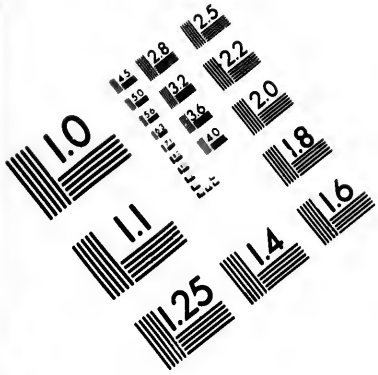

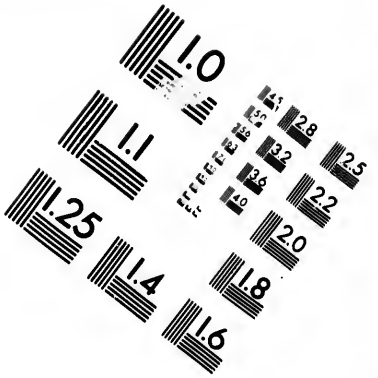

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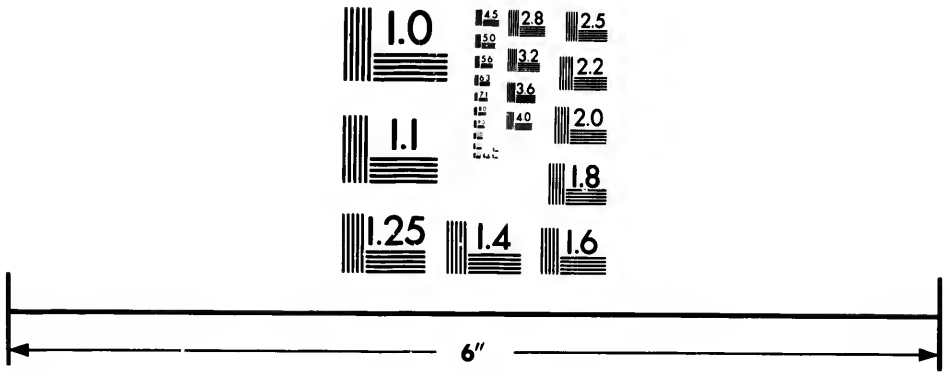

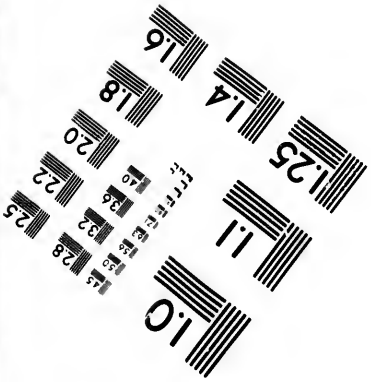

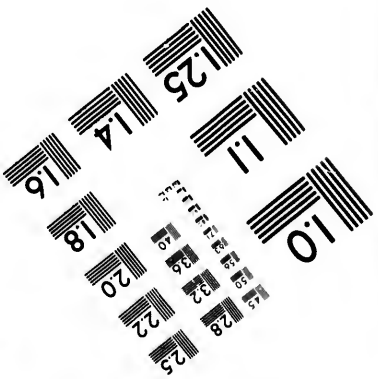

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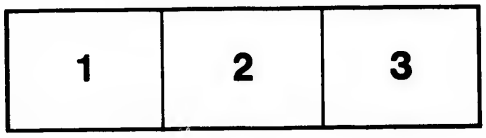

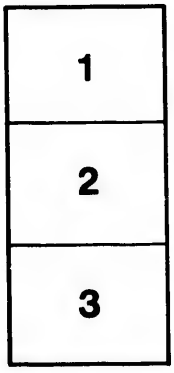

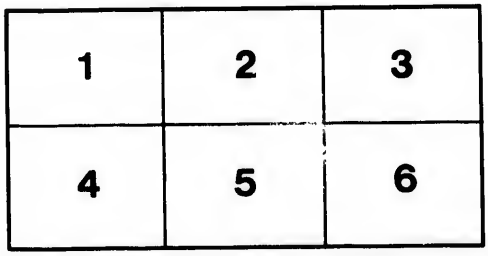

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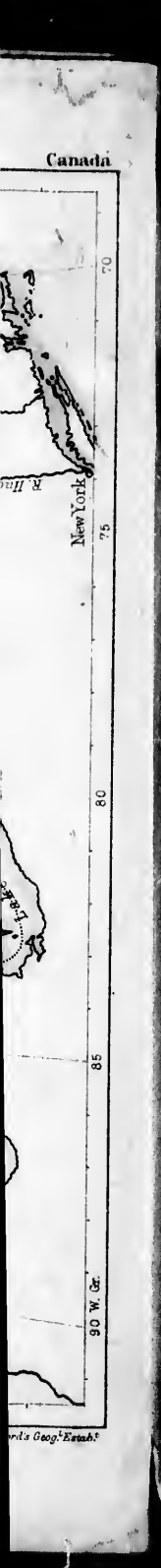

THE

COLONIAL EMPIRE

OF

GREAT BRITAIN,

CONSIDERED CHIEFLY WITH REFERENCE TO ITS PHYSICAL GEOGRAPHY AND INDUSTRIAL PRODUCTIONS.

BY

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PRINCIPAL OF THE DIOCESAN TRAINING SCHOOL FOR MASTERS, YORK

THE AMERICAN COLONIES.

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PREFACE.

THE following work is based upon the notes of a course of lectures delivered by the author while holding a Government Lectureship in Geography at the York Training Schools; and is published in the hope that it may be found useful by the large and continually increasing class of readers who are interested in our colonies and foreign possessions.

The author wished to render the study of Geography attractive by presenting to his pupils a fuller account than usual of some chief branches of the science, in the place of the statistics and unconnected statements, which usurp the name of Geography. For the purpose of clothing these dry bones it seemed best to rely upon *Physical* Geography, because it allows numerous interesting observations to be arranged into groups, themselves the members of a system. Thus, the geology of a country determines the main features of its surface; the latter chiefly govern its climate; and, again, the character of its vegetation and of its animal life is in agreement with the

conditions of its climate and its soil. Lastly, all these divisions of the subject are intimately related to the products of the country, and the pursuits of its people.

In sketching the dependence of these causes and effects upon each other, the writer has collated the best authorities within his reach, and has endeavoured to give reality to his descriptions by availing himself at all times of the kindness of well-informed friends, and by the study of appropriate collections of commercial and Natural History productions.

The work is published in four separate parts, each with its own series of maps and index.

Part I. contains—The American Group of Colonies;
II. „ The Australian;
III. „ The East-Indian; and
IV. „ The Atlantic Colonies.

York, June, 1861.

THE AMERICAN COLONIES.

THE AMERICAN COLONIES.

NORTH AMERICAN GROUP.

British North America exceeds 400,000 square miles in extent,* and includes nearly all the continent north of the 49th parallel, and the Great Lakes. The exception is Russian America, occupying the north-western promontory beyond the 141st meridian, together with a strip of sea-coast which descends to lat. 56°.

Geographically, this vast region is bisected by the 95th meridian W. longitude. To the left of this line is a huge unbroken land-mass of nearly a square form, each side measuring about 1200 miles; and to the right, or east, is a tract of nearly equal dimensions, but cut up, and in part occupied, by the deep indentation of Hudson's Bay on the north, and by the irregular basin of the St. Lawrence on the south. Regarding the variations of surface in this territory, the principal physical feature is the lofty system of the Rocky Mountains, the chief range of which runs parallel to the western coast, at from 300 to 400 miles inland. This system forms the main watershed of the continent, dividing its short slope into the Pacific Ocean from its long one into the Atlantic. A subordinate watershed stretches from the Rocky Mountains eastward near the southern boundary of the British territory, until it approaches the Lake Region, throwing off the feeders

* North America is estimated at 810,000 square miles in area.

of the Mississippi and Lake Winnepeg in opposite directions. And connected with this is a range of higher land extending from the north of Lake Superior to the Straits of Belle Isle, and separating the drainage of the St. Lawrence from that of Hudson's Bay. This range is sometimes called the "Height of Land," an indefinite term, which it would be well entirely to disuse and to replace by an appellation derived from the prevailing geological formation, whence it is named the Lawrentian Chain. To the south of the range just mentioned are the colonies of Canada, New Brunswick, and Nova Scotia, with the insular possessions of Prince Edward's Island and Newfoundland. On the west of the Rocky Mountains are the newly-erected colonies of British Columbia and Vancouver Island. And the immense tract remaining after these reductions have been made constitutes the Hudson's Bay Company's Territory. We now proceed to the consideration of these subdivisions in the order of their enumeration.

CHAPTER I.—CANADA.*

Canada;—Boundaries, Geology, General Description;—**the Erie Plain**, Forests; Terrace-region;—**the Lawrentian Plateau**, the Ottawa, the Saguenay;—**the South Section**, Eastern Townships;—**the St. Lawrence**, the Great Lakes;—**Industry**;—Timber-trade, Fisheries, Minerals, Earth-oil; Agriculture, Climate;—**Population**, Manufactures, Commerce, Reciprocity Treaty, Communication with England.

Canada.

Boundaries.—Canada is by far the largest and most important colony of the North American group. It occupies an extensive region stretching along the north side of the St. Lawrence throughout its whole length, and extending also on the south bank up to the boundary line in N. lat. 45°. Its limits towards the Hudson's Bay Company's territory are very ill defined, as that part of the country is quite unsettled. But it is usual to consider the crest of the Lawrentian Mountains as the boundary, continuing the latter to the west as far as the Pigeon River, on the shores of Lake Superior, in long. 90°, and eastwards, to Blanc Sablon, on the Strait of Belle Isle, near long. 57° 30′ W. Canada is then estimated at 350,000 square miles in area; and being subdivided by the River Ottawa, Western or Upper Canada is 100,000 square miles in extent, and the lower division about twice as great, being the remainder, after subtracting 50,000 square miles for the River and Gulf of St. Lawrence. Even these wide limits do not satisfy

* See 'Essays on Canada,' by Hogan and by Morris, 1855; 'Canada, 1849-59,' by Hon. A. T. Galt; Kingston's 'Western Wanderings;' Wood's 'Prince of Wales in Canada:' Official Tables and Reports; 'Geological Quarterly Journal,' ix. and xv., &c.

some Canadian writers, who advance claims to the whole of the Saskatchawan Valley up to the base of the Rocky Mountains. It is more practical to observe that, by the year 1854, there were 33,000 square miles surveyed in Upper, and 12,700 in Lower Canada, large portions of which were unappropriated; so that the extent of country which can be said to be settled in any correct sense is considerably less than 50,000 square miles. Besides this settled territory, which is all tillable land, it is making a low assumption when we conjecture that there are 100,000 square miles which will be found hereafter amply to repay the labours of the agriculturist.

The southern boundary is so complicated that it can be understood only by an examination of the map. It leaves the 45th parallel at the head of the Connecticut River, and keeps the ridge of land which divides the drainage of the St. Lawrence from that of the more southern rivers, approaching at one point within 30 miles of the former, and leaving to the United States the possession of the St John as far as the frontier of New Brunswick. Between Canada and the latter colony the bounding line follows the course of the Restigouche into the Bay Chaleur; although the southern slopes, at least, of the peninsula of Gaspé, belong, both physically and commercially, to New Brunswick.

Geology.—The most important position in the geology of Canada is occupied by the Lawrentian formation,* which principally composes the range to which it gives its name. It comprises a series of granite and gneiss rocks, sufficiently distinct to have received a title of its own from its learned investigator, Sir W. Logan, by whom it has been compared, in its components and scenery, to parts of our own Grampians. It extends from the northern shores of Lake Superior to those of the St. Lawrence at Cape Tourmente, 30 miles below Quebec, and thence to the Gulf. It forms a broad table-land, of from 2000 to 3000 feet high, its upper surface being indented by broad-

* Sir R. I. Murchison has given this name to his recently determined oldest series of rocks in the Grampians. 'Geological Quarterly Journal,' 1860.

shallow lake-basins, and embossed with huge rounded hills of no great altitude. Occasionally deep clefts occur presenting scenes of great sublimity; and, indeed, the St. Lawrence itself, in its lower course, may be said to occupy an enormous fissure along its southern edge. Thus a line of precipices extends from Cape Tourmente throughout the Strait of Belle Isle, having very few interruptions and often rising directly out of the water to the plateau above. And as the cliffs of Point Gaspé on the opposite side are also very lofty, it has been suggested that the early Spanish navigators entering the mouth of the St. Lawrence regarded it as a magnificent ravine (cañon), and thence named the country Cañada.

From Lake Superior, the southern edge of this plateau may be traced along the northern shores of Lake Huron. The extensive and singular line of islands known as the Manatoulins are of limestone, but to an observer on the lake, behind their well-wooded eminences is seen on the mainland a line of massive heights composed of quartz rocks, towering 1000 feet above the lake, and known as the Cloche Mountains. An offshoot from the main body of this formation runs hence to the south-east, crossing the St. Lawrence at the Lake of the Thousand Isles, and spreading out into a mountainous granitic region in the State of New York. The intervening portion of the St. Lawrence valley, down to Cape Tourmente, is formed of other rocks, limestone prevailing; and this rock also often penetrates the granite plateau of the Lawrentian Chain, especially upon the upper parts of the Ottawa and Saguenay, carrying its own especial productiveness into the heart of an otherwise infertile district. Limestone, further, underlies the broad plains of the west, and prevails around the whole of Lake Huron. This very slight sketch of the geology of Canada is sufficient for the purpose of enabling the reader better to grasp the physical characters of the country. To go more into detail on this subject would not be compatible with the design or limits of the present work.

General Description.—The lines of the vertical sections and ground-plan of this colony are scarcely less compli-

cated than its geology. For the sake of obtaining a comprehensive view of its features we are compelled, for the moment, to disregard the common and, in some respects, advantageous division into Upper and Lower Canada by the River Ottawa. That river separates neither distinctive varieties of surface, nor of the geological formations beneath. We divide the country then into three great portions, one on the south and two on the north side of the great trough of the St. Lawrence. Of the latter, the easternmost is essentially a highland region, while that to the west as decidedly consists of lowlands; and hence the contrasts between these well-pronounced masses are so strongly marked, that they are easily impressed upon the memory, and will serve for future reference. On the one side are extensive levels, varied by only slight risings, or by step-like ridges dividing one broad terrace from another: possessing also millions of acres of the richest soil, broad tracts of which are still covered by dense forests of deciduous trees.* On the other hand is a bleak and rugged region, forming a perfect chaos of mountain and rock, lake, torrent and stunted forest; diversified at times by scenes of sublime grandeur, produced by the rush of mighty rivers through fissures of enormous depth and magnitude; having, moreover, a soil which is commonly as cold as its climate, but often producing vast forests of pines and firs.

The line of demarcation between these two sections runs nearly east and west, leaving the St. Lawrence at a point about 30 miles below Quebec, meeting the Ottawa in the neighbourhood of Grenville, 23 miles from its mouth, and crossing this river near Lac des Chats. It ultimately becomes obscure and vanishes upon the rapid rise in the country between Lakes Simcoe and Muskoka, near the shores of Lake Huron. This line is not properly the crest of a mountain range, although when viewed from the lower lands to the south of it, it presents the aspect of one; but it is the edge of the Lawrentian

* The kindred orders of Juglandaceæ (walnuts), and Cupuliferæ (oaks), peculiarly belong to the west, as those of the conifers and maples do to the east, province.

plateau, that is, of the upper and larger of the two divisions now defined.

Erie Plain.—We commence the more detailed account of these sections with the western or lower one. Upon examination it will be found convenient to divide this again into two parts. United to the edge of the highland, near Lake Simcoe, is a range of limestone hills running south to the western end of Lake Ontario. There making a sharp bend, it almost fills the slightly elevated isthmus which separates this lake from Lake Erie, and, after causing the celebrated falls of Niagara on its northern edge, the range passes into New York and sinks upon the banks of the River Genessee. To the west of this range is the Great Plain of Western Canada, whose estimated area is 20,000 square miles. It is of triangular shape, gradually narrowing towards the Detroit River, which forms its westernmost limit, and is nearly level throughout its whole extent. Hence, descending to the bounding lakes in low shores, which only slowly deepen, it labours under the disadvantage of possessing no good harbours. Even Sarnia, the terminus of the Grand Trunk Railway on the River St. Clair, and Amherstburg on the Detroit, are by no means fine ports, although they are well placed for commanding the traffic on the lakes. This drawback is, however, the only serious one that can be opposed to the numerous physical advantages of the Erie Peninsula, which well deserves its appellation of the "Garden of Canada." It enjoys an excellent climate, and possesses a soil of unbounded fertility; peaches are grown in orchards, and grapes ripen in the open air; and the most luxuriant crops of wheat and maize vary the scene with pastures of nutritious grasses. In the centre of this region is a marshy tract bare of trees, whence rise the chief rivers; but, with this exception, the whole plain was covered by a vast forest only 200 years since. Every farm still keeps its strip of woodland, sometimes as much as 50 and 100 acres being thus retained; and towards the eastern hills the slopes still present unbroken forests as far as the eye can reach.

Forests.—Seen in their autumn tints, there are few

sights more enchanting than these forests. The trees are mainly deciduous, and their fading leaves assume the brightest hues, enhanced by the cloudless sunshine of the spring-like days which occur at that season after the first frosts. All attempt to analyse this loveliness is vain, for want of words adequate to the task. Perhaps the groves of beech are the most beautiful: the delicate yellow and pale buff tints of the topmost leaves are cooled into the greens of the inner ones, and warmed into the deep golden shades of those below, while the open foliage admits the pure light, tinging it as it passes with its own colours, producing shadow but not gloom. The maples are almost equally charming: they are arrayed in gaudier tints and stronger contrasts, exhausting the whole series of crimson, red, orange, yellow, and green, and the leaves flutter gently to the ground like brilliant butterflies; but the light does not penetrate the denser leafage, and these lack the airy grace imparted to the birch and beech. Broad masses of oak-forest reflect the sunshine as if their leaves were made of burnished copper; and sombre pines in belts add intensity to the general brightness, raising their jagged and dark-green heads aloft on gaunt and branchless stems. When such elements as these are disposed harmoniously by nature so as to make one beautiful composition, we can understand the frequent assertion of eye-witnesses that the beauty of the autumn forests of the west must be seen to be believed.*

The Erie Peninsula is well watered. The principal streams are the Ouse and the Thames, which have their sources in the above-mentioned marshes. The former greatly resembles its namesake of central England, in its many windings and in the rich country which it drains. It is navigable for small vessels 25 miles from its mouth, and Port Maitland, at its entrance, is one of the best harbours on the northern side of Lake Erie. The Thames flows into Lake St. Clair, and is also navigable, to a small extent, by vessels engaged in the Lake trade; and we note with a smile, which deepens into interest, how the

* Kingston's 'Western Wanderings.'

settlers in its valley have endeavoured to perpetuate old associations, by naming their towns and villages after the Tilbury and Chatham, the London and Oxford, of their mother-country.

The Grand Trunk Railway, with its connected lines from Ottawa, and along the south coast, compensates to a great extent for the want of ports. The level nature of the country offers unusual facilities for the construction of railroads, and ordinary carriage-roads are provided by Government as fast as the land is taken up. Few districts have progressed so rapidly as this has done since it was first settled: and we know of no other part of the world, within three weeks' travel of an English port, which combines so many attractions for the emigrant, especially if he be a labourer, or a man of small capital, who is also a practical farmer. Abundance everywhere rewards labour. And, indeed, "plenty" might well be assumed as the motto of the industrious settler; for "plenty reigns in his granary, and is exhibited in his farmyard, and gleams from his corn-fields; and plenty smiles in the faces of his children." This, we believe, upon abundant testimony, is a true representation: "but," it is added, "let it not be imagined that this plenty is gained without continuous labour, and the exercise of judgment and intelligence."* In short, the idle and slow had better not emigrate.

