

The Northwest Passage.

Since the period when, over three centuries and a half ago, Christopher Columbus wandered from country to country, endeavoring to convert the courts of Europe to the belief that a western passage was possible from the old world to the Indies, the minds of navigators have never ceased to be agitated by the same question under different forms. And after Cape Horn had been doubled, the ice-bound problems of the magnetic pole and a northwestern communication by water with Asia remained unsolved, and continued so until the expeditions connected with the search for Sir John Franklin enabled geographers to lay down positively on their charts what had previously been mere matter of theory and conjecture.

We have received a pamphlet, printed by order of the House of Commons, which contains the report of the select committee appointed to inquire into the circumstances of the expedition to the Arctic Seas commanded by Capt. McClure, of the British navy, with a view to ascertain the nature of the services rendered to science by himself and his crew; and it appears beyond a doubt that he and those under his command were the first human beings of whom a record is to be found in history who penetrated from ocean to ocean in the Arctic zone, and, as Lieut. Maury has remarked, "put a girdle round the great continent of America."

The Investigator, commanded by Capt. McClure, passed northwards from Behring's Straits in the month of July, 1850, with the object of searching for Sir John Franklin from the western side of the American continent, as other vessels had already looked for him from the eastern.

Within a few days of one month from the time when she passed Cape Lisburne, the Investigator had reached Cape Bathurst, having in the interval threaded her course amidst sand banks and heavy masses of ice, a great portion of the time enveloped in thick fog, where the lead was the only guide. In September she made Baring or Bank's Island, and then went up a strait, to which Capt. McClure gave the name of the Prince of Wales, which he explored for the first time, although the same service was soon after still more effectually performed, and to a greater distance by Capt. Collinson.

On the 26th of October, Capt. McClure made a sledge expedition to Point Russell, on the same longitude and sixty miles south of the place reached by Sir E. Parry from the east in 1820, from which, at an elevation of six hundred feet, he was enabled to see, stretching out in the distance, the vast frozen waters of Parry or Melville Sound, confirming to his mind that, in that direction, "a north-west passage from the Pacific to the Atlantic Ocean certainly existed," and that he was near to where Parry had formerly come before him, from another direction. He was not destined, however, to penetrate to the east at that time. Nearly two years of suffering and inactivity were to elapse before he should accomplish the task, and then not by his own will, but in consequence of the charitable exertions of Capt. Kellett, who sent relief to him from the east and enabled him to pass through to Beechy Island.

The Investigator was frozen in at the upper end of Prince of Wales' Strait, where she remained until July 14th, of the following year, 1851. Capt. McClure then returned southward, and resolved to persevere the hardy and unprecedented course of sailing round Baring Island into Parry Sound. It is this part of his expedition which most redounds to his honor. Rounding Nelson's Head, he battled his way towards the north around the western coast of Baring Island, making, for the first time, what he calls in his despatch "the terrible passage of that terrible Polar sea," until, after many providential escapes, he succeeded in bringing his ship into a bay, never visited before, on the northern coast, which, in thankfulness for his preservation, he appropriately called the Bay of Mercy. Here he was destined to remain for nineteen months, and might have perished but for a fortunate inspiration in April, 1852, which induced him to cross over to Winter Harbor, on Melville Island, in a sledge, and there to deposit a cylinder containing a summary of his proceedings. This cylinder was found by Capt. Kellett the next October, and to it Capt. McClure probably owed his preservation.

On the 6th of April, 1855, one year after his expedition to Melville Island, he received a communication, brought by Lieut. Pim, who had been dispatched by Capt. Kellett, which induced him to start on the very next day for Dealy Island, a small island off Melville Island, which he reached on the 19th. On the 3d of June following he determined to leave the "Investigator," in the Bay of Mercy; on the 18th of August he quitted Dealy Island, with his crew, in Capt. Kellett's ship Resolute; remained near Cape Cockburn, where they were frozen in, until the 10th of April, 1854; proceeded thence by sledge one hundred and eighty miles, to join the North Star, at Beechy Island; sailed down Barrow Straits, and was transferred to the Phoenix early in September, and arrived at Cork on the 30th of the same month, having been four years and eight months in acquiring the high honor of having effected, for the first time, the passage between the great Atlantic and Pacific Oceans. The testimony of the physician of the Resolute, Dr. Domville, is clear upon the point that the state of Capt. McClure's crew was such when Lieut. Pim arrived that they never could have reached the east, and would probably not have been able to retrace their steps westward, if aid had not arrived; and the committee of the House of Commons have therefore awarded high prizes to Capt. Kellett, as well as to Capt. Collinson, for the services which they also rendered.

