

THE NEW NORTH.

Far to the north, amid the streaming splendors of the aurora, the Scandinavian located the blissful realm of the Walhalla. Nor was it alone the dwellers near the home of these lambent lights that felt the glamor of their fascination. The Hebrew poet speaks of the chambers of the north—the city of the great King. Northward points the faithful steel of the magnetic compass; northward hies the hardy explorer, recking not the perils of the toilsome way.

Thus it comes that we already know the Arctic regions far better than we do the Antarctic, although a new interest appears now to be kindling in the latter, and several royal societies in Great Britain, aided by colonial governments of Victoria and other Australian provinces, propose ere long to set on foot expeditions to explore them.

But the expeditions of our day thus far have been to the northward. The story of De Long, Nordenskiöld, Ray, Greely, and others need not be here rehearsed. The sad mortality of the expedition commanded by the latter was due, as he himself says, to preventable causes; and his experience has demonstrated that sanitary precautions are practicable which will render life not merely tolerable, but positively enjoyable, in any climate, even the severest yet visited. The difficulty is to insure a sufficiency of supplies where nature does not provide them. This is not always necessarily the coldest nor the most northerly region—as witness the recent famine on the coast of Labrador.

The recent ascent of Mount St. Elias by Lieutenant Schwatka has been sufficiently exploited by the New York Times, under the auspices of which the expedition was organized, and a word in passing may be sufficient mention of Gilder's project for taking with him a colony of Eskimo in furtherance of a several years' task of becoming acclimated in a long tug to reach the pole.

Less notice has been taken by the daily press of the expedition of Lieut. Peary to the east coast of Greenland, the prospectus of which was presented to the National Academy of Sciences at Washington last April.

It seems strange, and yet he asserts it to be true, that no determined effort has been made to reach this coast. Two methods are practicable. The one is by landing on the west coast, thence going down to Cape Farewell, and up along the east coast. This might take two years. The other method, which he prefers, is to land at Whale Sound, and cross to the east coast, reaching it about the 80th parallel, a distance of less than 400 statute miles. The natives are friendly and game abundant, the abundance of musk ox and reindeer indicating the existence of fertile lands in the interior. His outfit, as exhibited to the Academy, was one of unusual lightness and strength.

A few years ago, the Hudson's Bay Company sold to the Dominion of Canada the jurisdiction of all its posts scattered throughout the northern part of this continent. A few years ago, the government undertook a systematic series of observations of the climate and navigation of Hudson's Bay and the coast of Labrador, with special reference to the practicability of navigation and the construction of a railroad from Winnipeg to Fort Churchill, affording a much shorter route from the Pacific Ocean to Liverpool than any now used. Since her return from the Greely relief expedition, the steamer Alert has been employed in visiting the stations, to leave supplies and to relieve the men after one year of service at a station. On the 15th of October last, the Alert returned to Charlottetown after her closing voyage in this work, the observing parties having now all been withdrawn. She reports that the channel is generally open only in August and September, as the ice fields come down in September or early in October and close it up. The walrus, whale, and porpoise fishing is recommended as highly profitable. Only two American whalers are now in Hudson's Bay, and they have established a rendezvous at Marble Island, near parallel 63°, in the northwest part of the bay, and on that island several graves and numerous relics were found. Notwithstanding the shortness of the season of navigation, ground was broken for the proposed railroad at Winnipeg the first week of October.

Among the voyagers on the Alert in her trip just mentioned was James McNaughton, whose paper, read before the Albany Institute last spring, gave a graphic account of adventure in and about Hudson's Bay, and was attended by one of the largest audiences ever gathered at an Institute meeting. Among the trophies exhibited was the skin of an immense polar bear with which Mr. McNaughton had a life and death struggle. He was much impressed with the abundance of game and the inexhaustible supply of valuable fish. Whales and walrus abound. Noticing one day a school of 70 or 80 walrus swimming away, he feelingly portrayed his emotion at the sight of \$10,000 or \$12,000 thus gliding away unhindered. The whole region he pronounces a sportsman's paradise, and predicts that it will become a popular pleasure resort when the southern end of the bay shall be connected with Montreal by rail. Bathing in the bay was not too cold for comfort in August.