Terrace Region.—It will be remembered that the low-land division was subdivided into two parts, of which the eastern remains to be considered. This is more broken in the lines of its vertical section, and may be aptly termed the Terrace Region. The southern edge of the table-land which has been already indicated may be traced from Lac des Chats to the Huron, by a line of cascades, occurring wherever it is crossed by the tributary streams of Rice Lake and Lake Ontario. About 50 miles to the south of this is a second ledge, which takes the form of an irregular hill-range, commencing near the Bay of Quinté, and continuing westward along

* Hogan's 'Prize Essay on Canada,' 1855.

the 44th parallel. It is the boundary between an upper and a lower terrace, the latter of which terminates in bold cliffs, upon the shores of Lake Ontario. This is neither so long nor so wide as the former; yet behind Toronto it extends 25 miles inland. Both terraces are abundantly fertile; but while farms and pastures occupy the lower entirely, the upper one is still in great part under the dominion of its primæval forest. Towards the east, the latter diminishes in height considerably; and the depression has led to the formation of the Rideau Canal, uniting the city of Ottawa with the excellent port of Kingston on Lake Ontario. This canal is 142 miles long; and Lake Rideau, at its summit, is 280 feet above its northern termination, though only 150 above the Kingston end. It is a continuation of this difference of level which causes the series of rapids upon the St. Lawrence above Montreal. The promontory to the east of the canal, lying between the St. Lawrence and the Ottawa, rises in gentle slopes from both rivers until it is 500 feet above them. Still further in the same direction, beyond the mouth of the Ottawa, a low plain skirts the St. Lawrence, extending backwards to a line of cliffs which forms the first rise to the granite plateau. Where the Maskinongé falls over this ledge, it is 100 feet high, and only 12 miles from the river: and nearer to Quebec, the lowland portion narrows to five miles and even to one mile.

The whole of this strip is thickly populated and well cultivated, although much of it is used for pasture. Quebec and Montreal stand on its southern limit, their respective heights being detached portions of the higher ground of the interior. To the westward, this section possesses the important towns of Kingston, Toronto, and Hamilton, all on Lake Ontario. The rapidity with which large cities are created in these western countries is astonishing. Hamilton was only laid out in 1813, being then a forest. In 1845 there were 6000 inhabitants in it, and in 1856 these had increased to 25,000; and land in the suburbs was selling at the rate of £300 per acre. Unfortunately, in this instance, success appears to have led to mismanagement of the corporation funds, and the

town is not now so flourishing as it was a few years ago. Toronto supplies another case, indicative of the rapid changes taking place in the country. The present inhabitants were able formerly to indulge in snipe-shooting where now there are fine blocks of buildings far within the outskirts; and as showing the rise in the price of land, it is recorded that a plot of ground bought in 1854 for £30,000, to be paid in ten years, was sold in small lots before that time was expired, realizing a profit of £100,000.*

The chief river in the terrace region is the Trent, which, rising 100 miles in the interior, unites a series of lakes in the upper terrace, and passes through Lake Rice in the lower one, falling at last into the Bay of Quinté. It is an important stream, being, it is said, navigable by boats throughout its whole course of 300 miles; and is, in its western part, within a few miles of a navigable tributary of Lake Simcoe. This lake is a fine body of water 500 square miles in extent, surrounded by forests and farms; but at present its water communication with Lake Huron is impeded by the numerous rapids upon the River Severn.

Lawrentian Plateau. The Ottawa River.—After this brief outline of the lowland division of the colony, we turn to a similar examination of the Lawrentian plateau. It is much larger, but vast portions of it are unknown, except by report; and only comparatively small sections are settled. It is in general a wild, intractable country. Bare ridges of rocks corrugate its surface in the direction of its length, and rounded hummocks of massive granite protrude through the gneissic strata. Almost innumerable lakes are strewn thickly over it, some being of large dimensions, as Nipissing and St. John; while their feeders and outlets interlace with each other, and draw off the drainage to most unexpected spots. These features are moreover so intermingled with dense forests—now of the finest timber, and now of the veriest dwarfed and matted scrub—that were it not for the magnificent water-ways

* Kingston.

which penetrate this region, we should be hopeless of gaining access to it. Of these great roads, so to speak, the two principal are the Ottawa and the Saguenay Rivers, which empty themselves into the St. Lawrence about 250 miles apart, both having south-east courses. By following them we shall be able to arrange systematically all that we can say of this division.

The river Ottawa is a noble stream, draining a basin 80,000 square miles in extent, and having a probable course of 780 miles. Its furthest sources exist in the unknown Height of Land, far to the north of Lake Temiscaming. Of the many affluents larger than the Thames which swell the Ottawa we can only mention those which present some peculiarity of interest. Thus the lake just named receives from the east the Kepeewa, which falls into it over a beautiful cascade 120 feet high. This river is known 90 miles to the eastward, where it is a deep, full stream, 300 feet wide, issuing from a lake of the same name, said to be 50 miles in length. From this lake flows also the Du Moine, whose swifter course carries it into the Ottawa, 100 miles below its twin river. Above the mouth of the Du Moine, the Montreal enters from the north-west, having a length of 120 miles, and forming the canoe route to Hudson's Bay; while the Mattawa comes in from the west, rising near Lake Nipissing. The last-named stream is the route for canoes going to Lake Huron, which is reached by the French River. It will probably become of great importance hereafter. A canal, a few miles long, would complete the canoe navigation; and this route from Montreal to Lake Superior is shorter by 600 miles than that by the St. Lawrence. It was by this course that Champlain came in 1615, and that the earliest French missionaries bore the Gospel to the wild Huron tribes.

Under the 16th parallel, the Ottawa begins to expand into a series of lakes, themselves enclosing islands of large size. The uppermost of these, or the Allumettes Lakes, are embosomed in scenery of the grandest character. The mountains rise 1500 feet above them; beautiful islands, their rugged shapes concealed by a thick

drapery of foliage, rise out of the broad still waters; and deep navigable reaches of 50 miles in length are suddenly stopped by rapids which try the nerve and test the skill of the daring *voyageurs*. Pembroke lies at the foot of these lakes, and is one of the backmost settlements, and the centre of an extensive system of water communication with the "lumbering" country around it. Of the incentives persuading the farmer to break up and till new land in these beautiful and productive, but remote districts, it has been truly remarked that—whereas in other countries each step forward carries the settler away from civilization, raises the cost of all his necessaries, and cheapens all he has to sell—in this case the producer of food follows in the wake of the lumberer, and finds himself in the midst of a market where all his prices are increased by what would be the cost of transit to his more distant competitors.*

At the city of Ottawa, 130 miles up the river, the scenery is again highly picturesque. The widened stream assumes the aspect of some fine land-locked harbour, subdivided into bays by bluff headlands, which are often clad to the water's edge with thick forests of pines. Three miles above the city a series of rapids commences, terminating in the romantic Chaudière Falls. These are only 40 feet high, but are so broken and divided by islands and projecting rocks, a feature more than once repeated in the limestones of the Ottawa, that they have been well described as a hundred rivers struggling for a passage. One fall presents the appearance of a broad mass of dark-green glass, and another is a narrow graceful curve of foam; a third dashes and breaks among the worn and jagged rocks, as if a river were pouring through the ruins of shattered walls and columns; while the "Lost Chaudière" excites the wonder of the observer by rolling a volume of water, big as the Thames at London Bridge, into a vast hole, where it disappears in an underground course. Huge precipices overhang on all sides; and the greenest of foliage is fed by the spray.

* Lord Elgin's despatch, September 5, 1853.

Ottawa has been recently erected into the political capital of Canada, for which it is well suited by its central position. A fine building for the Government House has been erected, in which the excellent close-grained sandstones of the vicinity have been employed. Quebec, Montreal, and Toronto have alternately been the seat of Government, and it is reasonably anticipated that the jealousy of rival capitals will be extinguished in the selection of Ottawa as the metropolis of the united provinces. This choice is doubtless the result of a far-sighted policy; and it will be their own fault if it turn out detrimental to the commercial greatness of the former cities. On the other hand, the importance thus given to the "Ottawa country" promises results beneficial, not only to this river-basin, but to the interests of the whole colony, and possibly all British North America. Already the communications up the valley are improved. The navigation will shortly be completed, by the aid of canals, to a distance of 154 miles from the mouth; a railroad is in construction, and sections of it are already at work; an increased development of the resources of the country will quickly follow the easy means of access to it; the timber trade and its dependent occupations will receive a fresh impetus; the minerals of the district will be utilized; fresh settlers will arrive, and more food will be produced from newly-tilled ground. The hitherto almost unknown tracts draining towards this centre will also receive attention. To the north-west, for instance, is the basin of the Gatineau, 12,000 square miles in extent, the river itself having an estimated length of 420 miles: it has been surveyed for upwards of 200 miles, and when left, was still a fine stream, 1000 yards in width. Of this extensive unsettled region we know only that it abounds in noble forests and cultivatable land. As a distant result of these changes, though possibly nearer than we at present expect, must be reckoned the formation of a road across the entire continent, which, when complete, will pass by the Ottawa valley to the head of Lake Superior, on account of its being the shortest route, and also because it crosses districts which are rich in timber

nd valuable minerals. As a local and immediate consequence may be noticed the astonishing and rapid rise in he value of property. Only thirty years ago the farm on which Ottawa is built was bought for 80*l.*, and it may now be set down as worth almost as many thousands.

That portion of the plateau lying to the west of the Ottawa country varies in height from 700 to 1000 feet above the level of Lake Huron. It is a beautiful undulating tract, well watered by streams, which afford unlimited water-power, and are full of fish. Its climate and soil render it well suited for settlement, although not so attractive as the Erie Peninsula to the south-west of it. A rich growth of hard-wood trees envelops the greater part of this region; and luxuriant beeches and elms, maples and walnuts, attest the fertility of the soil. Adjoining (as it does) the "lumbering country" to the east, and communicating with the Lakes in the opposite direction, the tract in question seems admirably adapted to be the producer of large supplies of vegetable and animal food for these outlets whenever it becomes settled. Two canoe routes run across it by the Mattawa and the Madawasca, the latter being also a tributary of the Ottawa, 210 miles long, with its sources lying towards Lake Simcoe.

Approaching nearer to the shores of Lake Huron, the country becomes more chequered in appearance; the wild and unproductive nature of the coasts first occasionally intrudes itself, and at length predominates. In the copper-mining district, near the northern end of the lake, the aspect is exceedingly bare and forbidding; and yet to the north-east of the St. Mary River is a fine forested country; and the valleys of the Thessalon and its affluents are reported to be eminently fruitful. In 1856 the Canadian Government sanctioned a project for a railway through the heart of these regions, passing onward to the mines further north; but until they become better populated, such a scheme would hardly repay its promoters.

The Saguenay.—If the valley of the Ottawa abounds in beautiful scenery, and raises high anticipations of its future prosperity, that of the Saguenay is no less attractive to the tourist for the savage sublimity of its aspect,

affected as it is by the apparent hopelessness of ever subduing nature in such an untractable mood. It is entered from the St. Lawrence between two lofty granite cliffs, and at once the cheerful portion of the world seems left behind. Its gloomy characteristics are most in accord with bad weather, when fierce squalls drive the dashing rain like volleys of small shot, and sable clouds resting on the ragged cliffs, double their height by obscuring it, and pour over their edges in streams of mist. At rare intervals the lines of precipices are breached by tributary streams; these are the brighter spots in the valley, and are combined with softer features and more habitable districts. The culminating point of wild scenery is reached about 40 miles from the mouth, between Capes Eternity and Trinity. Affluents join the main stream here, and enhance the wildness by the comparatively gentle character of their deep valleys. The broad river is flanked by gigantic walls of rock, 1000 and 2000 feet in height. On the right they are poorly clad in a stunted growth of pines; on the left, with scarcely a sign of life or verdure, the limestone cliffs stick up, bleached and fissured by exposure to the north. Cape Trinity is an enormous pile of confused rocks and cascades, which pierce the scattered patches of birch and fir. Cape Eternity is an equally characteristic example of the opposite and barer forms. It is one tremendous cliff of limestone, 1500 feet high, overhanging as if about to fall into the deep, black waters beneath. Nothing shields its naked surface, or mitigates the hardness of its uncouth outlines. High up a few weird pines cling to a ledge, and then all is blanched and stained by age and tempests.* At Statue Point, a few miles further up, the mouth of a large cave is seen in the face of an unscalable precipice, once guarded by a statue-like rock which gave way under the frosts of winter; and beyond that is Tableau Rock, another of the natural curiosities of the Saguenay, where the cliff becomes a sheet of dark limestone, 600 feet high, and 300 broad, quite straight, and almost as

* Wood's 'Prince of Wales in Canada.'

smooth as a mirror. With such grand features this river rivals the most awe-inspiring of the fiords of Norway, while it surpasses most of them in size and depth of water.

Its true source has not been defined. Lake St. John has an area of more than 500 square miles, and drains a vast extent of country, which reaches to the ridge of the Lawrentian mountains. From the eastern side of it two large streams take their departure, called the Great and Little Discharge. About 40 miles from their commencement they unite and form the Saguenay, which has then a course of 100 miles to the St. Lawrence. The united stream is often a mile wide, and if not unfathomable, as has been asserted, yet in some places it attains the enormous depth of a mile and a half. For 90 miles up, the Saguenay is navigable by vessels of the largest burthen; and Ha-ha Bay, 70 miles from its mouth, is said to be a good harbour. A tram-road is in construction from Quebec to the district around Lake St. John; and some of the finest saw-mills in the province are upon the banks of the Saguenay.

In the extensive region between this river and the Ottawa, the best known part is that watered by the St. Maurice. It is one of the latest opened districts for the production of timber, great quantities of which are now brought down for exportation. The town of Three Rivers is situated near its mouth, and has long been famous for its iron-manufactures, especially stoves, the metal being obtained from ore found in the neighbourhood. An affluent on the right bank of the St. Maurice flows through an extraordinary series of 23 lakes, some of which are of an immense depth. Of the thousands of square miles which lie to the east of the Saguenay we can find no account beyond such general remarks as were made above concerning the aspect of the Lawrentian table-land.

South Section.—Leaving, therefore, the north side of the St. Lawrence, we turn to give a slighter account of the third and last section of Canada, viz., that on the south side of the river, between lat. 45° and the Gulf.

In ground-plan this section consists of a triangular part towards the west, and an eastern portion, which is a strip of country along the shores of the St. Lawrence, gradually widening into the Peninsula of Gaspé, where it attains its maximum width of 80 miles. The 70th meridian is near the separation of these subdivisions, which differ greatly in their physical features.

The westernmost is a beautiful and varied region, well watered, and containing tracts of great fertility. It rises gently from the low country on the St. Lawrence to the south and east; the marshy levels near Lake St. Peter graduating first into an undulated, and then into a hilly country, as the United States frontier is approached. Of the numerous streams which cross it the principal are the Richelieu or Chambly, the St. Francis, and the Chaudière. The first of these drains Lake Champlain, in a line with the Hudson River. It is navigable for boats throughout its length, and is one of the main lines of traffic with the States. The St. Francis has its sources near those of the Connecticut, flowing in the opposite direction. Being more to the east, its navigation is impeded by rapids, which do not, however, prevent a considerable amount of transit upon its stream. Its valley possesses the towns of Richmond and Sherbrooke, and is traversed by the important railroad from Portland to the former place, which is on the Grand Trunk line of Canada. The Chaudière drains a district so close upon the other division that physically it almost forms a part of it. It is a hilly broken tract, the soil and climate being inferior to those of the former river basins. Its navigation is completely stopped by the rugged features occasionally seen in the St. Francis becoming predominant, and causing rapids and cascades which are impassable; and about four miles from its mouth it pours over the edge of the plateau, in much-admired falls, 130 feet in height.

With its ready means of access to the great American markets on one side, and those of Montreal and Quebec on the other, together with its own productiveness, this district ought to have been one of the most prosperous in Canada. The peculiar institutions prevailing in the

Lower Province till the year 1854, derived from those of feudal France, were the great hindrance to its progress; but since they have been abolished, this part of the country has entered into energetic rivalry with Upper Canada, and every branch of industry has received a new impulse. The most flourishing portion has always been that adjoining the southern frontier, between the Chaudière and Richelieu, known collectively as the Eastern Townships. Here the feudal tenure never obtained; and the inhabitants, free from its restrictions, found scope for their activity in the careful tillage of their land, the building of mills, and commencing manufactures of various kinds. These so-called "Townships" comprise six counties, estimated to contain nearly 5,000,000 acres of land, and 250,000 people.

Of the eastern subdivision little is known correctly apart from the coast. Two lines of heights pass through its length, each of them situated a few miles inland. Between them is a shallow valley abounding in lakes, whose surplus water is carried off by ravines which further complicate the region. Forests still cover large portions of it, particularly on the side draining into Chaleur Bay.

The St. Lawrence.—Many objects of interest upon the water-frontage of the three great sections of Canada, now described, have been left unnoticed. This has been done designedly, with the view of combining them together, in connection with the great artery of the country, the River St. Lawrence, to which the attention of the reader is now directed.

This noble river has its proper source in the St. Louis, a feeder of Lake Superior, which it enters at its south-west corner. Both physically and with reference to its navigation the St. Lawrence is entitled to claim the Great Lakes as magnificent expansions of its waters. It then has a course of 2030 miles from Superior City downwards to Anticosti, and enters the sea by a mouth which, above the island just named, is already 90 miles in breadth. Regarded thus, its basin contains more than half of all the fresh water on the surface of the globe. The Lakes

(including Lake Michigan in the estimate) cover an area of 94,000 square miles. The first of the series is 627 feet* above the sea level, and the last is 232; while the mean depth of the three upper and larger lakes being 1000 feet, it follows that the bottom of these remarkable depressions in the land is 400 feet below the surface of the sea. When taken in connection with the statements before made concerning the Saguenay and the St. Maurice, these facts indicate physical phenomena which are wholly unequalled elsewhere; either as to the sudden and immense depths involved, or the magnitude of the hollows filled with fresh water. And the importance given as a matter of right to the St. Lawrence is therefore seen to be in accordance with the distinguishing mark of the whole continent of America, which claims to be an aggregation of elements, very few in number, but enormous in size.

The Lakes.—Lake Superior alone has an area of 32,000 square miles, and contains about 4000 cubic miles of water.† Its Canadian coast is generally bold and rocky; cliffs of from 300 to 1300 feet rising near the shore, which is usually a fine sandy beach. The "Pictured Rocks" are variously coloured cliffs which rise perpendicularly out of very deep water for a continuous length of nine miles, and impart an anxious sense of insecurity to the adventurous sight-seer, who, in a frail Indian canoe, reflects on the possible occurrence of one of the sudden and overwhelming squalls which occasionally rush across the lake. The hills near the coast are mostly bare and rounded knolls, especially where gneissic and granite rocks prevail. But when trappean soils occur, the volcanic constituents produce a heavy growth of hard wood; and these spots, together with the mouths of rivers and some few sandstone flats, compose the scanty area suitable for cultivation. Deep bays indent the shore-line, and clusters of islands add variety to the scene, which often embraces also well-sheltered coves and inlets, destined

* Captain Bayfield. Sir W. Logan makes it 597 feet.
† Sir W. E. Logan.

to become commodious harbours for the service of the mining and fishing population now gradually accumulating. Already the fisheries are an important branch of industry. The fish are salted on the spot, with salt brought for the purpose and packed in barrels of 200 lbs. each; and large quantities are exported to other parts of Canada, and to the States. The White-fish is that most esteemed; and another called the Scisowett, of small size, is prized on account of its extreme fatness, insomuch that it almost melts away before a hot fire, and a pint of oil can be obtained from a single fish.

