those of the crew of the *Polaris*, who, in October last, were severed from that ship, and drifted on an ice-floe from about 80° north latitude during the whole of the winter until, 600 miles south from their starting-point, they were picked up on April 30, of this year, by the *Tigress* off the coast of Labrador. The Report furnishes material for one more of those thrilling narratives of Arctic adventure, which will be the delight of the boyhood of all generations, and which, commencing in the 10th century with that of Bjorne the Norseman, have been accumulating in increasing proportion, and will never fail to be added to until not a shred of mystery remains to unravel within the Arctic circle. The advocates of Arctic exploration by way of Smith's Sound, needed

N

only the narrative furnished in this Report, to render their arguments invincible.

The *Polaris*, an ordinary wooden vessel, left New London, Connecticut, on July 3, 1871, well furnished with provisions, but otherwise ill fitted for an Arctic expedition, under the command of Captain Hall, an enthusiastic explorer, who firmly believed he was "born to discover the pole," but apparently deficient in the firmness and decision necessary to manage a crew amid the trials of an Arctic winter; the officers and crew, moreover, seem to have been collected at haphazard, and were by no means well assorted. The second in command, Captain Buddington, who has now the command of the *Polaris*, ought never to have been taken on such an expedition, and, even though the most lenient construction be put upon his conduct, is deserving of the severest reprehension. After a delay of a week at St. John's, Newfoundland, the *Polaris* sailed for the West Coast of Greenland, and after calling at several places on that coast, arrived at Disco, which she left on August 17. After calling at the settlements of Upernavik and Tessiusak, the latter in $73^{\circ} 24'$ north lat., the *Polaris* commenced her exploring work in earnest, leaving Tessiusak on the 24th August. Hitherto there had been no difficulty whatever in navigation, nor was the vessel destined to meet with any obstruction until passing through Smith's Sound and Kennedy Channel, she reached $82^{\circ} 16'$ N. lat., a point far beyond the limits of previous navigation. This she did on August 30, within a week after leaving Tessiusak. After making unsuccessful efforts to find a way through the ice, Captain Hall resolved to return and take up winter quarters, which he did on September 3, in a small sheltered cove or bend of the coast in what he called Polaris Bay, the "Open Polar Sea" of Kane, where the ship was protected by a stranded iceberg—Providence Berg. This was in $81^{\circ} 38'$ N. lat., $61^{\circ} 44'$ W. long. Had the vessel been specially built for Arctic exploration, it appears to us that Captain Hall by good management could have pushed even farther north before requiring to return to winter-quarters: as it is this is one of the most wonderful and successful Arctic cruises on record, considering the distance accomplished in less than a week so far within the ice-bound region. It affords the strongest ground for hope that with a vessel specially fitted for ice-navigation, a skilful captain may ere long complete the 8° that remain to be traversed before the North Pole be brought within the sphere of the known.

From Polaris Bay on October 10 Captain Hall left the *Polaris*, accompanied by Mr. Chester, first mate, and Hans the Esquimaux with two sledges and fourteen dogs. In the progress of the journey he discovered, as appears by his despatch, a river, a lake, and a large inlet. The latter, in latitude $81^{\circ} 57'$ north, he named "Newman's Bay," calling its northern point "Cape Brévoort," and the southern one "Sumner Headland."

Captain Hall, it appears, had hoped, when he left the *Polaris* on this journey, to advance northward at least a hundred miles; but after having gone about fifty he was compelled, by the condition of the shore and of the ice, and by the state of the climate, to return and await the approach of spring for another attempt. He reached the ship on October 24, apparently in his usual fine health, but was attacked the same day with sickness, and, taking

to his bed, the next day was found to be seriously ill. After rallying once or twice he died on November 8, and was buried on the shore. The commissioners who examined the crew reach the unanimous conclusion that the death of Captain Hall resulted naturally from disease, without fault on the part of anyone. After this sad event, the command of the expedition devolved upon Captain Buddington, who expressly declared, according to the evidence, that he had no inclination and no intention to pursue discovery further; he determined to make his way south to the United States as soon as the ice would permit. During the winter little was done, and on August 12, 1872, the *Polaris* began to move southwards. On the 16th of August the ship was made fast to a large floe of ice in the latitude of $80^{\circ} 2'$ north, and longitude about 68° west, and while still fast to this floe drifted south through Smith's Sound nearly to Northumberland Island. On the night of the 15th of October, 1872, in about latitude $79^{\circ} 35'$ north, during a violent gale of wind and snow, the ship was suddenly beset by a tremendous pressure of ice, which was driven against her from the southward and forced under her, pressing her up out of the water, and by successive and violent shocks finally throwing her over on her beam-ends. In the words of the Report,—