The committee closes its report by saying that "whatever may have been the extent of services rendered by others, it may literally be said that it was the spirit of Sir John Franklin which pointed out the way. It never can be forgotten that it was in the attempt to trace his steps that the path of McClure was successfully pursued, and only because men worthy to be his followers went

where they hoped and believed that he had already gone before." It appears, indeed, from the evidence received by the committee, that there exist two passages from the Atlantic to the Pacific—the first pursued by McClure, which is nearly on a straight line between 74 deg. and 75 deg. latitude; and which is practically useless for purposes of navigation; and the second down Peel Sound and Victoria Strait into Dease Straits, and thence into Prince Albert Sound, which separates the continent from Baring Island. No one has ever made this second passage from ocean to ocean; but the mouth of Back river, where the remains of Sir John Franklin were found, constitutes a central point, to which it is proved that he penetrated through Barrow Strait and Peel Sound from the east, while Capt. Collinson reached nearly the same spot in 1853, from the west by way of Dease Straits.

Capt. Collinson positively establishes the fact that this latter channel expands into the great outlet of Peel Sound, and states that but for the want of fuel he should have gone that way into Barrow Strait, and so home; and it is the declared opinion of Sir James Ross, Sir John Richardson, Captain Kellett, Mr. Rae, Mr. Arrowsmith, Sir Roderick Murchison, Capt. Washington and others, that no doubt can exist of the fact that Sir John Franklin's ships, a fragment of one of which was found by Captain Collinson in Dress Strait, probably drifted down Peel Sound, at least as far as the Northern coast of King William Island. There are about ninety miles of Victoria Strait of which it must be said that no record as yet exists that it has been explored, but of which it is known that Sir John Franklin left at one end and was found at the other; and this short distance is all that is now required to establish the fact on the maps of the precise course of the whole of the two water passages from the east to the west across the Arctic zone.

What practical results may be attained by the recent discoveries, which have cost so much expense of time, money and life, it is not easy to foretell. The passage discovered by McClure, was declared by those who were examined before the committee of the House of Commons—all his own testimony was equally strong with that of others—to be impracticable for any useful end. Sir Roderick Murchison, however, believed that a "really navigable track for vessels" may be found "down Peel Sound," in the direction pursued by Franklin, and that the route Capt. Collinson took is likely to become the "course which whalers and other ships will follow for mercantile purposes."

The committee in their report, and several of the gentlemen from whom evidence was taken, paid a high compliment to those in America, especially Mr. Grinnell, who have sent expeditions to the North. We could wish that while doing so they had not fallen into the old error of denominating "Grinnell Land," "Albert Land," as they have done in the valuable chart which illustrates their labors. The British Admiralty conceded authoritatively last year that to American enterprise belongs the priority of discovery at the northern outlet of Wellington Channel, and the promise was given that the name bestowed by our navigators upon the frozen promontory should be henceforth given to it in the Admiralty maps. —[N. Y. Journal of Commerce.

Animal and Vegetable Physiology.

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In the plant we have life simplified for our instruction. The absorption of food into the organism, and the mode of its conveyance and distribution to the different parts of the fabric, are precisely the same in plants and animals. Nature is simplicity itself. She has the same object in view, and therefore, she pursues the same method; and the absorption of the food from the soil, and its distribution through the branches and leaves of a plant, are one and the same process as that which takes place in the animal body. This important principle in physiology has not received that attention to which it is so justly entitled.

Water is necessarily the vehicle of the nutritive substances from the soil. It enters the organism of plants by the delicate, hair-like fibres of the roots, in accordance with the common laws of endosmosis and capillarity, which will be clearly understood if the following beautiful, but simple experiment is performed.

Take a short tube, and, having covered one end with a piece of thin bladder, partly fill it with a strong solution of gum and sugar. Mark the height of the fluid in the tube, and place it in a common tumbler filled with water. In an hour or so, the gum and sugar will be found to have risen considerably above the mark made on the exterior surface of the tube, which proves that the denser fluid has drawn the water through the membrane into the tube. This species of absorption was discovered by M. Dutrochet, a distinguished French Physiologist, and was called by him endosmosis (Greek *endon*, inwards, and *mao*, I seek).

Now, the interior of plants, owing to the evaporation of the superfluous water from their leaves, young shoots, and other green parts, always contains a fluid thicker than the fluid which surrounds their roots in the soil. The denser fluid in the plant, therefore, attracts, by means of the delicate fibre-cells forming the roots, the moisture from the soil, which thus enters the plant by endosmosis, just as the water contained in the tumbler is attracted into the tube by the thick, gummy, and sugary liquid which it contains.