Near the boundary-line at Pigeon River (lat. 48°, long. 89° 50′ W.) are three deep land-locked inlets, the southernmost of which is Thunder Bay. Its importance is such that it deserves a passing notice. It is 32 miles long and 14 miles broad, and its entrance, five miles wide, lies between the imposing headland of Thunder Cape, 1350 feet above the water on the right, and the rounded summit of Pie Island, 850 feet high on the left. Beyond the latter, on the mainland, rises the lofty mass of M'Kay's Mountain, 1000 feet in height, formed of trap rocks, and prolonging its heavily-timbered flanks far towards the south-west boundary. Immediately to the north of this high ground the river Kaministiquia enters the bay by a delta having three branches, and on the left of which Fort William is situated. This was the principal station of the North-West Company (for 60 years the dreaded rival of the Hudson's Bay Company), and from this fort all their traffic for the interior took its departure. Recently, the Canadian Government have laid out the neighbourhood for settlement. The river banks are flat, only 10 feet high, and thinly covered with a stunted growth of tamarack-trees. The gardens of Fort William yield oats and potatoes, and notably a great variety of currants and other berries of good flavour, which were originally obtained from the surrounding woods, where they abound. Further up the river there are broad flats extending back from the water's edge to the cliffs, which are the true banks; and these levels, to the extent of many thousands of acres, are richly grassed, and give great

promise of being highly fertile. The navigation is soon impeded by rapids and falls, that occur in the midst of the most romantic scenery. Such are the Kakabeka Falls, 105 feet high, where the yellow waters of the river are precipitated into a profound gorge in the finely-stratified and almost black slate-rocks. The cliffs are surmounted by forests of pine, birch, and other large trees, while the sloping banks at their bases are lined with berry-bearing shrubs and flowering plants (blue-bells and others), fed by the spray. Below the Falls, where the gap widens, the elm, balsam-spruce, butternut, &c., flourish on the alluvial soil, with an underbrush of hazels and cherries, or luxuriant grasses cover the ground, and the hop, the honeysuckle, and convolvulus climb up the trees.* If the route across the continent should, as it has been suggested, take the course of the Kaministiquia River, the traveller will indeed be as much gratified with, as probably surprised at, the varied and picturesque character of a country of whose beauties so little is at present known.

The descent of land between Lake Superior and Montreal is mainly accomplished by three steps, which produce rapids or falls according to the degree of their suddenness. The first of these occurs upon the river Ste. Marie, which flows into Lake Huron; the second and most violent produces the Falls of Niagara; while the third consists of a succession of rapids extending over more than 100 miles, from Kingston to Montreal, in which distance the level of the river sinks 200 feet in perpendicular height. These obstacles to free navigation are avoided respectively by the canal of the Sault Ste. Marie, the Welland Canal, and the Lachine and other canals.

The shores of Lake Huron partake of the low hummocky nature which characterizes those of all the lower lakes. On the north side, however, it is bolder and less inviting. The wooded range of the Manitoulin Islands cuts off a large section, which is named the Georgian

* Hind's 'Canadian Exploring Expedition in 1857.'

Bay, whose shores offer much ground available for settlers, and some moderately good harbours. The towns of Sydenham and Collingwood are rising ports; the latter being largely engaged in the Lake traffic, although the low, sandy shores in its vicinity are a great drawback to it as an anchorage for shipping.

Between Lakes Huron and Erie is the small Lake St. Clair, the least interesting of them all. It is girt by low, green shores, and is so shallow that a wide belt of rushes extends far towards its centre. It is emptied by the river Detroit, upon which are several Canadian settlements, Sandwich being the principal; and the numerous windmills along the British border afford evidence to the passing voyager of the prosperity of the district.

The navigation of Lake Erie is difficult on account of its comparatively shallow water, and the want of available harbours on its shores: it is also rendered tiresome along the northern coasts by long, low points which project far beyond the general outline, without affording any compensating shelter. Nevertheless the surrounding country, on both sides, is so productive that a considerable trade is carried on across its waters. The south shores of the Erie peninsula present alternations of farm and forest in grateful contrast, and both grain and timber are largely exported. The White oak (*Quercus alba*) here attains an altitude of 130 feet, and a diameter of 84 inches. The Button-wood tree (*Plantanus occidentalis*) is especially abundant, rivalling the former in height, and often exceeding six feet in diameter. The timber of this tree is softer than beech, but extremely difficult to split; and is sometimes beautifully marbled, when it becomes a valuable furniture wood. Another magnificent tree, almost peculiar to these shores, is the White-wood (*Liriodendron tulipifera*), which is covered in June with beautiful tulip-shaped blossoms, whence its common name of Tulip-tree. Of the same size as those just mentioned, its timber is adapted to all the purposes for which the wood of firs and pines is employed.

Niagara.—That portion of the St. Lawrence which drains Lake Erie into Lake Ontario is called the River

Niagara, upon which are situated the celebrated Falls.* About 20 miles from its commencement, the river, previously divided by Grand and Navy Islands, reunites into a broad stream, which is shortly after narrowed to a width of one mile, and its speed increased in consequence from a rate of three miles to one of eight miles per hour. For the last half-mile above the cataract it becomes a series of rapids, falling 50 feet in that distance. Its direction is here almost due west, when it suddenly turns toward a point east of north, and takes its tremendous leap into the pool below. Stretching some way up the stream is a long bank, just under water, which terminates at the brink of the Falls in Goat Island and some other rocks. Owing to this circumstance the Falls are divided; and we have the Great Horse-shoe Fall on the Canadian side, 700 yards in width, the American Fall towards the east, 200 yards broad, and a smaller fall in the centre, 33 yards across. The line of shallows also divides the rapids above into what are in effect two channels, of which that to the west has the steeper incline; and thus, while the American Fall has a drop of 164 feet, the Horse-shoe Fall is only 158 feet high: the difference is, however, more than outweighed in the effect upon the spectator by the enormous volume of water which pours, like an unbroken sheet of liquid malachite, over the latter.

The change of direction in the course of the river is very favourable for observing the Falls, as fine front and side views are obtained in consequence. The ledge itself over which the water is precipitated forms a curve, that, from the American side to a point about midway across the Horseshoe Fall, is nearly in a line with the right bank of the river below, and for the remainder of its length is almost perpendicular to it. Hence on the lower stream, or at the suspension-bridge which spans the ravine, the western side of the Canadian Fall is all that is seen in front, the other parts being viewed sideways at

* The most intelligible account of these Falls which the author has seen is contained in the 'Western Wanderings' of W. H. G. Kingston, 1859. But one glance at Sir C. Lyell's coloured plate and map is worth more than all the descriptions ever written.

a very acute angle. Goat Island was formerly reached by embarking in a canoe above the rapids, and poling carefully down the line of shallow water; but the exploit was exceedingly dangerous, since the slightest mishap might entail certain death. The island is now united to the American side by rough but firm bridges, extending also to an adjacent rock, and from these the most impressive views of the several falls are gained. On the Canadian shore a slab of limestone projects horizontally nearly 50 feet beyond the cliff below it; this is called the Table-rock, and is another favourite point of view. Also, by walking up the side of the pool, beneath this rock, it is possible to see completely behind the Horse-shoe Fall, and even to walk some distance under it, where the vast curtain of water, impelled by the velocity gained in the rapids, shoots over in a graceful curve, quite clear of the rocks at the foot of the Fall. The wind rushes out of the aperture thus formed with extreme violence, and completely drenches the approach. In general, it is not until visitors have seen these famous cataracts in various aspects, and grown to some extent acquainted with them, that the mind is sufficiently at rest to appreciate their beauty and grandeur. The overwhelming rush of waters, the mingled roar and crash, the constantly varying forms and colours, the clear green of the Falls, the dark water beneath, and the circular rainbows ever forming and breaking on the wreaths and clouds of spray,—all these elements are only to be duly valued after the confusion of the first impressions has subsided. It is the opinion of some that the Falls never look so solemn as when seen by moonlight, when the silence of the night is uninterrupted by aught save the sound of mighty waters; and cabmen, guides, and "museum-men" no longer intrude their incongruous attentions, and a friendly shade is thrown over the whole array of puffing advertisements and carved names, which by daylight look so vexatiously unromantic. Their appearance also in the winter is extremely striking, and much less often noticed. The severe frosts struggle to arrest even the tremendous power of the falling water, and, failing that, heap great mounds of frozen mist

half-way up the cataract, while translucent stalactites of enormous growth depend in icy sheets and columns from every overhanging rock.

Below the Falls the river runs away to the north in a course at right angles to that above them, and at the bottom of a magnificent gorge, whose bounding cliffs are 200 and 300 feet high, and as many yards apart. Four miles down, by a sudden twist to the left, and then to the right, the boiling stream is carried into an expansion of its bed, where its violent motion causes it to revolve several times before it can make its exit. This is the Whirlpool, where huge trees may be seen hurled round for days together, and tossed about with fearful power, indicating too surely what would be the fate of any small vessel caught in the whirl. The northern escarpment of the table-land is reached three miles below this spot, and the stream henceforth pursues its unruffled course across the sandstone formation to Lake Ontario, seven miles distant. Queenstown is situated beneath these heights, to which it gives its name.

The upper 90 feet at the Falls is of hard limestone, below which is a soft black shale; and these strata are faithfully repeated all the way down the ravine. The softer shale rapidly crumbles away under the combined action of the water and atmosphere; and hence the superincumbent limestone at the Falls overhangs as much as 40 feet, and occasionally large pieces of it give way. Goat Island is, indeed, said to have been formerly much longer than at present. From this it has been conjectured that the whole of the gorge down to Queenstown has been worn away by the Fall in the lapse of ages.*

In the opposite direction fears have been entertained lest the Falls, by continual retrocession, should in time arrive at Lake Erie, and drain it; but Professor Silliman, a geologist engaged on the United States Survey, has

* In any attempt to estimate the probable time required for this, it should be remembered that the Falls are now nearly at right angles to the width of the lower course, and about three times as broad. The height also from the top of the plateau would be diminished formerly, as now, by previous rapids.

observed that the limestones now compo. .g the top of the Falls, dip towards the south, and will eventually form the whole of the cliff. When that happens the upper parts will be worn by the water into a slope, and the Falls of Niagara will ultimately disappear in a long series of rapids.

Low and gently-shelving shores surround the greater part of Lake Ontario; yet on the north side there are frequent exceptions to this, and to the east of Toronto, at a place appropriately named Scarboro', the cliffs rise 320 feet above the water. In the south-west corner is Hamilton, at the head of Burlington Bay, unlike its namesake at home, in having a narrow entrance. The Burlington Heights (continued from Queenstown) are here only one and a half mile from the shore, and form a finely-wooded background to the orchards, gardens, and farms which surround the town. On the north side of the lake are Toronto and Kingston. The former city possesses a fine natural harbour, made by a long spit of land stretching to the westward, and acting as a break-water. The port of Kingston is more excellent still, and is also admirably situated for commanding the trade of the lakes, the St. Lawrence, and, by the Rideau Canal, of the Ottawa country. Kingston is, therefore, a place of considerable importance. In its neighbourhood is some of the richest and best cultivated land in Canada. The scenery is also beautifully varied, especially where the shore is indented by the Bay of Quinté and other openings.

Immediately to the east of Kington is the entrance to the St. Lawrence, by the expansion known as the Lake of the Thousand Islands. The beauties of this lake are a constant theme for praises with Canadian writers and travellers. The rounded forms of the islands are sometimes bare and smooth, and at others covered with trees and underwood, encouraged by the moisture in the air to the richest luxuriance of growth. The sudden changes arouse the attention of the most dormant. Emerging from shady passages, so confined that one may leap on shore, a broad sheet of water ahead appears closed by a green

band of foliage, which breaks up into a hundred islands on approaching nearer, where the complexity of the twisting channels requires the nicest judgment in selecting the right one, and the greatest skill in handling a vessel. The interest caused by such alternations continues throughout the whole length of 70 miles.

On clearing the Lake of the Thousand Islands the voyager down the river next encounters the rapids by which the descent is made from the last of the terraces, composing the Lake Region; of these, besides smaller rapids, there are five great ones. The first is the long Sault, where the highest waves occur, and the lowest is the Lachine, in which the act of "shooting the rapids" demands the greatest care and courage in all concerned. Formerly, the ill-built craft employed in the river trade never attempted this dangerous feat; but accidents are unknown to the well-appointed and ably-worked steamers which now shoot them daily, starting from both the American and Canadian sides of Lake Ontario. The Lachine Rapids are just below Lake St. Louis, which is formed by the junction of the westernmost arm of the Ottawa delta. Here, for miles on either side, the clear stream of the St. Lawrence runs side by side with the dark, though not turbid, waters of its great affluent. At the lower end of the lake huge billows are thrown up by the river meeting with obstructing ledges of trap-rock in its bed. The stream widens to the extent of 4 miles after passing the rapids, the low wooded shores being relieved by the "Mountain" on Montreal Island,—a boss of greenstone rising boldly out of the plains, but of no great altitude. Opposite the city of Montreal the trap ledges again jut out into the river-bed for a thousand yards on either side, the water forcing itself through the narrow deeps in the centre with a rush, which causes the Sault Normand and the St. Mary's current.

Here, too, the St. Lawrence is crossed by that wonder of modern engineering, the Victoria Bridge. Constructed after the plan of the Britannia Bridge over the Menai Straits, this work far exceeds any of its predecessors in its magnitude, and in the difficulties which attended its

formation. It was thrown across a river nearly two miles wide, at an elevation of 100 feet above it. In the summer, when the water was low, it ran like a mill-stream, with a speed of at least eight miles an hour; in the winter, millions of tons of ice floated down on the swollen current, sometimes carrying away in an hour the work of months. The bed of the river presented other difficulties; in one part, almost a quicksand, it had to be excavated, and rendered firm by artificial means; in another, vast boulders, some of them weighing 25 or 30 tons, required removal. The piers, 24 in number, are furnished with wedge-shaped projections, faced with granite, to stem the assaults of the floating ice. When these were built came the task of raising the enormous tubes to their summits. The centre one is 330 feet long, and each of the others 270. These tubes were lifted in two sections each, and the whole firmly riveted together. Huge abutments of masonry and solid embankments join them to the shores. After five years of unremitted labour, this great work was finished in 1859,* and thus completed the Grand Trunk Railway as far as Montreal. Notwithstanding our admiration of it, yet it must be confessed that the outlines of this bridge are not picturesque. Probably it is not fair to expect beauty in tubular bridges. The Victoria Bridge is, however, seen at the greatest advantage from the south side at sunset, when its dull tints are brightened into reds and yellows; and Montreal forms a background of real beauty, with its tin roofs and steeples glittering like silver, and the "Mountain" overhanging all.

Between Montreal and Lake St. Peter the country on the south side is often marshy from its lowness. On the opposite shore the edge of the granitic plateau forms a cliff, about 100 feet in height, at from one to six miles from the river, and over which the tributary streams fall in cascades.

* A tablet on it bears this date, and the inscription "Rob. Stephenson and Alex. M. Ross, Engineers. Built by John Hodges, for Sir Saml. Peto, Thos. Brassey, and Edwd. L. Betts, contractors." —Wood's 'Canada.'

As the St. Lawrence nears Quebec, the scenery of its shores gradually becomes more bold. On the right, lines of rocky cliffs, or steep earthy slopes overhang a narrow beach, on which are almost continuous villages and houses. On the left, the bank ascends by slow degrees to the Heights of Abraham; the escarpment rising from 50 to 350 feet above the water, in the space of seven miles. This is the south-east face of the narrow mass of high land which terminates at Quebec, in Cape Diamond, 372 feet high. Forests and farms occupy its summit; its northern flank dips, by short ledges and grassy inclines, to low meadows, which soon rise again to the edge of the neighbouring plateau; and on the eastern end is built Quebec. The city clings to the steep slopes, and the quaint houses rise tier above tier, in most romantic irregularity, and the whole is surmounted by the formidable fortress whose outworks indeed encroach upon the streets. Draining the hollow to the north of the city is the River St. Charles, which here assists in forming the harbour—a magnificent basin, enclosed below by the Isle D'Orléans. On the right bank of the St. Lawrence, standing opposite Cape Diamond, is Point Levi, with its church and village. It is a shattered cliff 200 feet high, capped by grassy declivities to the height of its rival. In rear of it, the top of the plateau is a rough undulating country of farms and forests, intermingled with low ridges of almost naked rock; and the edge of this tract forms high cliffs for a considerable distance down the river. On the left side, below the St. Charles, is perhaps the most romantic spot in the whole neighbourhood; this is a deep ravine in the face of the cliff, containing the Montmorenci Falls. The stream above is as large as the Thames at Richmond, and is here, with scarcely any warning, hurled over a precipice 300 feet high, in one massive body of water, which groups well with the wild rocks and dense foliage, and gladdened by the prismatic hues reflected from the misty spray, composes a picture that the inhabitants of Quebec are never tired of showing, nor their visitors of admiring.

To the east of the Falls of Montmorenci, the cliff

which produces them alternates with steep slopes of grass and clay; the maximum elevation being attained in the stupendous headland of Cape Tourmente, 2200 feet high. From this point upwards, the scenery of the St. Lawrence presents a succession of views, unmatched for their variety, beauty, or grandeur. None combine all these qualities more admirably than the extensive panorama seen from the walls of the citadel which crowns Quebec. Nor can any one contemplate this scene without its deriving additional interest, both from its association with the immortal names of Wolfe and Montcalm, equally revered by their respective countrymen; and from the importance of the fortress itself, as the key of the St. Lawrence,—the Gibraltar of America.

The St. Lawrence is considered to end at the Island of Anticosti, 140 miles long by 35 miles wide. The south side of this island is low; the north is formed of broken cliffs from 200 to 500 feet high. Many streams come down on either hand, falling into a channel which surrounds the island, and is caused by a line of reefs dry at low water. This channel affords an excellent fishing-ground for the few inhabitants, who chiefly reside on the south side, where they cultivate barley, potatoes, and other vegetables. The limestone soil supports a covering of spruce forests, having a dense undergrowth of cranberries, strawberries, &c., wherever the sun penetrates the gloomy leafage.

The south side of the river mouth is formed by the end of the Gaspé peninsula, which ought to be better known than it is, on account of its grand scenery and its excellent harbours. Between Bonaventure Island and Gaspé Point, vast cliffs of red sandstone form the coast, and the singular Percé Rock is an isolated mass of the same material, in which the deep clefts have been worn completely through a huge cape. These heights unite with the solemn gray limestone crags of the lofty Point, to anticipate the majestic features of the River Saguenay. But the shores are little frequented; and the fine harbour of Gaspé Bay is chiefly used by the fishermen engaged in the Gulf.

Here we conclude the description of the physical characteristics of Canada: and propose to employ the remaining space at our disposal in some account of the principal branches of industry which occupy the colonists.