Captain Buddington directed the provisions, stores, and materials which had been put in readiness on deck, to be thrown over on the ice, and ordered half the crew upon the ice to carry them upon a thicker part to the hummocks, where they would be comparatively safe. He also sent all the Esquimaux, with their kyaks, out of the ship, and lowered the two remaining boats upon the floe. While so engaged, in the darkness of an Arctic night, in the midst of a fierce gale and driving snow-storm, the hawsers of the *Polaris* failed to hold her, and she broke adrift from the floe, and in a few minutes was out of sight of the party who were at that moment busily at work on the ice.

From October 15, 1872, until April 20, 1873, when they were picked up in latitude about 59° north, these nineteen men, women, and children remained through the whole of the dark and dreary winter upon the ice. In their first endeavours to reach the land, they occupied for a time different pieces of floating ice, but, forced finally to abandon all hope in this direction, they rested at last upon the floe upon which the *Polaris* had made fast.

At the time of their separation from the *Polaris* every one belonging to the expedition was in good health. She had plenty of provisions, but not much coal—probably about enough to last through the winter. She was last seen, apparently at anchor, under Northumberland Island, where it is most likely she remained for winter-quarters.

Mr. Robeson has already given preparatory orders to the United States steamer *Funiata*, now at New York, to proceed, at the earliest practicable moment, to Disco, and if possible to Upernavik, for the purpose of carrying forward the necessary coal and supplies, communicating with the authorities of Greenland, obtaining information, and, if practicable, sending forward some word of encouragement to those on board the *Polaris*. This last will most likely be impossible, but an attempt will be made.

It is also proposed to fit out at once an expedition of relief, to be sent to Northumberland Island, where the *Polaris* was last seen, in the *Tigris*, about 200 tons

burden, built and fitted to contend with the ice, and the same ship by which the nineteen persons were rescued.

The following, in the words of the Report are a brief summary of some of the scientific results of the ill-managed expedition :—

While the records of the astronomical, meteorological, magnetic, tidal, and other physical departments of the exploration appear to have been extremely full, and the observations in each appear to have been conducted according to approved methods, the collections of natural history are shown to have been not less extensive, the store-rooms of the *Polaris* being filled with skins and skeletons of musk-oxen, bears, and other mammals; different species of birds and their eggs: numerous marine invertebrata; plants, both recent and fossil, minerals, &c. Not the least interesting of these collections are specimens of driftwood picked up on or near the shores of Newman's and Polaris Bays, among which Mr. Meyer thought he recognised distinctly the walnut, the ash, and the pine. Among the numerous facts that appear to be shown by the testimony elicited on the examination, we may mention as one of much interest that the dip of the needle amounted to 45°, and its deviation to 96°, being less than at Port Foulke and Rensselaer Harbour, as given by Dr. Kane and Dr. Hays. Auroras were frequent, but by no means brilliant, generally quite light, and consisting sometimes of one arch and sometimes of several. Streamers were quite rare. Shooting-stars were so constantly seen that, although no special shower was observed, it was scarcely possible ever to look at the star-lit sky without noticing them in one direction or another. The rise and fall of the tides were carefully observed, the average being about five and a half feet. The greatest depth of water noticed was about 100 fathoms. The existence of a constant current southward was noted by the expedition, its rapidity varying with the season and locality. The winter temperature was found to be much milder than was expected, the minimum being 58° in January, although March proved to be the coldest month.

The prevailing winds were from the north-east, although there were occasionally violent tempests from the south-west. Light winds were noticed, however, from all points of the compass. Rain was occasionally observed, only on the land, however, the precipitation presenting itself over the ice in the form of snow. During the summer the entire extent of both low lands and elevations are bare of both snow and ice, excepting patches here and there in the shape of the rocks. The soil, during this period, was covered with a more or less dense vegetation of moss, with which several arctic plants were interspersed, some of them of considerable beauty, but entirely without scent, and many small willows scarcely reaching the dignity of shrubs. The rocks noticed were of a schistose or slaty nature, and in some instances contained fossil plants, specimens of which were collected. Distinct evidence of former glaciers were seen in localities now bare of ice, these indications consisting in the occurrence of terminal and lateral moraines.

Animal life was found to abound, musk-oxen being shot at intervals throughout the winter.