The absorption of food into the organism is in principle precisely the same in animals as in plants, with this difference, that there is superadded to the organism a highly complicated, nervo-muscular apparatus for its prehension and preparation. The food of animals, like that of plants, is not presented to them by nature in an already prepared state; but it comes into contact

with their organs in a more or less solid condition, and has to be introduced into a digestive cavity of the stomach. The organs for its prehension and preparation are most beautifully adapted to the peculiar food habits, and instincts of each animal; and both the senses and muscular system are called into exercise in procuring the food.

Thus, at the very outset, the nutritive apparatus of animals is much more complicated than that of plants: for their food has to be both procured and prepared by themselves before it can be assimilated. Now, the introduction of food into the digestive cavity or stomach is wholly a voluntary act, and results from the exercise of the functions of animal life; its digestion and absorption when there are altogether involuntary. After having swallowed the food, it passes out of the domain of the functions of animal life; we having nothing more to do with it. We feel invigorated because the vegetative part of our nature is now called into exercise. The whole process of chymification and lacteal absorption, by which the food is reduced to a fluid state in the stomach, and finally to a condition fit to enter the circulation, proceeds without our consciousness; all these internal operations are purely vegetative, proceeding from that life which we have in common with plants.

The food having been introduced into the stomach, digested, and reduced to a fluid of a whitish color named chyle, is absorbed thence by the radicles of a special system of vessels named the chyliferous vessels, which reunite into branches more or less voluminous, and ultimately meet in a common trunk, called the thoracic duct. This duct, which is about the size of a common quill, conveys the chyle to its point of junction with the subclavian vein at the lower part of the neck, pouring into the torrent of the circulation. The blood thus enriched is spread through every part of the body by means of a system of tubes expressly developed for its conveyance, and which branch off in every direction, ultimately in capillaries or tubes of fine, hair-like calibre or bore. These capillaries alike pervade the solid substance of the bones and the softer tissues of the body; and it is through them that the blood or nutritive fluid is thus carried to all parts of the organism.

All these internal operations are beautifully illustrated in the fabric of plants. The lacteal absorbents in the stomach correspond clearly to the roots of plants in the soil; these communicate with subterranean branches, which ultimately unite and form a common trunk. This trunk rises from the soil and ramifies in the atmosphere, conveying the nutritive fluid or sap to the capillaries in the leaves, in which the fibrous portion of the branches ultimately terminates, just as the blood is conveyed by the arterial ramifications to the capillary system, by which it is spread through all parts of the body. It is in the leaf that the sap undergoes those changes which render it subservient to vegetable nutrition. The design of nature in forming a leaf is evidently to spread the fluid over a horizontal surface, so as to expose it fully to the influences of the light and atmosphere. The leaf is the vegetable laboratory where the sap is elaborated into those elements which contribute to the growth and development of the vegetable organism.

RUSSIAN STORMS.—A traveler in Russia says that the storms of that country are divided into three classes, the first and mildest kind is called the Mintsel, the second, more severe, the Samjots, and the third, which is absolutely terrific, the Winga. In a conversation between himself and a priest, the latter is thus described:

"What, then," cried I, "is the Winga?"

"A prelude to the last day," answered the priest. "Fortunately, unmistakable indications announce its coming for some days beforehand. Then nobody sets out upon a journey, not even to the next village, though it is but a verst or two off. Precautions are taken for the safety of the house, by protecting it, on the north side with heavy stones, and by propping it up, as well as barns and stables, on the south side. The *tabunen* (troops of wild horses) scamper in all haste to the nearest forest; droves of cattle and flocks of sheep seek shelter wherever it is to be found. Whatever the storm overtakes upon the open plain, man or beast, caravans drawn by oxen, or caravans drawn by horses, is lost without a rescue."

"An icy shower of snow is the forerunner of the terrible blast; it falls so thick, and drives so horizontally through the air, that to withstand it is impossible, whilst it avails little to suffer one's self to be driven before it. For if one escapes for a while this prelude to the hurricane, he is infallibly overtaken by the formidable blasts and circling whirlwinds which succeed it, and which gather up from the earth, like chaff from the threshing floor, the objects exposed to their violence, and hurl them to and fro in the air. And yet the rage of the unfettered element is not here at its height; for when the storm seems to have exhausted its fury in the manner I have described—often raging thus during a period of several days—then first begins the real tempest, a blast which nothing can resist. It uproots whole forests, tosses the loftiest fir-trees into the air like blades of straw, and often conveys them high above the earth, whole versts away. It levels stables and barns, unroofs houses, and throws down church towers, so that the district it has visited looks, after its destructive passage, and for distances of several days journey, like a land ravaged by fire and sword. On all sides are seen herds of dead cattle, trees uprooted, villages overthrown."