Industry.—Timber-trade.—The timber-trade deserves to be first mentioned, as forming the original occupation of the people, and as still the most valuable in its products, although fast yielding, in this respect, to those of agriculture. The immense forest region of this colony embraces the country drained by the Ottawa and the Saguenay, and extends in great luxuriance over the whole of the Erie Peninsula. Its position, as thus marked out, admits of the following partial explanation. The prevailing winds are from the west, and thus are moist winds; these, coming in contact with the Lawrentides, deposit copious supplies of water upon their southern slopes. The Erie Peninsula, also, derives much damp air from the lakes upon its borders. Hence, wherever the soil was fitted to maintain a vegetation of large growth, the combination produced the forests which so densely cover the country. The particular species or genus which should predominate in any given district was determined by the minor differences of soil and climate: thus the "Ottawa country" is the special home of the white and red pine (*Pinus strobus* and *resinosa*), and these are again separated by the preference of the latter for the dryer and cooler localities. Again, proceeding to the westward, as the lower and richer soils of the Erie Peninsula are approached, the endless mass of pine forest gives way, and is mingled in increasing proportion with hard-wood trees. Walnuts, maples, oaks, and others, contrast in autumn the glowing tints of their deciduous foliage, with the ever-sombre hues of the conifers. These species occur, at first, as the mere underwood of the great leafy eminences built up by the latter; but, at length becoming predominant, the pines and firs stand out, singly or in small groups, above the general level, like the members of some gigantic race who have left their native uplands to luxuriate in the plain.

The timber and wood of commerce are principally supplied by the valley of the Ottawa; but all the smaller kinds, such as battens, cask-staves, &c., and also the varieties of hard woods, are procured in greatest abundance from the countries bordering the Great Lakes. In the former district, the white or Weymouth pine is the most valuable.* Its great size (it is sometimes 200 feet high), its straightness, and especially its light weight (for a cubic foot weighs but 29 lbs.), place it in the first rank with shipbuilders for making their masts and spars. The red pine is also much prized; its resinous nature making it exceedingly durable, but its weight (40 lbs. per cubic foot) forbidding its use in the upper parts of a vessel. In the Western district, besides the valuable white oak already mentioned, there is the black walnut (*Juglans nigra*), a fine tree, growing to a height of 120 feet, the lower half being entirely free from branches; its beautiful dark-grained wood requires only to be known in England to compete successfully with mahogany and rosewood; for instance, excellent veneers are cut from its timber, almost six feet wide. The hickory (*Carya alba*) is another tree of the same natural order, nearly as high, but distinguished by its smaller diameter and shaggy bark. Its wood is esteemed by the lumberers for their axe-handles, on account of its toughness and elasticity; it has been also ascertained to possess more heating power than any other wood, a point of no small importance in a country where even the steam-vessels and locomotives are supplied with wood for fuel. This property is found to be connected with great density and weight, the numbers for hickory being sp. gr. 0·929, and weight of cubic foot, 58 lbs. The white ash (*Fraxinus Americanus*) is also prized for its toughness, but more so for its quick growth; it has, moreover, the peculiarity, that the timber of two-year-old trees is the best for all purposes where great strength is required. The Dogwood (*Cornus florida*) is worthy of notice here, on account of

* The following remarks are compiled from data obtained at the International Exhibition.

its supplying the place of box for the use of the engraver; and its wood is so free from silex, that watchmakers and others employ it for polishing drill-holes and lenses; while its rough bark is in repute medicinally as a tonic. Lastly, the varieties of maple produce beautiful woods for the cabinet-maker, and one is planted for the sugar obtained from its sap, though that article is chiefly produced in Lower Canada. In the above brief enumeration, the abundance of deciduous trees should be remarked, because it is based upon their prevalence in Canada, which is, notwithstanding, usually imagined as yielding principally the evergreen genera of pines and firs. This notion is partly accounted for by the great quantity of deals and light-wood timber which we receive from thence, and is also partly due to the statement of botanists, that out of 114 species of pines at present known, 42 are peculiar to Canada and the Hudson's Bay Company's territory.

The occupation of preparing and bringing the timber to a port of shipment is termed "lumbering," and to engage in it requires peculiar qualities in the labourers, and a large command of capital in the principals. The master lumberer often rents 10 square miles of forest, and employs 500 horses in the work of dragging the timber to the water-ways. And on the Ottawa, a timber-raft is frequently worth 3000*l*., and only a small one is valued at 1000*l*. The winter is the season for cutting down the trees, as then the frost and snow have dried and hardened the ground, and rendered it possible to convey the timber to the creeks and streams. A good hewer brings great intelligence to his business, in addition to physical strength and an iron constitution. The Canadians are said to make the best lumberers, being inured to the labour and climate, and sober, although somewhat wild. Their number in the "Ottawa country" alone is upwards of 25,000, and such as are experienced hands, earn 6*l*. a month. When the logs are brought to the water's edge, with the first thaw they are floated down to some general outlet of the allotment, where they can be formed into a raft. This part of the work is very severe, the men often

labouring the whole day up to their thighs in water at the freezing point; but, arrived at larger streams, they build a rough hut upon the raft, and glide down swiftly with the current, although the frequent rapids, and dangers from hidden rocks, require constant watchfulness and exertion. Where the obstruction is very great, the rafts have to be taken to pieces; and, in some places, government money has been devoted to making public timber slides on a large scale. Such are those by which the Chaudière Falls at Ottawa are avoided, and which, when complete, will have cost 100,000*l*. The timber would be broken if allowed to go over the Falls; it is consequently formed into small rafts, of 10 or 15 logs each, with a sort of bridge in the centre for the men to stand on. These are brought to the mouth of the slides, which resemble a series of inclines with levels between them, the latter being necessary to check the speed of the descending water. Some of the slants have a little fall of three or four feet at the lower end, down which the "crib" drops, plunging deep into the flat water below; and hence the need of the raised bridge in the middle. The motion is described as a combination of swimming and flying, each slope being taken at a faster pace, and the raft thumping along the levels in a manner which is extremely trying to the nerves of the uninitiated. These slides are altogether three-fourths of a mile in length, but are passed in a few minutes. The timber is then once more collected, and brought down to the ports on the St. Lawrence for sale. The value of the wood exported in 1860 was 2,068,250*l*., of which that sent to Great Britain was worth 1,272,530*l*. Pine-timber (especially white) and deals, composed two-thirds of the total export, and oak-timber was the next principal sort. To this quantity must be added that reserved for home consumption, which, under the items of ship and house building, and of fuel, will considerably more than double the above figures as the total value of the wood supplied by the forests of Canada. Yet it is estimated that, at the present rate of demand, timber of the scantlings now used could be furnished for the next 150 years by the

Ottawa district alone, no regard being had to planting in the mean time.

Ship-building is encouraged by the ready supply of good materials, and may be considered as a branch of industry dependent on the lumbering trade. It is carried on at many places on both sides of the St. Lawrence, but to the greatest extent on the banks of the St. Charles, at Quebec, where vessels of 1500 and 2000 tons are built faster than crews to man them can be obtained. The value of the shipping sold in 1853 was half a million sterling.

The exportation of pot- and pearl-ashes is also regulated by the work in the forests; the small wood being consumed on the spot for this manufacture. In 1860 we imported ashes of the value of 164,000 pounds sterling from Canada, nearly all of the first or coarser kind, as our glass and pottery makers find it more economical to refine their own raw materials whenever possible. The production of pot-ashes might be greatly increased with more labour, and would be a profitable business, since it is calculated that two and a half acres of ordinary hard wood, out of which the lumberers have taken the large timber, will yield a barrel of ashes, giving at least a net profit of 7*l.* 10*s.** It is further worthy of observation that in the case of the white oak, one of the best trees for this purpose, the potash in the outer wood is to that in the central parts in the proportion of 13·4 to 9·6, indicating the advantage of thus using the pieces chopped off in squaring the logs.

Fisheries.—The Fisheries are of more importance to the colonists as furnishing articles of food than to other countries as yielding exports. Still they deserve mention as being a school for seamen, and as affording an occupation which might be vastly enlarged. The Gulf of St. Lawrence is the seat of the deep-sea fisheries, where the Canadians share with the inhabitants of the Atlantic colonies and the Americans the pursuit of the cod, herring, and mackerel, which annually come in from the

* 'Quarterly Review,' January, 1861.

ocean. The settlers on the Magdalen Islands also engage largely in this fishery, and in the pursuit of seals, which is carried on in the Strait of Belle Isle. In the St. Lawrence salmon and herrings are taken as high as Quebec, by the simple expedient of planting a row of stakes near low water-mark so as to make with the shore a passage to a circular pool, defined also by stakes. The fish are carried into the latter by the retiring tide in astonishing quantities, and only require to be gathered up as they are left on the mud. During the winter a small fish, called the tom-cod, is caught by hook and line through holes in the ice. In 1854-5 it is asserted that 20,000 bushels of this fish were sold in Montreal market, realizing 2500*l.*, the produce of the single fishery at Three Rivers.* The value of the Lake Fisheries has been alluded to above, the white-fish, salmon-trout, and sturgeon furnishing the largest part of their produce. The total export of fish and oil in 1860 was worth 167,000*l.*, although only a small portion reached us; but this statement gives no correct notion of the entire value of the Fisheries.

Minerals.—The mineral resources of the colony are as yet scarcely appreciated. The unlimited stores of copper on the banks of Lake Huron are tapped by the Bruce Mines, but the distance from a market has hitherto interfered with their success. The same cause has affected the Marmora works, on the north of the River Trent, where magnetic iron-ore of rich quality is obtained. Iron-ore is indeed found in numerous places, but, except at St. Maurice, it is but little utilized. Plumbago and manganese are similarly neglected. Various ochres are obtained in abundance, as at Three Rivers; lithographic stone at Marmora; gypsum at Paris; and plenty of excellent sandstone, for building, on the banks of the Ottawa. Here, also, Arnprior, at the mouth of the Madawasca, furnishes very beautiful marbles from the limestone of the Lawrentian formation.

The absence of coal has led to various contrivances for

* Morris's 'Prize Essay.'

obtaining other kinds of fuel. Of these we may mention the large manufacture of compressed peat near Montreal. To the same necessity may be traced the employment of asphalt and petroleum as aids to fuel, and the quickness with which the mineral-oil springs of the west have been turned to profit, although not especially for the heating properties of their produce.

Earth-oil.—These springs have originated such an important trade that some account of it must be given here. During the progress of the Geological Survey, conducted by Sir W. Logan, it was noticed that petroleum, or mineral-oil, occurred on the water of the River Thames, in the township of Mosa; and a bed of bitumen was found in Enniskillen, a township adjoining Sarnia. The latter was about half an acre in extent, and two feet deep in the centre. Nothing was done towards putting this substance to its present uses till 1853, and very little before 1857. In this year a gentleman residing at Hamilton, named Williams, stimulated by the experiments of Young of Glasgow in distilling oil from coal, determined to do the same with this asphalt. He subsequently dug wells below it, which produced the liquid petroleum of commerce. By the beginning of 1861, Mr. Williams had raised 200,000 gallons, and five wells were then yielding 700 gallons a day. Meanwhile oil-springs had been discovered in Pennsylvania, and extensively worked. From this commencement arose the large oil trade of the States and Canada.

The Petroleum region extends from the Ohio valley to Collingwood on the Georgian Bay, and from the Alleghanies to the Mississippi, and is met with again in Texas and California. In Canada the best yielding springs are found upon Black Creek, which falls into Big Bear Creek, a feeder of Lake St. Clair. Here the original wells were sunk. They are only 40 feet deep, while others, close to the water's edge, are three times that depth. The oil is found in vertical fissures in beds of clay or gravel, from which it drains into the wells. Latterly, also, the underlying rock has been bored, and the oil so obtained is of a finer quality than that from the superficial deposits.

In some instances the oil is forced up to the mouth of wells 50 feet deep and even runs over, wasting thousands of barrels, and justifying the name given to the creek. The pressure is thought to be due to gas, which is always given off in great quantities, and acts like laughing gas upon the workmen to such an extent that it requires to be occasionally dissipated by explosion. On the Ohio the oil is much purer, but not so near the surface; and there are other circumstances which lead to the inference that its origin is different from that of Upper Canada. The theory of its formation, suggested by what happens in the chemist's laboratory, is, that the coal deposits below have undergone a process of distillation at a low heat, and that the vapours have been subsequently condensed in the cracks and gravel beds whence the petroleum is obtained. If this explanation is accepted in the case of the American oil-wells, it will not hold good for those of Canada, since the Survey has shown that the strata in which they exist are lower than the coal-beds, and dip under them, both towards Pennsylvania and Michigan. The petroleum of Enniskillen is therefore supposed to be derived from layers of bituminous shale, which are full of organic remains, mostly animal, and are peculiar to the geology of Canada, but presumed to be the equivalent of our Devonian system. Either theory requires application of heat obtained perhaps from steam, and the distillation must have been conducted as in the closed retorts of gas-works, on account of the absence of oxygen in the products.

The crude oil of Canada is very thick, and of a dark-brown colour, with an intensely unpleasant smell. By distilling it, and carefully separating the results of different temperatures, several varieties of oil are obtained, while the colour and smell are removed by washings with water, sulphuric acid, and caustic potash. The latter agents are used sparingly, however, as they impair the illuminating power. By these processes the following articles are manufactured in succession:—1. Naphtha, Benzine or Benzole, which is very volatile, and, when vaporized, exceedingly explosive, and therefore dangerous—used as a solvent of resins and fats.

2. Several illuminating oils, of the formula $C_n H_n$, more or less free from colour and smell, the inferior sorts being excellently adapted for lubricating purposes. 3. A dense, dark, unctuous liquid, from which Paraffine crystallizes at the reduced temperature of about 40° Fahrenheit. This, when purified, becomes the white, inodorous substance of which the beautiful paraffine candles are made. Superior to wax in appearance and light-giving power, they will be eventually much cheaper, perhaps even cheaper than common tallow candles. In the United States they cost less than 1*s.* 6*d.* the pound. An extraordinary export trade in mineral oil has been created, the quantity shipped in the first six months of 1862 having reached a total of 4,500,000 gallons. In Canada, the increase in the exportation of these products may be expected to be very great, now that public attention has been drawn to the subject. Refineries on a large scale have been erected at Hamilton and Toronto, and the Grand Trunk Railway Company have made cars, each capable of carrying 10 tons of the crude oil. A large consumption takes place in the colony, the best burning oil selling in the towns at 2*s.* per gallon; while Great Britain is said to be capable of absorbing 42,000,000 gallons of these oils every year, and already extensively employs them for lighting, lubricating machinery, oiling wool previous to spinning, and in the manufacture of candles and soap.*

Agriculture.—The Agriculture of Canada has made astonishing progress during the last twenty years, and will continue to advance as the colony becomes more completely settled. This is most manifest in Western Canada. Here, as if by magic, the hand of man is pushing back the primæval forest, each settler's log-house being a centre of operations; their farms gradually coalesce, until the forest disappears altogether, or only remains in strips and patches left by design. The richest soil is found in

* 'Pharmaceutical Journal,' August, 1862; 'Chemical News,' Nos. 146-8; United States Catalogue, International Exhibition; Pamphlet of Messrs. Field on Paraffine Candles. (Paraffine, from *parum affinis*, because of its resisting combination with other bodies; even with sulphuric acid and nitric acid, unless hot.)

connection with the Erie Peninsula. On the banks of the Ouse the land was at first too rich for wheat; in other places cereals have been grown for thirty years in succession without artificial dressing or rotation of crops. No doubt this is a ruinous practice, and the cause of the small returns compared with those of Great Britain. But it is not always so. The best farming of Lincolnshire and Haddington is often reproduced by colonists from those counties. The finest breeds of cattle are obtained, and the most newly-invented machines introduced. Of wheat, 50 bushels to the acre are obtained, while the stumps of the trees are yet in the ground; and some land yields 100 bushels. Still the annual average return of winter wheat is only 18 bushels per acre for the whole colony, and of spring wheat (by far the most frequently grown) it is but 16.* The average return, indeed, for Canada East is hardly half these numbers; but agriculture in that province is now making rapid strides in advance. The superiority of British farming in Canada West over French in the Lower province is aptly illustrated by the returns for 1852. From these it appears that while the land under wheat culture in the former was not quite twice as much as in the latter, the produce was three times, and the value four times as great, the average price being 4*s.* a bushel. So with oats, barley, buckwheat, and peas, though in less decided ratios. The maize of the Upper division is sometimes marvellous in its growth: we are told of some at Toronto which was 10 feet high, with cobs of enormous size. Tried by the statistics of pasture lands, the results are similar. With more grass land in Lower Canada, the Upper province owns more cattle, and especially more sheep, and yields larger quantities of dairy produce and wool. Another observation furnishes the clue to much of this difference. The holders of land were about 100,000 in each division. But the small occupations, 10 acres and under, and also the larger, 200 acres and upwards, were as 14 in the East to nine in the West; while the bulk of the holdings,

* Official Report of Sir Edmund Head, August, 1859.

from 50 to 100 acres, were 10,000 more in the latter than in the former province. Thus the French *habitans* either had farms too small to be profitably worked where labour was so dear, or too large for their capital; while the reverse obtained among the Scotch and English settlers of Upper Canada. On the other hand, this disposition of property in Lower Canada favoured the production of what may be termed garden crops. Of these, flax, hemp, and hops are the most important; the production of which might be increased until they become largely exported to Great Britain and the States. The populous cities in the East have an effect in producing the greater quantity of hay returned for this province, whereas the cattle in the West often browse in the woods in summer, and are fed on turnips in the winter.

Between the years 1841 and 1851 the agricultural productions of Canada increased 400 per cent. In the latter year they were valued at 9,000,000*l.* But in 1859 the wheat crop alone was estimated at 25,000,000 bushels, which, at the above-named average price, would be worth 4,500,000*l. sterling.* The exports of farm produce are about equally divided between Great Britain and the States; but the trade in bread-stuffs with the sea-board colonies grows annually larger. Flour is more frequently exported than grain, and its excellence and whiteness are such that the American millers are said to improve their own by its admixture.

Montreal, Kingston, and Quebec are the great centres of distribution of food products, for which their geographical position admirably fits them. Thus in 1860 the number of sea-going vessels cleared and entered at Quebec was 2535, having an average admeasurement of 540 tons. This was more than double the number of the ships recorded at all the other ports besides, sufficiently showing how much this city engrosses the ocean traffic. Kingston occupies the same relation to the trade on the Lakes, no less than 1500 vessels making the voyage to and from this port. Of these, 1000 were steamers, and about one-third of the whole belonged to the United States. Toronto is only second to Kingston in its share of this large trade:

and, in Lower Canada, Montreal commands a vast overland system of communications, by canal and railway, both with Canada and with the Eastern and Western States of the Union.

Climate.—The character of the Canadian climate is popularly believed to be a great obstruction to the progress of agriculture. It is certainly extreme. With the latitude of the south of France, the difference between the maximum and minimum temperatures in Canada West is very much greater. This is also the case with Quebec, in latitude 46° 49′. There the monthly isothermal (according to Dove) for January is 14° Fahrenheit, and passes through Bear Islands, near Spitzbergen; while that for July is 68°, or the same as for the Azores and Nantes. Occasionally the cold is intense, as, for instance, in January, 1859, when for more than five days the thermometer did not rise above zero, and mercury froze in the open air, the minimum of −40·1° Fahrenheit having been observed at Quebec. Some such intense cold as this froze the whole of Lake Superior in 1843, the only time recorded, and happening then with the concurrence of four days' calm.* Yet the winter season, severe as it is, does not perniciously affect the operations of the farmer. A layer of snow, a foot and upwards in depth, effectually protects the wheat plants of the autumn sowing from the frosts. When once the cold weather has fairly set in, the air is dry and the sky bright; and the hardened snow makes the country passable in all directions, even broad streams offering no impediment to motion. Carting of all kinds can then be done at much less expense than is usual at home. No doubt there is a difficulty in providing for the sheep and cattle during the five winter months; but the Canadian settler meets this, at least in great part, by killing off his fat stock on the approach of winter; and grim stories are told of the rows of frozen animals standing in the meat markets of the large cities; moreover, that the drawback is not overwhelming, is shown by the great and annually

* 'Bishop of Montreal's Journal,' quoted by Mr. Hind.

increasing numbers of cattle and sheep returned in the Official Reports.