Wolves, also bears, foxes, lemmings, and other mammals, were repeatedly observed. Geese, ducks, and other water-fowls, including plover and other wading-birds, abounded during the summer, although the species of land-birds were comparatively few, including, however, as might have been expected, large numbers of ptarmigan or snow-partridge. No fish were seen, although the net and line were frequently called into play in the attempt to obtain them. The waters, however, were found filled to an extraordinary degree with marine invertebrata, including jelly-fish and shrimps. Seals are very abundant. Numerous insects were observed, also, especially several

species of butterflies, specimens of which were collected; also, flies and bees and insects of like character.

The geographical results of the expedition, of which the accompanying map will give a good idea, so far as they can now be ascertained from the testimony of Messrs.

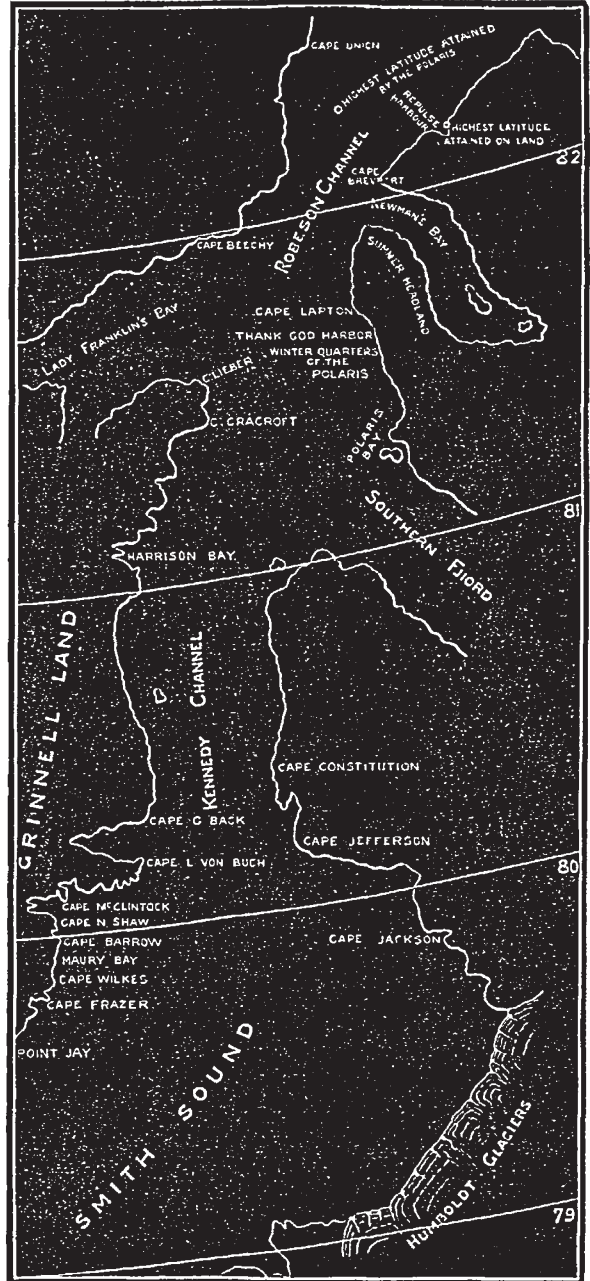


Diagram of the Explorations of the *Polaris*. (Drawn by F. Meyer, Signal Service, U.S.A.)

Tyson, Meyer, and their comrades, may be summed up briefly as follows :—

The open polar sea laid down by Kane and Hayes is found to be in reality a sound of considerable extent

formed by the somewhat abrupt expansion of Kennedy's Channel to the northward, and broken by Lady Franklin's Bay on the west, and on the east by a large inlet or fiord, twenty-two miles wide at the opening, and certainly extending far inland to the south-east. Its length was not ascertained, and Mr. Meyer thinks that it may be, in fact, a strait extending till it communicates with the Francis Joseph Sound of the Germania and Hansa expedition, and with it defining the northern limits of Greenland. This inlet was called the Southern Fiord. North of it, on the same side, is the indentation of the shore called Polaris Bay by Captain Hall.

From Cape Lupton the land trends to the north-east, and forms the eastern shore of a new channel from twenty-five to thirty miles wide, opening out of the sound above mentioned, to which Captain Hall gave the name of Robeson Straits. North-east of Cape Lupton, in lat. $81^{\circ} 57'$, is a deep inlet, which Captain Hall called Newman's Bay, naming its northern point Cape Brevoort, and its southern bluff Sumner Headland. From Cape Brevoort the north-east trend of the land continues to Repulse Harbour, in lat. $82^{\circ} 9'$ north—the highest northern position reached by land during this expedition.