The country north of us is not all Arctic, however; far from it. Those who know best, hardly realize how vast is the new domain of arable land which has just been opened by the completion of the Canadian Pacific Railroad, and how much more remains yet to enter. A new north, vast in resources of all kinds, stands ready for occupation. Wheat is raised 1,500 miles beyond the boundary of the United States.

We have seen something of the immensity of the wheat fields tributary to the Northern Pacific Railroad. The statistical report just issued shows an accumulation of over 32,000,000 bushels at terminal points. It seems but yesterday that this vast empire was generally believed to be a frozen waste, and Jay Cooke was ruined by being so far in advance of the people in his knowledge of this region and of its resources, and by investing money in developing it before the public were prepared to follow. Such another region is tapped by the Canadian Pacific Railway. It appears that low prices for wheat have come to stay when the illimitable Northwest and North, by the aid of improved machinery, vie with India and labor at five cents a day. Older wheat fields must, in many cases, be abandoned as unprofitable in comparison.

Nor is it wheat alone that flourishes in the new North. The grandeur of the Canadian forests is probably the one salient feature known to everybody. Lieut. Schwatka, in his book "Along Alaska's Great River," describes the vegetation of the southwest coast of Alaska as rivaling that of the tropics in its luxuriance, forming a tangled jungle, and trees even grow from the tops of the totems of the natives.

The latest discoveries indicate that the greatest surprises may prove to be in regard to the mineral wealth of these northern regions. It was this part of the continent that was first upheaved in the dawn of the archaic ages. Gold existed in paying quantities at many places in Alaska. The most stupendous deposit of copper in the world has just been discovered near Sudbury Junction, on the Canadian Pacific Railway, north of Lake Superior. A rough estimate makes the field 4 miles long, 1,500 feet wide, 200 feet deep, mostly sulphuret of copper easily reducible, and containing 50,000,000 tons of metal, which can be laid down in New York as cheap as 4 cents a pound—duty excepted; and, when worked, will necessitate the stoppage of all other mines from the inability to compete in price.

The great work of the year has been the completion, many years before the time contracted for, and the opening to traffic of the Canadian Pacific Railway, over the whole length of which trains began running regularly last July. It was indeed substantially completed last fall, and was operated as far west as Canmore, a distance of 2,329 miles from Montreal. This railroad is now the shortest transcontinental route, and owing to its easy grades and perfect equipment, very fast time is expected to be made by the schedules of next year, this consummation being deferred one year on account of the imprudence of running too rapidly over a new roadbed.

A letter from Mr. Van Horne, vice-president of the road, gives the following information: The region traversed has a climate resembling in the east that of northern and central New York, and in the west that of northern Iowa and Illinois. It is remarkable that during all last winter, while snow blockades interfered so seriously with the Central and Union Pacific railways, the Canadian Pacific was almost entirely unimpeded. This is attributed, not to lack of snow, but to the method of constructing the road, with wide cuts, which enable the wind to sweep through them and keep them clean.

The writer was visiting on Canadian soil, though not at Winnipeg, at the time when the railroad for Hudson's Bay was begun. He was at Toronto, attending the fourteenth annual meeting of the American Public Health Association, the first, however, that was ever held on Canadian soil, and for this reason one of peculiar interest. Among the members was Dr. Russell, health officer of Glasgow, Scotland, who had just returned from a trip across the Canadian Pacific Railway, and reported—having of course examined the country with a professional eye—that he found germ diseases prevailing at settlements along the road, new as they were, and this seems to have been the most characteristic feature of his address to the Association. Perhaps, had another gone over the same ground, his attention would have been directed more to other matters. It should seem, however, that the same thoroughness in sanitation which has redeemed Montreal from smallpox might be equally effective throughout the Dominion, especially as the severe cold of a Canadian winter is generally inimical to bacteria.

Year by year the Canadian and the American people are becoming more nearly united.

The writer found at Toronto, where it was least to have been expected, expressions of a desire for the union of both countries. Canadian sports have come in upon us like a flood of late. It is not a long time since most of us saw, for the first, the Canadian tuque and toboggan. Last winter all Albany was alive with them, and so it will be soon in other Northern cities.