The summer climate possesses peculiar advantages. The heat rapidly brings the crops to maturity, whether of grass and grain, or of fruits, vegetables, and roots. Melons ripen freely in the open air, and the orchards of the Western province are remarkable both for the excellence of their apples and for the cider, which is abundantly made from them.

Notwithstanding the general character of dryness possessed by the climate of Canada, it is clear that copious depositions of moisture must take place along the range of the Lawrentide Mountains, by which the vast drainage is supplied. The Ottawa compares in volume of water with the largest rivers of Europe, and the mouth of the Saguenay is like the junction of some great lake. This rain and snow, it is observed, is commonly accompanied by a north-east wind; but many facts and comparisons lead to the conclusion that the moisture is actually brought from the west, and deposited where the wind from this quarter encounters the cooling effects of that from the north-east, acting in conjunction with high and broken ground.

As if in compensation for the hard winter and the late spring, British North America has a peculiar revival of warm weather in autumn, called the Indian summer, the cause of which is, however, not well understood. Towards the end of October the first frosts take place, and the forests assume their gorgeous hues, reflecting a light so bright and yellow through the atmosphere that even a dull day displays all the glow of sunset. Then the weather becomes warm and oppressive; a haziness obscures distant objects; the calm air permits sounds to be heard at astonishing intervals; and all nature wears an aspect of charmed tranquillity. From twenty years' observations at Toronto (1840-59), the mean continuance of this season is found to be six days, from the 27th October to 2nd November.* But suddenly the cold sets in with

* Hind, quoting Mr. J. Walker of the Provincial Observatory.

extreme rigour, and in a single night the gay woods are stripped of their foliage, and ice and snow reign supreme.

Experience has taught the people how to prepare for and enjoy the severe winter. The casements of the windows are doubled; stoves are universal; and out-door garments of leather and fur leave but a few square inches of skin on the face exposed to the frost. When the Falls of Montmorenci are frozen, they become the rendezvous of merry pic-nic parties, who amuse themselves by sliding down the mounds of frozen spray on small sledges. Travelling and visiting are undertaken in winter as the pleasantest time. On the lakes, ice-boats, mounted upon iron skates, sail before the wind with great celerity; and, with the settling of the ice in the St. Lawrence, roads are opened across it, and separated counties become one. At Montreal the ice always causes some anxiety before it becomes fixed for the winter. The swift current drives the loose pieces under each other until huge piles of icy ruins are formed. These great heaps, sometimes 500 yards long and 200 broad, formerly occasioned much damage by encroaching on and sweeping away the buildings on the quays, which are now protected by barriers: even after all seems at rest, the submerged ice accumulating may so increase the hydraulic force of the stream, that it lifts the whole mass, and forces it onwards with uncontrollable might. This is called "the shove," and is often a scene of terrible grandeur. But directly open water appears in St. Mary's Current, all is considered safe, and the roads across the river are laid out; for this sign indicates that the water has room to flow freely, and no more disturbance of the ice is apprehended from it.*

Population.—The population of Canada, by the recent census (1861), numbered 2,508,000, of whom 1,396,000 were located in the West province, which the constant set of the stream of emigration has made the most populous.

* With an excessive climate like that described in the text, emigrants should not arrive in the winter, especially those of the poorer classes, as then work is scarce, and all the necessaries of life enhanced in cost.

In Lower Canada nine persons out of every eleven are native to the country, of French origin, and Roman Catholics in faith. The case is reversed in the Upper division, with slightly increased proportions, which the arrival of British emigrants is continually enlarging. The chief cities are Toronto, containing 45,000 people, and Hamilton, 19,000; and in Canada East, Quebec, 51,000, and Montreal, 90,000; while Ottawa, the new political capital of the united provinces, has a population of 14,000 souls.

Manufactures.—Hitherto the attention of the colonists has not been directed with much zeal to the increase of manufactures. As long as labour is scarce, and therefore dear, no new country can hope to compete in this respect with an old and thickly-peopled one. Hence Canada imports most of her manufactured goods. The forced leisure of the long winters is, however, a great incitement to the commencement of manufactures in their domestic form; and during the summer the copious supply of falling water affords a cheap moving power for all kinds of machinery. If coal could be found within the boundaries, or cheaply imported, Canada would possess all the requisites for becoming a manufacturing country, as her population increases its numbers. As it is, the wool of Upper Canada is largely made up into blankets, flannels, and other woollens; and much linen is manufactured from the flax of the other province. In the latter, also, there has long been made a great quantity of sugar from the sap of the maple (*Acer saccharinum*). The trees are tapped in the spring, and the sap treated in much the same way as that from the sugar-cane. A coarse, brown sugar is the result, of great sweetening power, but uninviting appearance; it is, therefore, unable to maintain its ground against West Indian sugar, the importation of which annually increases. Ship-building is an important occupation; and the manufacture of hardware, pottery, soap, &c., is gradually spreading over the country, and immigrating artisans, skilled in such crafts, are sure of constant employment at good wages. A man-servant is rarely seen, as the men find more profitable occupations,

and there is also some of the aversion to taking service in another's house, which is so characteristic of the people of the States. From their neighbours, also, the Canadians have too largely imported the un-English habit of carrying bowie-knives, and similar concealed weapons, leading to crimes from which it is the pride of Englishmen to be comparatively free, and whose prevalence has called forth strong efforts on the part of the colonial legislature, in the hope of suppressing them.*

Commerce.—On the other hand, the energy of the people has been actively brought to bear upon the task of improving the communications, and thereby enlarging the commerce of the colony. The results to the latter are highly satisfactory. The total value of the exports in 1860 was 7,215,000*l.* *sterling*, three-fifths of the goods being sold to the United States. These were principally composed of flour, wheat, barley, and oats; also large numbers of horses and cattle, sent by way of the Niagara railroad; and fish, and various articles of food, were other chief items. To Great Britain were forwarded exports worth 2,675,000*l.*; the produce of the forests, together with wheat and flour, forming $\frac{10}{12}$ths of the whole quantity.

During the same year the imports for home consumption amounted to 7,177,000*l.* *sterling*, one half of them being derived from the States. Those from the United Kingdom were valued at 3,304,000*l.*, and of this total, 50 per cent. were woollen and cotton goods, while hardware and iron, in its various forms, composed one-seventh; the chief remaining articles were silk, linen, carpets, chinaware, rice, and salt. The bulk of the imports pay an *ad-valorem* duty of 20 per cent.; but more than half of those from the States consist of such as the Canadian tariff admits free of duty. And, since the duty is included in the above values, the apparent difference in the value of the imports from the mother-country and from the States is not so great as, in fact, it is. It is somewhat lessened, indeed, by the importation of British goods

* Governor Sir Edmund Head's Despatch, August 20, 1859.

through the United States; but the result is still in favour of the sharp-witted Americans, who are more than a match in acuteness for England and her colonies.

Neither home nor colonial lawyers seem able to frame treaties which they cannot, and do not, evade to their own benefit. And while it is granted that these evasions are rather vexatious than important, it is probably the misfortune of their peculiar institutions that high functionaries among them are found taking advantages, which, as private persons, it is to be presumed they would scorn to accept.

What is termed the "Reciprocity Treaty" between the United States and Canada and the sea-board colonies of Great Britain, came into operation in 1854; and, it cannot be doubted, has greatly increased the trade between Canada and the States. The chief articles of this treaty are: 1. The sea-fishery in British waters is open to American subjects. 2. Certain articles, the growth *and** produce of either country, are to be admitted duty free by the other. 3. The St. Lawrence and its canals, on the one hand, and Lake Michigan on the other, are open to both parties. It was expected that a free exchange of goods would take place under these provisions, and the vessels of both nations compete on equal terms. In practice, the Americans take the lion's share. For instance, the Western States of the Union are great producers of grain, &c., of which the New England States are the consumers; and Montreal is, by position, the great receiver and distributor of this trade. The Canadian city derived great benefit from converting the corn into flour as it passed through; but in February 1858, a Treasury Circular of the United States, narrowing the previous construction of the Treaty, led to this flour being charged with duty, on the ground that it was not the growth of the colony, although it might be the produce. By the same means, logs of timber sawn in Canada,

* In 1849 the Canadian Assembly passed an Act admitting "the growth *or* produce" of the United States free, if the favour was reciprocated. The alteration, probably undesigned, was neither noticed nor acted on till 1858.

from timber grown on the American side of Lake Michigan, were stopped from entering Chicago. In another case, though peas and pease-meal are admitted, yet split peas, not being specially named in the treaty, were taxed. It is also a subject of complaint, that all free goods of the value of 100$ and upwards require a declaration before a United States consul, who charges 2$ for his certificate, one of which is transmitted to the Consul-General.

Moreover, while the Americans often engage in our coasting-trade, the States' navigation laws are enforced with unsparing rigour against the British. A Canadian-built vessel can, under no circumstances, engage in the trade between American ports. One Canadian owner was provoked into offering to naturalize himself in the States, but desisted, upon finding that his ship could never obtain the privileges of an American vessel. In the mean time the Americans, by using the Welland Canal, have created a large trade between the Western States and Oswego and Ogdensburgh on Lake Ontario, and the St. Lawrence. Thus New York competes with Quebec and Montreal for the custom of Canada West; but the Canadian cities, practically, cannot compete for the trade of the Western States.

In reference to the trade with the mother-country, a committee of the Canadian Legislative Assembly made a suggestion which shows the importance attached to it. After setting out that a large subsidy was paid by the British and American governments to a line of postal steamers from Liverpool to New York, they trace the results of this arrangement. By introducing a new and larger class of vessels, those before engaged as packet ships now carried out emigrants, and were thus able to load cargoes in return at very low rates. Hence immigration fell off at Quebec, and increased at New York, while return freights became comparatively higher from the former city. So much is the trade diverted to the States, that Canada receives most of its sugar and tea through their ports. But from Quebec to Liverpool, by the Strait of Belle Isle, the distance is 500 miles less than from New York, making a difference in time, of two days two hours;

and goods can be landed at Chicago, the great emporium of the West, at rates varying from 25 to 30 per cent. in favour of the St. Lawrence route. It was, therefore, proposed to maintain a *daily* line of steam-vessels of 2000 tons burden between Quebec and Liverpool, to be connected, both with others of 1000 tons traversing the canals and lakes to Chicago, and also with the Canadian railroads. Passengers might then travel from end to end of the route in about 12 days, and at the slowest in 20. As the ice is only open 200 days in a year, the tonnage carried by these steamers would not materially encroach upon the existing traffic, while it appears that they would offer such advantages as always to command employment. The superiority of the magnificent line of navigation up the St. Lawrence, and its splendid canals, is now acknowledged by the Americans themselves, it being open as long as the Hudson River route, and admitting far larger vessels than the Erie Canal.* In proportion as the Far West gets more completely settled, will this route gain in importance; and already the passage through, from Chicago to Liverpool, is becoming familiar. As a link in the great line of communication across the continent, it has been alluded to above. And in this view it is probable that a railroad passing up the Ottawa valley, and carried on to Lake Huron and the Saulte Ste. Marie, will be of great importance, since it would shorten the present route by about 300 miles.

In looking forward to the future of Canada, one cannot fail to be impressed with the many natural advantages possessed by this large colony—in its fertile lands, its great water-ways, and its undeveloped resources; and these, combined with an energetic people and institutions pushed to the extreme of freedom consistent with safe government, form a solid basis for predicting a prosperity which only wilful mismanagement can retard.

* 'Canada, 1849–59,' by Hon. A. T. Galt, Finance Minister, 1860.

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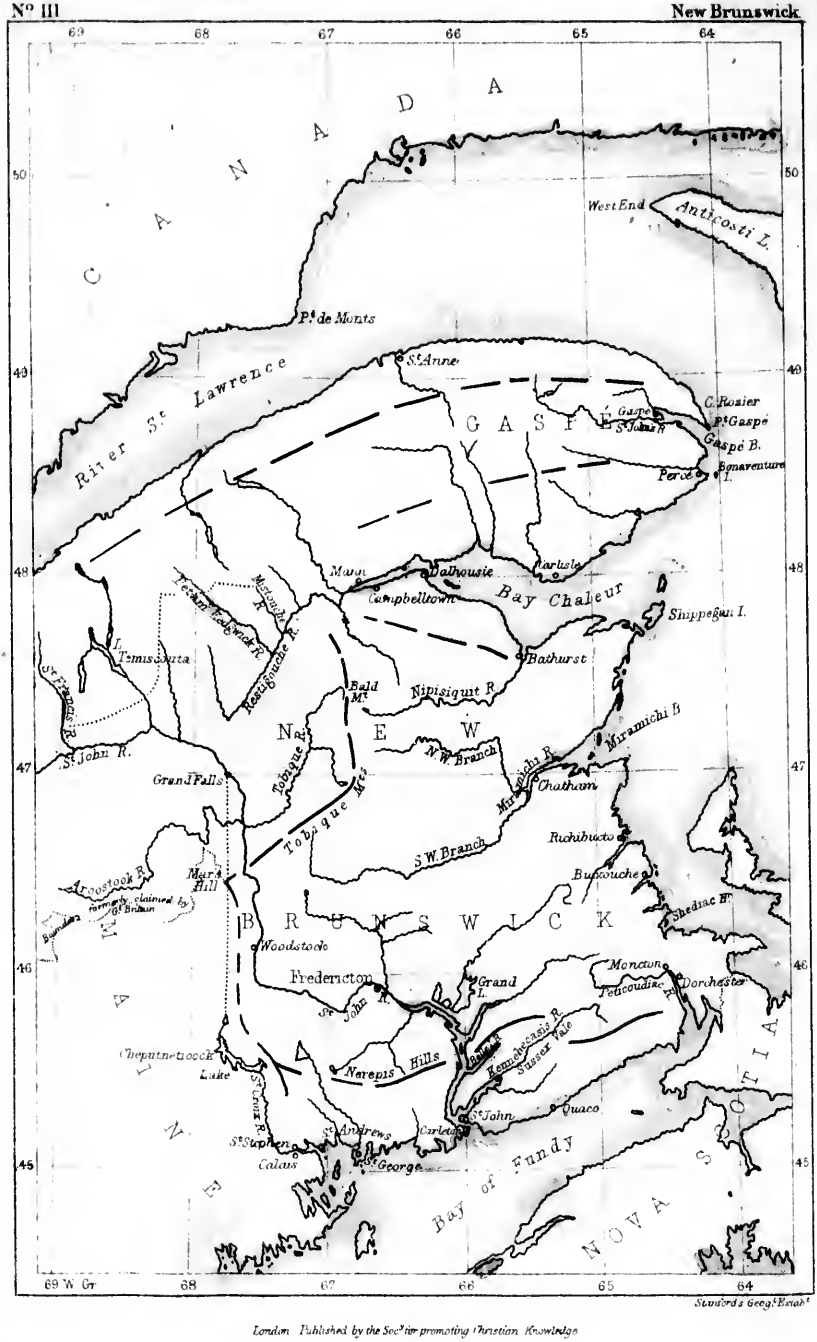

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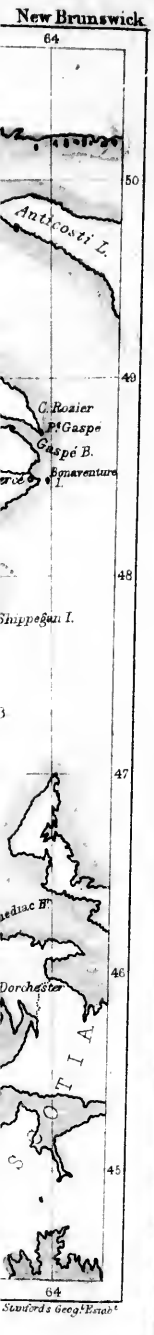


CHAPTER II.—NEW BRUNSWICK.*

Position. History of Boundary Dispute;—**Coasts:** South and East;—**Physical Geography:** Mountains, the Tobique Range, the Nerepis Hills; Lowlands; the Drainage, the St. John;—**Industry:** Forests, Timber, Maple-sugar, Fires; Fisheries; Agriculture; Climate; Minerals; Manufactures and Commerce.

New Brunswick.

The colony of New Brunswick is a compact tract of country, rudely square in outline, lying between the Bay of Fundy and the Bay Chaleur in one direction, and between the Gulf of St. Lawrence and the State of Maine in the other. The 45th and 48th parallels are very nearly its south and north limits, and it lies wholly within the 64th and 67th meridians, W. long. Its area is 27,037 square miles, or about 17,000,000 acres, its greatest length being 210 miles, and greatest breadth 180 miles.

New Brunswick was erected into a colony in the year 1784, having been previously a part of Nova Scotia, or Acadia, as it had been termed while held by the French. The boundaries of the new government were, however, so little understood, and so loosely defined in treaties and warrants, that for many years disputes were carried on concerning them with the United States, which were only kept from a violent issue by continual yielding on the part of Great Britain. The following is a brief outline of their history, which is geographically important.†

* Dr. Gesner's 'New Brunswick;' Perley's 'Handbook;' J. V. Ellis on New Brunswick; Munro on the Forest Trees, and Bailey on the Minerals of New Brunswick; Official Tables, &c.

† See Gesner's 'New Brunswick,' 1847.

Boundary Disputes.—In 1783, the Treaty at Paris recognizing the United States, defined the north-western limit of Nova Scotia. It is there stated to be "a line drawn due north from the source of the St. Croix to the high lands which divide those rivers that empty themselves into the St. Lawrence from those that fall into the Atlantic Ocean to the north-westernmost head of Connecticut River." Why no map of the country ever came to England, or if it did what became of it, cannot be now ascertained. Unfortunately, the treaty would not suit the country. Instead of one, there are two watersheds between the St. Lawrence and the Atlantic, the basin of the St. John lying between them, and draining into the Bay of Fundy. This intervening tract afterwards formed the "Disputed Territory." That the English immediately formed settlements of Acadians on the Upper St. John suggests what the meaning of the treaty was, while still fresh in the memory of its framers.

In 1794, commissioners from the two nations interested in the dispute, agreed upon the meridian 67° 53′ west as the "due north line" of the treaty. But on reaching Mars Hill, near lat. 46° 50′, the British claimed to go westward to the heads of the St. John and Penobscot rivers, while the Americans insisted on carrying the meridian to the northern watershed, a few miles from the banks of the St. Lawrence. The further settlement was consequently left open.

At the Treaty of Ghent, in 1835, it was determined to submit the dispute to the arbitration of the King of Belgium, whose decision was to be strictly binding. The king divided the land in question, carrying the "due north line" to the St. John, just above the Grand Falls, thence along its mid-channel and that of the St. Francis nearly to the source of the latter, and afterwards through the country to the west of the St. John. This award gave 7908 square miles to the United States, and 4119 to Great Britain. The former power, however, now broke from the stipulation, refused the decision, and began colonizing the disputed territory. Forts were built, lands granted, and settlements made.

In 1839, the English government again appointed commissioners, in the hope of putting a stop to a state of things daily becoming more serious. This attempt at settlement also failed, from the impossibility of satisfying the United States without giving up the whole country in dispute; and in 1842 a border war was on the point of breaking out.

Lord Ashburton was thereupon sent out from England, with full powers to make a settlement; and after much negotiation, the present line was agreed upon. It is very nearly the same as that suggested by King Leopold, although it gives to Great Britain 893 square miles more territory, while the Americans gain the Upper St. John and the navigation of that river as far down as the meridian 67° 53′ west.