From an elevation of 1,700 ft. at Repulse Harbour, on the east coast of Robeson Straits, the land continues north-east to the end of those straits, and thence east and south-east till lost in the distance, its vanishing point bearing south of east from the place of observation.

No other land was visible to the north-east, but land was seen on the west coast, extending northward as far as the eye could reach, and apparently terminating in a headland and near latitude 84° north.

Mr. Meyer also states that directly to the north he observed, on a bright day, from the elevation mentioned, a line of light apparently circular in form, which was thought by other observers to be land, but which he supposed to indicate open water.

Of course the full scientific results of the *Polaris* expedition cannot be known until that vessel shall have been found and brought back with the treasures she has gathered, and the records and details of her Arctic explorations. But enough is told by the witnesses whom we have examined to excite expectation and encourage the hope of large and valuable additions to the domain of human knowledge.

Enough has been said to show that the way to the North Pole is clear and practicable: it remains for Britain to consummate the glory she has already acquired by sending out an expedition so equipped that it cannot fail to return with the solution of the Arctic mystery, whose bourne is being pushed further and further back every year. We would recommend the Report to the Joint Committee of the Royal and Geographical Societies now considering the subject of an Arctic Expedition.

SCIENCE AND ANGLING

Flies and Fly Fishing, with Hints on Minnow and Grasshopper Fishing. By Capt. St. John Dick. (Hardwicke.)

IT is doubtful whether much real progress has been made in the art of angling since the time of Walton, whose "Complete Angler" was published in 1653. A great improvement has taken place in fishing-tackle and implements, and we have much better rods, reels, lines, and lures now, than could have been got in old Isaac's time. Of late years the number of rod-fishers has enormously increased, and there is quite a plethora

of popular treatises on the art of fishing. But in all the books we have seen, including the one whose title is at the head of this notice, there is a striking absence of any guiding principles to go by; and notwithstanding the marked improvement in the mechanical appliances referred to, and the increased number and activity of anglers, we repeat that it may be fairly doubted whether the latter are more successful fishers than their representatives 200 years ago. The cause of this is probably owing to the fact that hitherto attention has been almost exclusively directed to the mere practice of the art, and that angling as a science has been all but completely ignored. We have *ad nauseam*, empiric and dogmatic rules for the guidance of the tyro, but few of these are based on sufficient data, and most of them are quite untrustworthy. There is no statement for example, more frequently made in books on angling than that if the wind be from the east trout will not rise to the fly; and yet there are lakes (notably Loch Leven, Kinross-shire, probably the best trouting lake in Great Britain), in which the fish take best when the wind blows from that quarter. Another generally accepted canon is that fish will not rise freely during a thunderstorm, or when "there is thunder in the air;" but in our own not very large experience, we have again and again proved the falsity of this rule. It would be easy to multiply examples of the worthlessness of such empiric directions. What is wanted is a scientific treatise on angling. A principle in Science, some one has said, is a rule in art; and it is such rules that are desiderated. The object of this paper is rather to indicate this want than to supply it; and we have little hopes of much progress being made in the "gentle art" until it is carefully studied and treated scientifically. Until this is done there are many difficult problems connected with angling which must, we fear, remain unsolved. One day, for example, fish will take greedily any fly that is offered them, for an hour or two; and before or after this, their feeding time, the most skilful angler will practise all his wiles in vain. Another day, only flies of a particular colour or shape have any chance of taking. Again, it does happen occasionally that a veteran Waltonian will return from his favourite stream or lake, under the most auspicious influences of sky, wind, and water, with a very light basket, or it may be, an empty one. It is also a fact that the most successful day's fishing is sometimes achieved by going dead against all recognised rules and imitations of Nature. These are only a few of the things that require to be explained, and in the explanation of which a careful study of the nature and habits of fishes—how they are affected by atmospheric influences, &c.—would probably greatly assist. Of course, there are scientific anglers who have picked up their science under difficulties, and as they best could; and their number might be indefinitely increased if greater facilities were afforded for acquiring scientific knowledge. Such anglers will be sure to have the indispensable qualities of patience and perseverance; but they must also be careful observers of Nature, of the conditions of the water, of the appearance of the sky, and of meteorological phenomena in general; and in addition to all these they will be found to possess an intimate acquaintance with some special branch of Natural History.