It would be but a tame and unfaithful portrayal of the North that should omit to give a prominent place to the grand and sublime scenery of so many landscapes and waterscapes there. When the prevalence of cholera two years ago in southern Europe turned the tide of travel to the North, Norway ceased to be to many a *terra incognita*, and it was found that even the Alps paled in glory beside the land of the midnight sun. No less is this true of the Arctic scenery of the New World. Indeed, it is almost expected that southern Greenland will become a summer resort. Rev. Dr. Canfield, of Brooklyn, has already announced his intention of making a trip there next summer.

Last winter the artist William Bradford gave a course of readings, illustrated by stereopticon views, of the scenery of Greenland, which vividly depicted its weird and unique sublimity. Mr. Bradford has expended \$75,000 in fitting out these expeditions in the interest of art alone.

Probably all other regions of the world must yield the palm to Alaska for grandeur and beauty combined in infinite variety. The soil among the islands of the coast, teeming with vegetation as luxuriant as that of the Amazon, yet alongside of snow-capped mountain peaks and stupendous glaciers, combines the beauty of the inland sea of Japan or of Lake George with the grandeur of the Alps, or indeed of the Himalayas; and had the beauty-loving Greeks of classic ages beheld that far off-hand, there doubtless they would have planted Olympus, the abode of Jove, the lofty thunderer, beside the Norseman's Walhalla and the "city of the great King."

Tinned Springs—A Curious Experience.

Recently, a Birmingham manufacturer had occasion to endeavor to coat the surface of some hardened and tempered steel springs with tin, a bright and non-corrodible article being required. The springs are C shaped and are about half an inch wide, terminating in two points, by which they are held, and on which they swivel. Large quantities of them had been previously galvanized, and it was found perfectly easy to coat them with zinc, and so regulate the temper in the first instance that the springs retained the necessary temper when finished. When, therefore, the attempt to tin them was first made, it was thought that the temper would be lowered and the spring softened; but the contrary of this was the case. The springs were hardened in oil and then tempered to the proper point, after which the tinning was effected. As soon as the springs were tinned, it was found on testing that they were so brittle that the least pressure caused them to break into fragments. A long series of experiments confirmed this remarkable result, and it was eventually found necessary to pursue an entirely different course. The springs are heated to a white heat and hardened in oil, being then set aside for a day, and allowed to dry. In tempering them, they are allowed to reach a dull red heat, and it is found that, when subsequently tinned, the right temper is obtained. The most remarkable feature in the case is that, unless the springs are hardened and tempered, the tinning has no appreciable effect on the hardness or temper of the steel. It would, therefore, appear that the molecular change effected by hardening and tempering the steel leads up to this remarkable action in tinning. At present the cause is not clear, but some of our readers may be able to throw some light on this matter.—*Industries.*

Paul Bert.

Paul Bert, noted as an extreme radical in the politics of France, and also as a scientist of some merit, died on November 11. He was born in Auxerre, Oct. 19, 1833. In 1868 he was appointed Professor of Physiology in the Faculty of Sciences of Paris. His scientific researches included many experiments on the factors of existence at different altitudes. Balloons were used to secure the conditions for his experiments. In recognition of his scientific work, he was awarded in August, 1875, the biennial prize of the Institute. In April, 1882, he was elected a member of the Academy of Sciences. During the last ten years he has been much interested in political life, having been Minister of Public Instruction under Gambetta. He received the appointment of Minister of France at Hue, the capital of Annam. He was occupant of this position when he died. His published writings include scientific and political treatises.

JESSE H. LORD, for several years connected with this paper, and favorably known as a writer of ability on machine shop topics, committed suicide on the 10th inst., by shooting himself on the grave of his wife, who died last May.

Mr. Lord was thoroughly at home in the machine shop, and his hints on the proper construction and handling of machinists' tools and the arrangement of machines in the shop made him widely known in mechanical circles. As a writer on mechanical subjects Mr. Lord had few equals, and his loss will be felt by others than those of his friends and acquaintances with whom he came in personal contact. The writer, with many others, laments the death of Jesse H. Lord.