While these negotiations were in progress, the American senate held a secret discussion on the subject. From statements since published, it appears that this body gave its approval to the Ashburton Treaty with the full knowledge that it had no right to the land claimed. A communication was read from a United States gentleman, named Sparks, who, pursuing his researches upon American history at Paris, had discovered an official letter of Benjamin Franklin, dated December 6th, 1782. This letter spoke of the "strong red line" in an accompanying map, as marking the boundary agreed to in the treaty. Upon further inquiry the map itself was found, with the line upon it. "Imagine my surprise," writes Mr. Sparks, "on discovering that this line runs wholly south of the St. John, and between the head waters of that river and those of the Penobscot and Kennebec." With such information, the United States senate hastened to ratify a treaty giving them 7015 square miles of territory, of right belonging to the unsuspecting mother-country. But the settlement of this long-festering source of rancour between the two nations was well worth the sacrifice, and the cost of a single campaign would have far exceeded the value of the whole country in dispute.

There is still some uncertainty respecting the boundary-line between New Brunswick and Canada. The Resti-

gouche and its estuary the Bay Chaleur, were intended to divide the colonies; but the question arises, as to whether the upper part of this river is that now called the Restigouche, or its tributary the Petam Kedgwick, which is the larger of the two branches.* A considerable extent of valuable forest is involved in the settlement of this point, which, draining as it does into the Bay Chaleur, would seem to belong to the smaller colony; but if this principle be admitted, then all the country along the north coast of that bay is naturally a part of New Brunswick, and should be, therefore, included in its government.

Coasts.—It is estimated that fully two-thirds of the whole boundary of New Brunswick is formed by sea-coast; and of the remainder, a large portion is so close to the navigable rivers St. Croix, St. John, and Restigouche, as to have all the advantages of a sea-board. Along the Bay of Fundy the shores are mostly high and precipitous, and rocky headlands succeed each other with picturesque effect. The north end of the Grand Manan Island should also be noticed, as there magnificent cliffs of columnar basalt rise from 200 to 400 feet above the sea. Numerous tidal harbours exist on this coast, the best of which are the bays and coves at the entrances of the St. Croix and St. John. The towns of St. Andrews, St. George, and St. Stephen have ports on the former, and St. John, Carleton, and Portland are situated on the latter. The entrance to this river is guarded by Partridge Island, whence stretch sand-bars which stop large vessels from passing, except at high water; but the rise of the tide is so great that ships of the deepest draught can then enter, although there is often a strong current from the river to be encountered. The mouths of the Musquash and Peticoudiac† Rivers are also convenient harbours for vessels not of the largest class.

* The map of New Brunswick attached to Perley's 'Handbook,' assumes a large tract on the north of the St. John, between the Mistouche and the St. Francis, as belonging to this colony.

† From the French "petit coude," in reference to the elbow or bend, 26 miles up the river. On the spot the name is usually "Pettycoat-jack."—Gesner.

The eastern coast of the colony is still better provided with ports. Bay Verte, at the boundary between it and Nova Scotia, is indeed only a shallow opening of no value as a harbour; but the mouths of the Shediac and Buctouche are convenient places for shipping, and the harbours at the entrance of the Richibucto, and in Miramichi Bay, are adapted for the largest vessels. Further north is the spacious roadstead formed by Shippegan Island, and in the Bay Chaleur are the commodious ports of Bathurst and Dalhousie, at the mouths of the Nipisiquit and Restigouche Rivers. New Brunswick is thus, in her extensive sea-board and numerous harbours, supplied with the means of extending her commerce and fisheries almost without limit.

Physical Geography.—The physical configuration of the colony is in strict accordance with its geological formation, and cannot be easily separated from it. At the head of the St. Croix, on the south-western boundary, are the Cheputneticook Lakes, forming a series of deep-water expansions and irregular openings in the midst of a granitic country. Characteristic dome-shaped hills rise to the height of 2000 feet above the sea, and fine cliffs tower up from the water, their perpendicular faces seamed and weathered into the semblance of gigantic masonry. The peculiar tendency of granite to disintegrate into cubical portions is excellently illustrated on these shores; and occasionally vast table-formed rocks may be seen deep in the pellucid waters, or some great mass forms a broad natural quay at their edge, with a depth of 40 feet in front of it. Like nearly all of the uncleared part of the colony, a dense forest covers every available spot.

Mountains.—From this granite region as a nucleus, two branches stretch across the country. The principal, which is properly one of the last spurs of the Alleghanies, after running northward to Mars Hill, turns to the north-east, and forms a fine range called the Tobique Mountains. Among these are several eminences 2000 feet high, Bald Mountain, the highest land in the colony, being 2240 feet. As the chain approaches the Bay Chaleur it declines in elevation, and finally sinks near

Bathurst. Mars Hill, 1700 feet in height, besides being historically interesting, affords a magnificent view over a country richly varied by mountain and forest, lake and river. Its flat tree-covered top was partly cleared in 1794, for the purpose of erecting an observatory, but it has returned again to its wild state. From hence is seen Mount Kataadan, in Maine, 5000 feet high, and 60 miles distant. To the north-east the range may be traced by its summits, Moose Hill, Bear Hill, and others overhanging the intricate valleys of the Tobique River. In the opposite direction is the basin of the Aroostook, whose forests are fast yielding to the energy with which the Americans have entered on the once "disputed territory;" and only five miles to the east is the bed of the St. John, which can be traced far to the north and south, winding through a broad level tract bounded by hills.

The most truly mountainous district in the colony is at the heads of the Tobique and Nipisiquit Rivers. Here Bald Mountain, as its name implies, raises its bare summit above others equally naked to a height exceeding 2000 feet. The scenery among these difficult mountains is often of the grandest character. Some of the clefts on their northern flanks are so deep and narrow that the sun never melts the snow in them; and glaciers descending these ravines in spring add the evidences of their destroying force to the wildness of the region. Again, tortuous fissures, shut in by rugged cliffs, are occupied by narrow lakes of great depth: or torrents descend through them, leaping from fall to fall, along their uneven beds; and in flood time, strongly exhibit the degrading power of water, in the rocks and timber borne down by their stained and foaming streams. In the foreground the confused and naked masses of stone and slate are mingled with trees and vegetation, struggling to gain a footing among them; but below, and in the distance, an interminable forest loads the surface, and hides all distinction of hill and valley.

Further north still, where the mountains begin to slope towards the shores of the Bay Chaleur, are some remarkable isolated peaks, commanding extensive views of the broken high-lands of Gaspé on the opposite side.

Returning again to the granite region around the Cheputneticook Lakes we find a second and less imposing range of similar rock formation, extending southward and eastward as far as the head of Belle Isle Bay in St. John's River. This composes the Nerepis Hills, which, though only about 600 feet high, are so broken by the admixture of slates and volcanic rocks that the scenery presents a boldness and ruggedness seldom seen among such moderate heights. The range is prolonged westward in an undulating country of sandstone formation, enclosing tracts of remarkable fertility, as Sussex Vale, and ends at Shepody Mountain, 620 feet high, near the mouth of the Peticoudiac.

Along the shores of the Bay of Fundy the country, for many miles inland, is of a wild and uninviting description. It is broken rather by deep winding ravines than by any considerable elevations; and, by its rocky surfaces and undrained marshes, conveys an unfavourable impression of its agricultural capabilities, which is confirmed by the frequent fogs that in summer hang upon the coasts. This division of the colony is not a fair sample of it as a whole, but it possesses, nevertheless, some rich intervales,* and has inexhaustible resources in its fisheries.

Lowlands.—Between the two granitoid ranges now defined lies the largest natural section of New Brunswick: geologically, it is formed by the coal-measures; physically, it is at the most but a slightly rolling country, scarce ever more than 40 feet above the sea-level; and near the eastern coast, in the county of Kent, for instance, almost a perfectly flat surface. Formerly overrun by the universal forest, it is gradually becoming settled, since large tracts possess soils of superior quality. Peat-bogs are peculiar to this level district, and the low shores are often lined by marshes, and fringed with long sand-banks, enclosing shallow lagoons.

Beyond the Tobique Mountains, and reaching to the northern boundary of the province, is a beautiful hilly

* A local term for flat tracts of sediment, reclaimed from the sea or from fresh water. For further particulars, see 'Nova Scotia.'

country, well watered, and containing tracts of the richest soil in the colony. It is still in great part occupied by the primæval forest, but its position on the main route to Canada and the west, and its easy communication with the lower country by means of the navigable St. John, point out this district as likely to be a very prosperous one, and well suited for the agricultural settler. To this may be added the remark that its minerals are highly valuable, especially its iron and limestone.

Drainage.—It is a noticeable circumstance that the principal lines of the geological formations cross the colony from west to east, usually inclining to north-east. That the strike of the strata is in this direction at once explains why the courses of so many of the streams are so too, since they are often found at the line of junction of two formations, or of their component parts. With the exception of those in the south-western corner of the country, where the geology is very confused, and except, also, the main stream of the St. John, this rule will be seen to govern almost every one of the hundreds of rivers and running waters which abundantly moisten the colony. The sources of these streams are often at so short a distance from each other that an Indian birch-bark canoe might pass from sea to sea by several routes with a portage of only a few hundred yards. The facility and cheapness with which goods can be moved by water-carriage is, in consequence, one of the peculiar advantages possessed by New Brunswick over less favourably drained countries.

The St. John.—The chief river of the colony is the St. John,* whose total length is 450 miles, of which 225 are wholly in English ground, while for 72 miles more it forms the boundary of the United States. Soon after entering British territory the river, previously a broad stream, is suddenly narrowed by lofty rocks, and then precipitated over a perpendicular cliff of limestone, 58 feet high. Here are the Grand Falls. The entire descent at this place, including the rapids, is 116 feet. The latter

* So named by De Monts, who discovered it on June 24, 1604.

occur in the gorge below the Falls, which is three-quarters of a mile long, only 250 feet wide, and shadowed by rocky walls, at least 100 feet in height. Through this the river rushes with frightful impetuosity, the effect of which is increased by foaming whirlpools, due to projections from the sides. The surrounding scenery is in accordance with the grandeur of the Falls, which are annually visited by thousands of sight-seers. During favourable seasons steamers ascend the St. John to the rapids. And above the Falls the river is navigable for 40 miles, after which Lake Temiscouta may be reached by the Madawasca, thus prolonging the water-way to within 18 miles of the St. Lawrence. Boats, canoes, and timber-rafts pass down the St. John almost from its source. A fine natural basin at the head of the Falls becomes an excellent landing-place for goods and timber. The wood is sent over the cataract, but this proceeding often entails great loss upon the owner. And until this can be avoided by the erection of locks, it will always form an obstacle to the trade of the river.

The St. John then pursues a general south course for about 70 miles to Woodstock. In the upper part of this division it receives its two chief tributaries, the Aroostook and the Tobique. Both these streams are interrupted near their mouths by falls, which, however, do not prevent the passage of timber from their finely-wooded basins. Above the rapids boats navigate them for a great distance. Both on the Tobique and the main stream there are long tracts of alluvial ground, capable of producing all kinds of farm produce. The valleys of the former exhibit very beautiful scenery, combining as it does every variety of mountain, forest, and water. Spruce and larch, birch and maple, form the bulk of the timber-trees; elm and ash group upon the untilled flats, which are covered with good grass; and wild plums, and various berries, form the undergrowth of the woods. The banks of the St. John rise in a series of well-marked terraces to the upper country bordering its course. They are sometimes steps of 20 feet, and, being formed of gravel and river-mud, are considered to indicate considerable changes in the relative levels of land and water.

Woodstock is a thriving frontier town, well situated to command the timber trade, in connection with the numerous affluents of the St. John, but looking to its future prosperity chiefly in the means of working its large supplies of iron ore, which is hematite of great richness. A railroad will connect this town with the port of St. Andrews, and by the river it communicates with the capital, and with St. John.

Another 70 miles down the stream brings us to Fredericton, 85 miles from the mouth. The banks are lofty, and produce much picturesque character, receding from the water's edge, so as to admit broad stretches of alluvium. These are productive pasture-lands, or fertile fields, with enough timber left to please the eye. Farms extend up the flanks of the hills into the interior, and frequent streams bring down their produce, and that of the forests, to the lower markets. Waterfalls add their peculiar beauty, still maintaining the character of the eastern, as distinct from the tamer western portion of the colony.

At Fredericton the river is three-quarters of a mile broad, and navigable for sea-going vessels. Flowing slowly onwards, it has the appearance of some winding lake. The evidences of trade and population are now continuous on its waters and its banks, and little remains to bespeak a newly-settled country. Fifty miles from the sea the St. John is met by the mouth of the great arm, called the Grand Lake. This is the first and largest of four similar collections of water, all coming in from the north-east, and running through a highly fertile country. They are 30 and 40 miles long, with irregular shores, which add largely to the extent of water-frontage possessed by this district. Above the city of St. John the river widens into a broad expanse, known as Grand Bay, capable of accommodating the largest fleet. Unfortunately its outlet is through a narrow gorge between high cliffs, where the pent-up waters rush out with a force which no ship could venture to meet. A curious phenomenon occurs near its lower end. The well-known tides of the Bay of Fundy cause a rise in the harbour of 26 feet. At low water the St. John is the higher, and its stream falls 20

feet over a ledge at the end of the Narrows. At high tide this is reversed, and the fall, sometimes 15 feet high, is on the other side of the reef into the river above. For about an hour and a half at the end of flood-tide the bar is passable by vessels of considerable size, as there is then from 10 to 15 feet of water upon it.

Of the remaining rivers which so copiously water New Brunswick we can only name the Miramichi and the Restigouche as the chief, whose navigable waters extend hundreds of miles for boats, and in the early days of the colony rendered the want of roads scarcely felt. The Nepisiquit is an extremely turbulent stream, 100 miles in length. At about 20 miles above Bathurst is a magnificent cascade, produced by a wall of granite 140 feet high. The water makes four leaps in the descent, and the broken fall, wrapped in clouds of spray, forms the centre of a beautiful scene. The Peticoudiac presents a natural feature of a different character, in the fine "bore" which rushes up it every high tide. The wave is five feet high, and is heard approaching with a noise like distant thunder. Near Dorchester, where the contraction of the estuary takes place, the rise of the tide is sometimes 60 feet, and from the extremely rapid ebb and flow, vessels always require a pilot; but with this precaution accidents seldom happen.

Industry. The Forests.—From the foregoing description of the physical geography of the colony we may now turn to a review of the present state of its industry. As might be anticipated, the chief industrial pursuits deal with the produce of the forests and the fisheries. But with the progress of settlement agriculture annually increases, while the extensive mineral resources of the country are continually receiving more and more attention.

The forest originally covered the whole of New Brunswick, except some of the highest summits of the mountains, and the coast of the Bay of Fundy. And only a small portion of the land has yet been cleared. Even Fredericton, the capital, a city with 4500 people, is hemmed in by a forest, so little removed from its primitive wildness, that bears, wolves, and deer may be seen on the

very confines of the place. Still, the large annual consumption of timber has materially altered the aspect of the woods, especially in districts having ready access to a market.

The division of timber trees into hard and soft woods, noticed as obtaining in Canada, is also common to all the lower provinces. As the trees producing the timber are also the same, the reader is referred to details of the species before given, in preference to repeating them here. The white and red pine are again the most prized for their timber; the former, especially from the Miramichi, is deemed superior to that brought to Quebec, for its peculiar whiteness, elasticity, and size. From the excellent way in which its wood bears exposure to the sun it is much in request for all the outside parts of houses. The spruces (*Abies*), white and black, are equally valuable. The latter produces deals of the largest scantling; and the numerous water and steam-mills of the colony are employed in sawing this and other timber for the English market. The most characteristic tree of the forests of New Brunswick is the Hackmatac,* or American larch (*Larix Americana*). Its foliage resembles our common larch, but its wood has a dark-red tinge. It is often 80 feet high, and fine trees will yield baulks 56 feet in length, and from two to two and a half feet square. Its timber is used for all the parts of a vessel, but its large lateral roots have a special value for making what are termed "ships' knees," *i. e.*, the strong pieces of wood cut with an angle, which fasten the ribs and deck beams together. From one of these roots and a part of the stem, knees of any angle can be cut, having the grain of the wood running through its whole length.

Of the other valuable trees may be noticed the black birch, often four feet in diameter, whose wood is unrivalled for durability in situations where it is always under water, as in the keels and bottom planking of vessels. The Hemlock spruce (*A. Canadensis*) is one of the largest forest-

* This is the Indian, and common name. By the Dutch it has been called Tamarack; by the French, Epinette Rouge. In the colony it is a cypress and a juniper; also, *Pinus Larix* and *pendula*.

trees, but its timber splits very much in drying. Advantage is taken of this circumstance to manufacture it into laths, of which immense quantities are sent to the United States. It becomes so dry that nails do not soon rust in it, and it is said that rats will not attack it, on which account it is much used in flour-mills and stores. The wood of the white cedar* is much prized for its endurance of alternations of wetness and drought, and is hence largely employed as palings, and as clap-boards for the roofs of houses.

Among the furniture woods we can only mention two, the Butternut, or white walnut (*Juglans cinerea*), whose edible nut, contained in a long egg-shaped shell, yields an excellent oil; and the well-known maple.

The importance of the forests to the trade of the colony may be judged of from the fact that in 1860 the worth of wood of all kinds exported amounted to 621,000*l.*, or two-thirds of the total value of the exports. Birch and pine timber and the largest-sized deals are principally sent to England. The most considerable quantity of all sorts goes to the United States. And the next most important item consists of "shooks," or casks packed with cask-staves, and of other small wood, for the West Indies, chiefly Cuba and Barbados.

Besides wood, of which an infinite number of useful articles are made in the colony,† the forests also afford several other articles of great service. The bark of the oak and hemlock is used for tanning. Large flakes of the latter are stripped off by the lumberers to form the roofs of their huts. The sumac (*Rhus sp.?*) supplies a dye from its fruit, though apparently not from its leaves. The crab-apple makes an excellent preserve, and the wild

* Named *Thuya occidentalis*, in the International Exhibition, 1862. *Juniperus Americana.*—Munro.

† At the International Exhibition was shown an ingenious variation from the time-honoured shape of the domestic implement called a "rolling-pin." The new one is a cylinder, 1 foot long, and 4 inches in diameter, which moves round an axis ending in turned handles. It is of bird's-eye maple, and was priced at 4*s.* 2*d.* per dozen.

cherry yields a cordial rivalling Kirschenwasser. The Indians close up fractures in their canoes with the gum of the white spruce, and Canada balsam is a liquid resin which collects in cavities in the wood of the silver fir (*A. balsamea*).

Maple-sugar.—The most important of these products is sugar from the maple. The sap is usually drawn in March, while yet the frosts last. And with warm days following cold nights each tree will yield 25 gallons of sap in about six weeks. The average return of sugar is four lbs. per tree. It is whiter according to the care bestowed on its manufacture, but is ordinarily of very dark colour. In 1851 upwards of 350,000 lbs. of maple-sugar were made, besides large quantities of maple-honey, which is the sap of the later drawings, uncrystallizable, but useful for sweetening purposes.

In a country where forests cover so large a surface, it is natural to seek for relations between the species of trees and the soil they grow in. The observations made are not conclusive, but as a rule we have the following. The white spruce delights to spread its roots in a deep free soil; the black never produces such valuable timber as when clinging to the barest rocks, and slowly imbibing the fogs of the Bay of Fundy. The cedar loves a marsh, which when drained produces heavy crops, the first after burning being a spontaneous growth of white clover.* But if hemlock and pine abound, the soil is cold and undesirable for the settler. The black ash luxuriates in low alluvial tracts, and the sugar-maple on the shady sides of streams in lofty situations, where the soil is rich and free, and the air is clear and cold. The hackmatac grows everywhere; and the valuable butter-nut flourishes by the roadside, or may be planted on pastures.