In exposed situations, this wind has been known to tear up isolated stables, to transport through the air their fragments and the cattle they contained, and far, far from the spot, hurl these down shattered upon fields and roofs. With varying fury the monster rages for some days, leaving behind him, on his departure, death, destruction and lamentations. Happily he comes but seldom;

his visits are not for every generation; but when he does come all that his icy breath touches is devoted to annihilation.

"This is the Russian Winga!"

Progress of the War—Movements in the Crimea.

EXPEDITION TO TAMAN AND FANAGORIA.

On the 24th September, a squadron of the Allied fleet sailed, with 300 British infantry, under Major Hunter, and 600 French, on board, to destroy the Russian establishments at Fanagoria and Taman, with the purpose of depriving the enemy of his means of sheltering troops, during the coming winter, and to procure materials for housing the Allied forces at Cape St. Pauls and Yenikale. Simultaneously with this attack, a demonstration was made against Temriouk, by the Azoff squadron. Both operations were successful. The Allies destroyed and carried off quantities of building materials, and found, within the defences, about 70 disabled guns. No opposition was offered, and no loss sustained.

A circular published at Vienna, estimates the Turkish and Allied forces at 300,000 men, exclusive of the Turkish army of 24,000 men on the banks of the Danube. These troops are distributed nearly as follows: At Batoum, under Omar Pacha, 45,000 men; at Kars, under Gens. Yusseff and Williams, 18,000; at Erzeroum, under Vely and Hafiz, 12,000; at Trebizond, under Selim, 8,000; in the Crimea the main body of the Allied army on the Tchernava and elsewhere, 95,000; at Eupatoria, under Gen. D'Allouville, 60,000; at Kertsch, 16,000; at Kinburn, 12,000; on their way to reinforce the corps at the mouth of the Dnieper, 25,000; at Sebastopol, 8,000; reserve in the camp at Maslek, 10,000.

SAWDUST FOR MANURE.—It is no less strange than true, that hundreds of people who own and are living near saw-mills, know that sawdust contains great fertilizing properties, and yet do not try to save it. But, on the contrary, many mill-owners expend a great deal of money in constructing railways and cars to carry off the sawdust to some stream of water, that it may be washed away.

How often, when I have seen the water in the river literally thick with sawdust, have I thought what a pity it is, that so many hundreds of tons of such excellent manure should be annually thrown away, and, at the same time, hundreds of acres of land in the same neighborhood, lying idle and useless, waiting, as the proprietor says, for a "renovation." Now, farmers, this thing of leaving your old fields to renovate, is a poor thing. Go to work and renovate them yourselves. Clover them well; scatter over plenty of manure, and, if you can get it, pile on the sawdust, and very soon you will have no barren fields to disfigure your farms.

Sawdust makes the best bedding for horses and cattle of any substance that I am acquainted with. Wherever it is put, there it will stay; they cannot scrape it from under them as they can straw or hay, and it is equally as soft to lie upon as either; and throw it out every day on a pile, and it makes the very best manure in the world. Not only is sawdust good manure after being used for bedding, but it is also good to apply it clean. In the spring, when you are digging over your garden, impregnate the soil with sawdust; it will keep the ground loose, and render your garden more productive. Scatter clean sawdust over your meadows and around your fruit trees. In short wherever you want an abundant crop, there put sawdust. —[Dollar Newspaper.

A TOUCH WITNESS.—Prosecuting Attorney—"Mr. Parks, state if you please, whether you have ever known the defendant to follow any profession."

"He's been a professor ever since I've known him."

"Professor of what?"

"Of religion."

"You don't understand me, Mr. Parks.—What does he do?"

"Generally, what he pleases."

"Tell the jury, Mr. Parks, what the defendant follows."

"Gentlemen of the jury, the defendant follows the crowd when they go in to drink."

"Mr. Parks, this kind of prevarication will not do here. Now state how this defendant supports himself."

"I saw him last night support himself against a lamp post."

"May it please your honor, this witness has shown a disposition to trifle with the Court."

Judge—"Mr. Parks, state, if you know any thing about it, what the defendant's occupation is."

"Occupation, did you say?"

Counsel—"Yes, what is his occupation?"

"If I ain't mistaken, he occupies a garret somewhere in town."

"That's all Mr. Parks."

"Cross-examined—"Mr. Parks, I understood you to say that the defendant is a professor of religion. Does his practice correspond with his profession?"

"I never heard of any correspondence or letters passing between them."

"You said something about his propensity for drinking. Does he drink hard?"

"No, I think he drinks as easy as any man I ever saw."

"One more question, Mr. Parks. You have known the defendant a long time; what are his habits—loose or otherwise?"

"The one he's got on now, I think, is rather tight under the arms, and too short waisted for the fashion."

"You can take your seat, Mr. Parks."

Be thrifty to yourself that you may be liberal towards others.