Fires.—The majority of the trees being of a resinous nature, the forests are liable to occasional devastation by fires, which have sometimes been very fearful in their results. The most terrible fire recorded, happened in 1825. The summer had been unusually hot and dry;

* Gesner.

everything vegetable was parched to the extreme of aridity. On the 6th of October the settlers on the north bank of the Miramichi beheld the west enveloped in a lurid purple atmosphere; and the following night, a line of fire, driven by a sudden gale, approached the villages with an appalling roar, the air became filled with smoke and glowing embers, and a girdle of flame shot up on all sides. The fire seized the settlement so quickly that 600 houses were destroyed, 1000 cattle, and, between the burnt and drowned, 160 people. Shipping in the ports and on the stocks, churches, barracks, shared the common destruction. The property consumed was estimated at 250,000*l.*, and the timber at not less than half a million. Commencing in the north-west, this terrible fire had overrun 6000 square miles of country. The whole region was reduced at once to a charred and smouldering ruin, scarcely concealing the most affecting proofs of the fate which had too often overwhelmed the detached parties of lumbermen and their families. Such disastrous consequences are now in great part prevented by the increase of cleared land; but extensive injury is still done by fire in the interior.

Fisheries.—The Fisheries of New Brunswick present an unlimited source of wealth; but, like all the fisheries of the Atlantic colonies of Great Britain, they are principally in the hands of foreigners. Some remarks upon the history of this unwelcome state of affairs will be found in the chapter on Newfoundland. Within the last few years the colonists have employed more capital and energy in this branch of industry, with the most satisfactory result. Thus in 1854, a year of great success, the export of fishery produce amounted in value to 55,000*l.*, which was increased in 1859-60 to 80,000*l.* per annum. And the only apparent check to this expansion seems to be the extent of the means which can be spared by the colony for the purpose. The boats employed are generally small and open, carrying from one to three men, who are commonly the builders as well as owners. The winter fishermen are often the coast farmers, who thus turn their leisure to profit. The principal fishing stations in the

Bay of Fundy are around the Grand Manan, and other islands near it, off the harbour of St. John, and in Cumberland Basin. The cod-fishery, however, is carried on all over the bay, and at all seasons, the fish, or rather their food, the herrings, &c., being followed in their movements. At the beginning of the year, they are in best condition, frequently 80 lbs. in weight, and fetch the highest price in the United States markets. The great flat fish, the halibut, is often hooked in the deep water when fishing for cod. Weighing 200 lbs., its rather coarse flesh is usually dried for exportation. From July to December, the pollack (our coal-fish) is largely caught among the swift currents around the islands, where it delights to play. And the hake and haddock are, like the rest, taken with hook and line. Pasamaquoddy Bay, with a "schule" of fish in it, presents a most lively appearance. The islands are said to be 365 in number, of every shape, size, and variety of vegetation. Shooting in and out among them, the fleets of boats unceasingly engage for weeks together in the vain attempt to thin the numbers of the fish which throng the waters. The sea-shad, a kind of herring, is especially followed in Cumberland Basin. At the mouth of the St. John the salmon fishery is the most important, and that of the gaspereau, or alewife,* allied to the shad. The latter is much exported to the slave countries of the south, its dryness enabling it to endure the heat.

In the Gulf of St. Lawrence, the cod-fishery is the most valuable. The fish at Bay Chaleur is, from its whiteness and dryness, much prized in Italy and elsewhere in the Mediterranean. Mackerel enter the gulf in enormous numbers, and are fished between July and October, chiefly by the Americans. Before this fishery is over the herrings are in their prime; and if cured as the Scotch fish are, it is believed that they would compete with them on equal terms. The salmon of the Miramichi are those best known. As much as 400,000 lbs. of fresh salmon, packed in tin cases, have been sent to Great

* From the Indian 'aloof,' a fish.

Britain in one year; and the supply upon the coast is inexhaustible. For some years past nearly all the fresh salmon has gone to the States, which are also the consumers of the bulk of the fish exported. Canada and Nova Scotia take a considerable quantity, and about 15,000*l.* worth is sent to us.

Besides the sea-fisheries, there are those of the rivers, which the salmon, shad, and alewife ascend in great numbers. They are largely taken in nets and weirs; while the red-trout, weighing three lbs., and the grey, which reaches a weight of 12 lbs., afford the angler the finest sport always within his reach.

Agriculture.—The attention of the colonists in New Brunswick has been so attracted to the produce of the forests, that agriculture has not hitherto progressed as it may be reasonably expected it will do, now that efforts are making on all sides to improve in this respect. Much benefit is anticipated from the Provincial Board of Agriculture, recently established. Not one-twentieth of the province is under cultivation, and the total of cleared land does not probably amount to a million acres. Land may be bought at the government upset price of 3*s.* per acre, the payment spreading over three years, if desired: or it may be obtained under the "Labour Act," by the settler bestowing labour of the above value on the roads intended for his own benefit.

The returns of the crops compare most favourably with those of the adjacent countries. Wheat produces 20 bushels to the acre, of 60 lbs. weight per bushel. The spring wheat is very fine in quality. Buckwheat yields 33 bushels per acre. Maize, though profitable, is small in the ear. The country seems especially adapted for root crops. An acre produces six tons of potatoes, and 13 of turnips. The rich intervales yield luxuriant crops of grass and hay. Hence the colony offers great facilities for the keeping of cattle and sheep; since the large amount of winter food required is not so great an objection as in countries where the green crops are less productive, while tending the stock affords employment when outdoor work ceases.

Flax and hemp may be grown abundantly on almost every farm in the colony. This is a fact not hitherto appreciated as it should be, as the dressing of these fibres would be a profitable winter labour, and, if not manufactured at home, their export would help to pay for the goods imported.

At present New Brunswick does not nearly grow its own food, as it is fully capable of doing. Flour and grain are among its chief imports, purchased mainly from the States, but oats and barley are furnished by Prince Edward's Island and Nova Scotia. The home growth of the latter grains has evidently increased since 1854, and although the value of wheat-flour and corn-meal has remained nearly the same, yet since the population has increased in that period, the produce of wheat would seem to have done so too. From no country do we hear of so little want or distress as from New Brunswick, so that we may conclude that the people are, at least, well fed.

Climate.—The climate, like the soil of this colony, has been too often described from partial observations on the coast. The frequent fogs are no doubt pernicious to agricultural operations; but these seldom extend far inland. Fredericton, for instance, rarely experiences them, and they often end a few miles from St. John when that city is densely enveloped in mist. The characteristic of the climate on the coast is humidity; in the interior, a great range of the thermometer. At St. John the average fall is 45 inches of rain, and 40 inches of snow; the latter being very light, is equal to about two and a half inches of water. At Fredericton the maximum is 95° Fahrenheit,* the minimum 24°. The cold winters are, however, not felt by the inhabitants as might be supposed. It is usually the pleasantest time of the year; and a mild winter is dreaded by the husbandman, because his land will require so much more tillage without the penetrating frosts. The labours of the lumberer are also immensely

* Gesner, speaking of the cool nights produced by the clear skies in summer, adds the consoling information,—'The musquitoes and black flies in the woods cease to sting above 95° and below 55°. Their best *biting* point is 75°.'

lightened by the hardness of the ground in winter allowing him to move heavy timber in every direction with ease. Again, the summer, though short, is hot, and rapidly ripens the crops; nor is the farmer hindered, as in England, by wet weather, for the rainy days are but half as many as with us, and occur mostly in the winter.

The Indian summer has here all the charm which belongs to it in Canada, and the glories of the forests are equally gorgeous. In autumn and spring floods are common. When only the result of freshets, they seldom do much harm: the low intervales along the rivers' banks are indeed overflowed, but the farmer tries to compensate himself by netting large quantities of fish where his corn has lately been reaped. In the winter the streams are all covered with ice; and before this is quite fixed, or when breaking up, the floating pieces sometimes get wedged into a solid dam, banking up the waters as in a lake. This is called an "ice-jam," and when one of these bursts, the rush of the liberated flood is always dangerous, often extremely destructive to the farms upon the banks, and large portions of land are sometimes swept away.

Minerals.—The mineral resources of the colony are as yet but very imperfectly known, and still less utilized, owing to the want of the requisite labour and capital. An apparently inexhaustible bed of rich iron ore is worked near Woodstock. Iron is known to exist abundantly in other parts, as on the Restigouche and at Dorchester. Ores of manganese have been worked near Bathurst, and at Quaco, on the Bay of Fundy. An extensive deposit of impure but useful plumbago is quarried close to the Grand Falls; and copper and lead have been found in various places. With a coal-bearing formation covering one-third of the province, it might be expected that much coal would be raised. Till lately this has not been the case, although some was obtained near the Grand Lake. But the export of this mineral is now an important business, carried on chiefly with the United States. In Albert County, at the head of the Bay of Fundy, a new kind of coal, most nearly resembling jet, and named Albertite, has been discovered. It produces

by distillation excellent mineral oil, the refined qualities of which are colourless. This also is largely sent to the States, the quantity in 1860 being over 122,000 gallons. The fine-grained sandstones are much used for building, and the granites afford an excellent material for grindstones. Beautiful marbles, gypsum, and various ochres also form part of the mineral riches of the colony, which, notwithstanding the recent progress made in their working, may be looked upon as practically untouched.

With a population hardly more than 250,000, it is not to be expected that the manufactures of the colony can be other than of the most simple and domestic character. Yet for their means the inhabitants have made considerable advance. Ship-building necessarily occupies the greatest number of hands, and their vessels stand deservedly high for sailing qualities and durability. They have also potteries and manufactories of hardware, besides the rural manufactures of maple-sugar and coarse woollen cloth. And the railway now making from St. John to Shediac is the work of the colonists, as are also the locomotive engines and carriages.*

The commerce of New Brunswick is gradually increasing. Its exports in 1860 were valued at 916,000*l.*, and its imports at 1,447,000*l.* Its trade with the United States is the most important. To them it sends its wood and fish, apples and potatoes, in return for bread-stuffs. From us it takes hardware and haberdashery, fishing-tackle and canvas. From the adjoining colonies it buys live cattle and provisions in exchange for salt (obtained from springs at Sussex Vale), wood, fish, and a portion of its manufactured imports.

The progress of the colony, compared with some others, has doubtless been slow. Its fertile soil, healthy climate,

* The English traveller is struck with two contrivances peculiar to countries with severe winters and wood fuel. One is the snow-plough, a carriage with low wheels, having a sharp inclined front armed with iron-plate, to throw off the snow-drifts. The other is a huge funnel-shaped outer chimney, which receives the sparks issuing from the inner one. The "cow-lifter," like a small snow-plough, tells its own tale.

and varied resources certainly ought to attract more emigrants than they have done. Servants receive from 50*s.* to 4*l.* a month, with board and lodging. Artisans earn from five shillings to eight and ten shillings per day. All articles of constant requirement are reasonable in price; and a careful review of all the available materials respecting the condition of the people confirms the following guarded language of the Lieutenant-Governor, who writes in a recent report: "There is, I am convinced, no portion of the British empire or of the United States of which the inhabitants in general have a larger command of the necessaries and cheaper luxuries of life; and I believe that nowhere is a comfortable independence, if not wealth, more certainly the result of honest industry and perseverance."*

* Despatch of Hon. J. Manners Sutton, December 28, 1859.

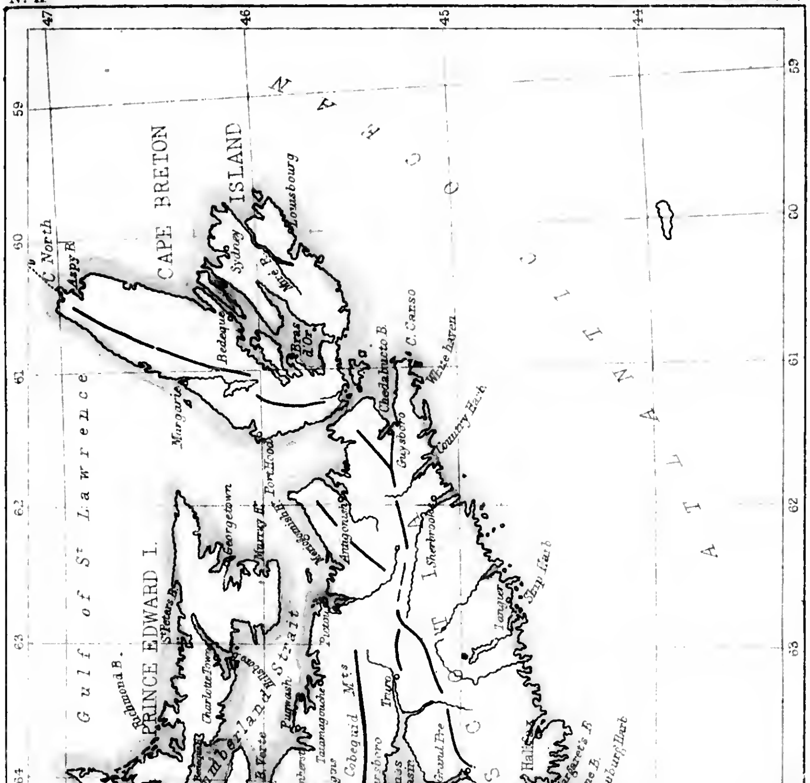
CHAPTER III.—NOVA SCOTIA.*

Position, Size. Physical Features: North-West Section, Hills, West Shore; South-East Plateau, South and East Coasts; Harbours, Tides, Intervales; Cape Breton Island, Sable Island; Climate; Population;—**Industry:** Agriculture, Flax; Forests, Furs; Fisheries; Minerals, Coal, Iron, Stone, Gold; Trade.

Nova Scotia.

Position—Size.—Nova Scotia is a tract of land lying to the south of the Gulf of St. Lawrence, and to the eastward of New Brunswick. From the latter it is almost dissevered by the Bay of Fundy, 100 miles long and at its entrance 50 miles wide. But towards the north, the colonies are united by the Isthmus of Chiegnecto, which, at the common boundary, formed in part by the little River Missequash, is only 12 miles across. Nova Scotia is oblong in shape; its total length is 350 miles, while it is from 50 to 100 miles wide. Its longer axis is a line drawn parallel to the adjoining shores of the continent, from south-west to north-east, the direction becoming somewhat more northerly in Cape Breton Island. This name is conferred upon the north part of the colony, which is separated from the peninsular portion by a narrow strait, called the Gut of Canso. The whole area

* 'Nova Scotia and its Resources,' J. F. Knight, 1862; 'Nova Scotia as a Colony,' Hamilton; Lyell's 'Travels in North America;' 'Official Catalogue of International Exhibition,' 1862; Dr. A. Gesner on 'Geology of Nova Scotia,' and R. Brown on 'Cape Breton Islands,' in 'Quarterly Journal Geological Society,' vol. i., 1845; H. Rigby's 'Observations on Climate of Halifax,' in 'Meteorological Papers of Board of Trade,' No. I., 1857; Blue Books on the Colonies and Reports thereon; Private Information, &c.



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of the province is nearly 18,600 square miles, or about 12 million acres, one-sixth of which is comprised in Cape Breton Island. The 43rd and 47th parallels, and the 60th and 66th meridians W., lie near its extremities in either direction; suggesting the latitude of the south of France, and recalling the fact that the shores of Nova Scotia are projected towards Europe more than ten degrees of longitude further than Boston or New York.

Physical Features.—The physical geography of this colony is not marked by any broad features of mountain and river valley. The surface is usually undulating, often very bleak and rugged, and the level portions are few and small. Perhaps the most general division that can be made of Nova Scotia Proper will be that which regards it as mainly composed of a north-western section, characterised by hill ranges in connection with the Bay of Fundy, and of a plateau upon the south-eastern side adjoining the Atlantic. Cape Breton Island does not readily fall in with this division, and must receive a separate description.

The Bay of Fundy divides towards the north into two great arms; that to the west is the Cumberland Basin, at the head of which is Amherst; that to the east, after passing through a channel only six miles broad, suddenly spreads out to a width of 20 in the Basin of Mines, which terminates in Cobequid Bay. Truro is situated at the head of this bay, and Windsor, the capital, is placed upon a southern arm of the basin, within 25 miles of the head of Margaret's Bay, on the opposite coast.

Hills.—The northern shore of Mines Basin is skirted by the most considerable range of hills in the colony, namely, the Cobequid Mountains. Their highest parts are less than 1200 feet above the sea, and, being formed of granite, have a rounded and unpicturesque appearance. But their flanks, composed of various rocks, among which are slates and basalt, are often so broken as to be productive of very beautiful scenery. A forest of pines covers their summits, and their sides bear a thick veil of hardwood trees, which when cleared away leave an excellent soil for cultivation. Almost the only break in the range occurs near its centre, where a deep transverse valley is

drained by a small stream, at the mouth of which stands the town of Parsboro'.

Commencing a few miles east of Truro, a low range runs parallel to the above for some distance, till, nearing the north-eastern coast, it bifurcates and forms Cape St. George and some low cliffs on the Gut of Canso.

West Shores.—Turning towards the other direction, the south shores of Mines Basin present high cliffs at intervals. The most lofty occur about Cape Blomidon. This is a magnificent precipice, the lower part composed of red marls and sandstones, and the upper being a vast capping of basalt, the vertical lines of whose rude columns increase its height without diminishing its bulk. Steaming down the inlet, the traveller who is able to resist the effects of the tremendous swell which commonly agitates these enclosed waters may here enjoy a scene of rare beauty. The fine cliffs of Cape Blomidon are exchanged further on for the isolated fragments of limestone which have given its name to Split Cape, whose main portion is clothed with Canadian pines: on the opposite side are the white houses of Parsboro', nestling in a beautiful valley, surrounded by lofty hills and forests, which exhibit their most varied aspect in this point of view.

Coming out into the Bay of Fundy, the igneous rocks of Cape Blomidon may be traced for 130 miles, forming a straight line of cliffs, whose almost unbroken continuity is only pierced by the narrow entrance to Annapolis Basin. These precipices form the edge of the range known as the Northern Mountain. Running parallel to it throughout the greater part of its length, and only a few miles distant, is a similar range, called (like the last from its position with respect to Annapolis) the South Mountain. Their flattish summits are well covered with forest, which, when cleared, displays a fertile soil, resulting from the decomposition of the volcanic rocks and limestones.

Between these ranges is the oldest settled part of the colony. The beautiful and spacious harbour, and the productive soil of the valley, soon attracted the French settlers of Acadia, who built here their chief town of Port Royal: this city received its present name in honour

of Queen Anne, upon the cession of Nova Scotia to us at the Peace of Utrecht, in 1713.

The west coast of Cumberland Basin, although monotonous in its almost uniform height, and in its flat uplands intersected by shallow rectilinear valleys, is yet very interesting on account of its mineral wealth, and of the beautiful geological section which it exposes. Near the South Joggins* is a fine series of precipitous cliffs 150 feet high, the inclined beds of which dip to the south, and consist of many seams of coal, intermingled with sandstones and clays. Here, in the face of the precipice, Sir C. Lyell saw the stems of fossil trees growing out of the coal-beds, and covered up in the superimposed strata—furnishing one of the plainest evidences of the vegetable origin of coal.

South-east Plateau.—The whole of the south and east coast of the peninsula may be considered as the edge of a plateau, which, stretching across the country to Cape St. Mary at one end, gradually narrows towards the north till it comes to a point near Cape Canso. The western edge of this table land can be traced by lines of cliffs and ridges of rocks throughout the interior, and with almost equal certainty by the difference in the soil and its productions. Its structure is an intricate combination of quartzite, gneiss, and clay slate, rent and confused by the intrusion of dykes and masses of granite. The latter prevails to a great extent along the coast, forming broken and inaccessible cliffs. Above, broad fields of coarse quartz sandstone, or of granite, are either bare or covered with a sparse vegetation, consisting of mosses, lichens, and small shrubs. The visitor turns from the cold skeleton of the scene to find relief of some sort in these, and their beauty repays examination. Large patches of mayflower occur, monopolising the open lands like our ling. This pretty little flower (*Epigea repens*, *Ericaceæ*) is, indeed, so common, that it has been assumed as the emblem of the

* There is a North Joggins on the opposite side of the basin. A "jogginer" is one who rambles about with no apparent purpose. The cliffs hereabouts often projecting and retiring, gave the idea of "jogging in and jogging out." Hence the name.—Lyell.

colony, with the motto--"We bloom amid the snow."* Other lowly flowers enliven the wooded parts, as, for instance, the *Linnæa borealis*, whose matted green leaves contrast so well with its delicate pink blossoms.† The railroad from Halifax to Windsor passes through an extremely rugged country, where the rocks seem to contend for the mastery with the scanty pines; or where huge limestone cliffs are shrouded by groups of withered and moss-grown trees. This wilderness has contributed very much to form an unfavourable opinion of Nova Scotia in the minds of those who merely passed across it, or judged from the Atlantic coast alone. The granitic plateau is also characterised by lakes, the number of which is said to exceed 400. These often fill strings of hollows, which stretch almost from shore to shore. Frequently they are surrounded by wild scenery, and mostly abound with fish and wild fowl. The largest is Rissignol, 30 miles long, drained by a stream which rises in the South Mountain and falls into Liverpool Harbour.

The surface of these uplands being of such varied materials, and so much exposed to the action of the elements, its disintegration is more rapid than usual, and the soils, thus formed, possess considerable fertility. Their great deficiency is in lime; but when this is supplied from the shell-sand on the shore, or other abundant and available sources, they become highly productive. The rich valley of the Musquodoboit is an example which is frequently repeated on a smaller scale; and even the inhospitable-looking plateau contains broad tracts, which, with proper management, will make good sheep-walks.

South and East Coasts.—The superlatively redeeming feature of this division lies in the nature of its sea-board: and the discovery of gold has made this remark more than

* This was elegantly illustrated at the International Exhibition, by a gold bracelet set with pearls and enamelled, displaying the flower and motto: the whole being of native production and workmanship.

† Linnæus took this little plant as an emblem of himself, describing it as "a humble, despised, and neglected Lapland plant, flowering at an early age." The reader should note the climate indicated by its presence.

ever true. We have already alluded to the fine coast scenery. Everywhere the outline is jagged by deep narrow fiords between bluff headlands prolonged into islands and bordered by deep water. The most admired part of the shore is to the westward of Halifax, where the broad indentations of Margaret's and Mahone Bays are separated by a bold promontory named Aspotagoen, the summit of which—500 feet high—is a landmark for ships in the distant offing. Margaret's Bay, with its hundreds of green and rocky islets and numerous coves and inlets, presents a series of pictures varying with every movement of the spectator, and perhaps unsurpassed for beauty on the whole coast of America. To the south of this is the now famous Ovens, at the end of a narrow ridge, five miles long, its eastern scarp falling steeply towards Lunenburg Harbour, and ending in a mighty cliff of slate, whose base is hollowed into caverns by the waves, and in whose face may be seen the veins of auriferous quartz which have enriched the sands below.

Harbours.—It is, however, the number and excellence of its harbours that renders this shore line so valuable. Between the mouth of the Bay of Fundy and the entrance to the Gut of Canso, a distance of about 300 miles, there are, besides Halifax which stands alone, not less than 16 harbours easy of access, roomy and safe for first-class vessels; together with 40 more which elsewhere would be highly prized, as they are capable of receiving ships of 500 tons burden. Of the first-named class may be mentioned as the chief, Shelburne to the south, and Ship Harbour to the north of Halifax; and Country Harbour and Whitehaven further north still. The harbour of Halifax cannot be over-estimated. In convenience for shipping and commanding position it has few equals. The outer harbour narrowing above the city, again opens out into an inner natural harbour named Bedford Basin. It extends over some 10 square miles, and is completely landlocked, with good anchorage throughout in from four to 30 fathoms of water. The "north-west arm" is an inlet stretching three miles further in the rear of the town, and the whole capable of being comprehended in the port. Here all the

royal navy of Great Britain would seem lost, and the few vessels of the Atlantic squadron which make it their summer head-quarters, appear quite solitary on its broad expanse. The town and citadel occupy the top of a promontory, the sides of which are clad in forests of white and red pine, whose fresh aroma greets the early riser as a choice perfume. Around the harbour are wooded hills, half mountains in size, where might be erected fortified works that would make Halifax impregnable.

The northern shore of the province is generally low, until Pictou is passed; but it is by no means deficient in commodious harbours, of which Pugwash and Meriogomish are the best. These are peculiar for the slight tide which affects them, so that vessels lie against the shore-line as in a dock.

Tides.—The tides of the Bay of Fundy are remarkable for their great height and violence. Annapolis Basin, on which is also Digby, is the best port on this coast; and to the north, the inlet on which Windsor is situated, and the Shubenacadie River, are the principal rendezvous for shipping. The latter is the largest of the many but short streams which water the country, and are all navigable to a small extent. The tide rushes up its estuary with a bore several feet in height, and in the course of a short time raises the water-line to the astonishing height of 60, and even 75 feet. The current moves at the rate of 10 miles an hour, with a turbulence exceeding that of the rapids of the St. Lawrence; but the waters, unlike those clear green masses marbled over with snow-white foam, are here charged with red mud, which, if very useful, is decidedly not pretty. On the outer shores the red sandstone which forms the base of the cliffs stretches far from them, in flats almost perfectly level. A slight ripple along their outer edge is the only warning of the coming flood, and he must be a swift runner who can escape the wave which covers these levels nearly simultaneously. In a few minutes, the salt water is three feet deep, and, as it rises more slowly, though still fast, upon the banks and cliffs, till the height is reckoned by scores of feet, the beholder cannot at first

restrain some feeling of insecurity while marking such an unparalleled rise of the tide.

Intervales.—The quantity of red mud brought up twice every day by these floods is enormous. At the point of turning, the waters are stationary for a short time, and this mud is then deposited. Under favourable conditions, it becomes hardened before succeeding tides act upon it. The settlers then fix a row of stakes along its seaward side, and twine a rude fence of bushes upon them. This immediately accumulates the sediment, so that in time a bank is raised, and with a little more assistance from man, the tract behind it is recovered from the sea. Such lands are called "intervales," and are the richest in the colony.

Cape Breton Island.—It will be remembered that the northern part of the province is formed by Cape Breton Island. Its extreme length is 120 miles, and width 90; but it is nearly divided into two parts by an inland sea, called the Bras d'Or, covering an area of nearly 500 square miles. The northern peninsula is, for 60 miles, a range of little-known highlands, from 15 to 20 miles broad, and highest near the coasts, where they rise to 600 and 1000 feet above the sea. For the most part they are incapable of cultivation. A stunted growth of spruce and fir trees covers some large tracts, but the rest is rocky and barren moorland, where a scanty supply of moss is browsed by a few herds of wild deer.

As the country approaches the latitude of Port Hood, it becomes undulating in character, and encloses many small rivers with fertile banks, and the large lake Margarie. In the rear of the fine harbour just named, is a range of hills draining southward through the rich valley of the Inhabitants' River, into Ship Harbour.

The low shores of the Gut of Canso are 18 miles long, and a mile and a half apart. Through this opening the tide rushes with the velocity of a mill-stream, and has thrown up beds of shingle, which now protect the shores from further erosion. Notwithstanding the strong currents, this is the favourite passage for vessels to and from the Gulf of St. Lawrence.

The eastern coast is alternately formed of rocks and clay slopes, till we arrive at Louisbourg, the former capital of the island, whence high cliffs, sometimes rising 100 feet high, form the outer shores, the heads of the numerous bays being sandy and low. But little cultivated ground is seen on this coast, although some highly-productive tracts are found inland, especially on the banks of the Miray and Grand Rivers.

A fine granitic ridge forms St. Ann's Harbour, and, with the equally precipitous flanks of Boulardarie Island, bounds the fiord-like straits leading to the Bras d'Or. This is subdivided into two magnificent salt lakes, the shores of which abound in grand scenery. Long ranges of conglomerate form blue hills in the distance; white cliffs stand out in bold relief on the water's edge. A narrow belt of rich cultivated land margins the sea, studded with the cottages and gardens of thriving settlers. Numerous creeks and islands vary the scene, and the many channels add greatly to the navigable waters of this curious bay, the whole of which is capable of receiving the largest vessels.

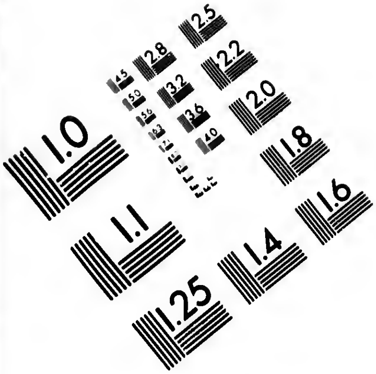
Besides the ports above named, there is that of the capital, Sydney. This harbour is the best in the island. Its entrance, five miles wide, has nine fathoms of water, and its two arms are each five miles long, and nearly a mile wide. Thus able to receive an unlimited number of vessels, its position in the heart of a great coal-field renders it of the first importance.

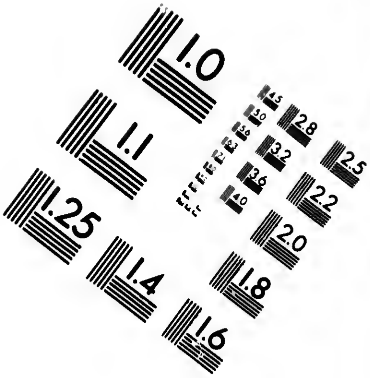
Sable Island.—At the extreme southern point of Nova Scotia is Sable Island. Of small extent, it is formed entirely (as its name implies) of sand, which is blown up from the Atlantic into rows of hillocks, 100 feet high. Coarse grass, and cranberry and whortle bushes, constitute its sole vegetation, but herds of wild horses contrive to exist upon it. Its only human inhabitants are a few coast-guards, whose services to shipwrecked mariners are alone sufficient to make this barren spot worthy of a notice. The still more dangerous Seal Rocks, 25 miles to the west, in the open ocean, are indicated by a light-house. But the currents are strong, and the traffic great,

and loss of life and property is but too frequent on this coast.

Climate.—If the reputation of the soil of Nova Scotia has suffered from being judged upon the Atlantic coast, this is no less true of its climate. The cold drizzle and frequent fogs of Halifax have been ascribed to the whole province. Since it is nearly surrounded by the waters of the ocean, its climate should not experience such extremes of heat and cold as are met with in the more inland colonies. On rare occasions the temperature falls to −25° Fahrenheit, and rises to 95° in the shade. But at Halifax, the summer and winter means are 22° and 62° respectively; while the difference between these means at Quebec is 54° Fahrenheit. The average of the whole year is 43°, and this is remarkably constant throughout the province, varying from it less than 1°, both at Pictou and Halifax. The coldest month of the year is February, and the lateness of the spring is the chief drawback to farming operations. The increase of cold, with the considerable lengthening of the days, and consequent increment of solar heat, is amply accounted for by the passage southward of the ice of the St. Lawrence, and to some extent of the icebergs from Davis' Straits, which the increased heat sets free. During this time also N. and N.W. winds prevail, and, extending sometimes into the month of May, tend very much to keep down the temperature. They are succeeded by winds from the S. and S.W., which are warm and moist, rolling up dark masses of cloud from the ocean, and enveloping the eastern coast with fog. This, however, does not penetrate far inland. When in earlier spring this moist air comes suddenly in upon the chilled land, its contents are frozen upon everything, and the trees and shrubs glitter with the frost like elegant candelabra, producing the phenomenon called the "Silver Dew."

Rainfall.—When once the summer season commences, the course of vegetation is singularly rapid. The autumn is as enjoyable as elsewhere in North America, and the Indian summer nearly as well defined. In winter, snow falls, equivalent to 6·5 inches of rain; but the sweeping





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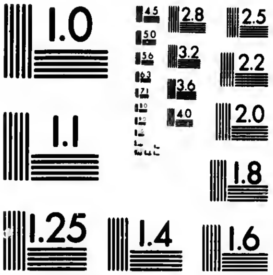

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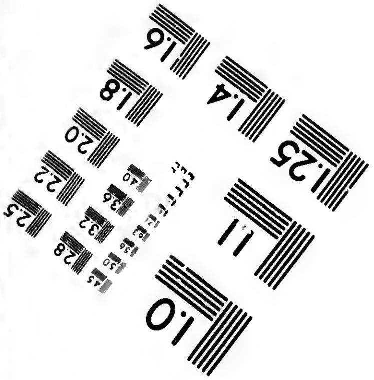

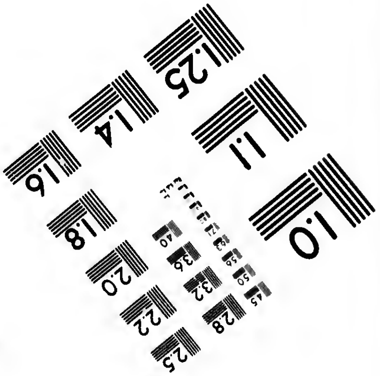

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winds unimpeded by high hills, and the frequent alternations of mild weather, prevent its accumulating to any great depth. The harbours of the northern coast are frozen up for three months, but those on the eastern side are always open. The total rainfall is 41 inches, which is comparatively small, and probably due also to the absence of mountains.

The character of the climate may be illustrated by the circumstance that English fruits and vegetables grow luxuriantly. Apples, 17 inches in circumference, are sometimes seen, and the finer sorts of pears ripen well in the open air. Peaches and grapes always succeed under glass. Indeed, the black Hamburg and other grapes produce excellent fruit against a stone wall at Windsor, year after year, with only careful covering during the winter.*

Both popular observation and medical statistics bear testimony to the salubrity of the province. The most usual disorders are colds and their accompaniments, due to the variable weather in winter and spring. The much-dreaded intermittent fever is not indigenous to the colony, and patients suffering from it are benefited and ultimately cured by the mere removal hither from the neighbouring parts of the mainland. It is also asserted, that the average length of life is greater in Nova Scotia than in the same latitudes elsewhere.†

Population.—The population of this province, though still small, is advancing at a rate quite equal to that of the adjacent provinces. In 1861, the number of its inhabitants was 330,800, having increased 115 per cent. in the previous 33 years. Halifax contains 25,000 people, and is the only large town in the colony. The majority of the inhabitants are of British descent: Irishmen are most numerous about Halifax; Scotch in the northern parts and in Cape Breton Island. The remnants of the French settlers linger near Annapolis and Louisburg; and the descendants of the disloyal Acadians, expelled in 1755, who afterwards returned, are found in Clare on the

* Knight's 'Nova Scotia,' 1862. † Hamilton.

south-west coast and in some adjacent townships. Many German families, invited by proclamation, arrived in 1753, and formed a colony at Lunenburg, which is still essentially Dutch. A few Indians remain, dependent upon charity and a state allowance; and there are some 5000 negroes, whose forefathers were originally slaves, derived from the West Indies and the United States.

Industry.—The small population, the want of superfluous capital, the absence of all attempts to make Nova Scotia attractive to emigrants in recent times, and to some extent the lack of energy in the inhabitants, are causes all of which tend to retard the development of the great natural resources of this colony. These have affected its agriculture and even its timber trade, as well as the produce of its fisheries and mines.

Agriculture.—The capabilities of the soil and climate for agricultural operations have no doubt been much underrated. The average return of wheat per acre is 30 bushels; of barley, oats, and rye, 40; and of buckwheat 45. Three hundred bushels of potatoes, and double that quantity of turnips, are the average returns per acre of these crops. And yet very little of the science of farming is brought to bear upon increasing, or even maintaining, the productive powers of the land. Rotation of crops, and the restoration artificially of the elements taken out of the soil, are matters seldom thought of. New land is valued according to the number of times that it will bear cropping without dressing, and when it is worn out, more land is taken in. The farmers are often half lumbermen, or half fishermen, and give no more attention to the land than is absolutely necessary to raise their rye, buckwheat, or pumpkins. When it is known that this plan has been in operation ever since the first settlement of the province, the conclusion is, we think, greatly in favour of the soil which can bear such treatment without becoming absolutely sterile.

Wherever a greater density of population, more energy and capital, or some other powerful cause exists, we find the condition of agriculture highly prosperous. The county of Pictou, with those parts of the adjoining coun-

ties which border on the Cobequid Mountains, present the greatest area of "improved lands." These, together with the parts adjacent to the Gut of Canso, are the chief producers of wheat and oats. The former of these grains is not extensively grown; but oats are a very favourite crop, the annual return for the colony averaging 2,000,000 bushels. The warm light land of the valley of Annapolis is admirably adapted for vegetables and fruit trees. Here, especially, potatoes grow to perfection, and are exported to the United States in large quantities. Indian corn, also, is most largely produced in this and the adjoining county. The fertile tracts of Horton and Grand Pré,* to the west of Windsor, also evidence the plentiful results of good farming; although even here the English eye misses the neatness and economy of space which characterise well-tilled districts at home. Buckwheat is grown in considerable abundance throughout the colony. Its meal is excellent, much whiter than common, and is used for pancakes and other similar forms of bread.

The dairy husbandry of Nova Scotia is further advanced than is its arable. The rich intervales of the Bay of Fundy, and the south coast, afford inexhaustible supplies of fodder. The fine uplands, interior to the north shore, are covered with sheep runs, while cattle are kept in large numbers in the lower tracts. This is also the case with Inverness and Richmond counties in Cape Breton Island, which are altogether amongst the most flourishing agricultural districts in the province.

From the above, it will be seen that much of the general backward state of agriculture is to be attributed to the little progress as yet made in the granitic division adjoining the Atlantic ocean. This has arisen in part from the uncongenial soil, but partly also from much better land being elsewhere abundant, in comparison with the number either of purchasers or cultivators.

For many years past Crown land has been sold at the upset price of 1*s.* 9*d.* per acre; and the rate ranges from this to 20*l.* an acre for reclaimed intervale.

* The scene of Longfellow's 'Evangeline.'

Flax.—Before leaving this part of the subject, attention should be drawn to the peculiar fitness of this country for the production of flax and hemp. Both these valuable plants have been found to succeed admirably, but they are scarcely at all cultivated. The preparation, and even the working up of these fibres, is exactly suited to the scattered state of the population, which would be an obstacle to the commencement of many other manufactures. Dew-rotted flax, linen thread, and cloth, have been exhibited in England, and sufficiently prove the feasibility of introducing this branch of industry.*

Forests.—The forests are composed of the same trees as those of New Brunswick and Canada, of which descriptions have been already given. The white cedar, however, appears to be less abundant in Nova Scotia, and the most common of the coniferæ is the hackmatac, here called juniper. Hard-wood trees are chiefly found in connection with the deep and good soils of the Cobequid Mountains, and the trap districts bounding the Annapolis River. The more exposed and less fertile eastern region produces exclusively the several varieties of soft-wood trees, which also cover the upper and central parts of the Cobequid Mountains. From these sources the different sorts of wood may be readily followed to their respective ports of shipment. Liverpool takes the lead in this export trade, the extensive pine forests of Queen's County furnishing the materials, while Lake Rossignol and other waters offer ready means of carrying the timber down to the numerous saw-mills to be cut into the "pine-boards" of commerce. Halifax, also, has a considerable export trade, especially in cask staves and other small kinds. Spruce deals form the staple of the port of Pugwash, and hewn timber of that of Pictou. Hard woods are not largely

* A gentleman of Halifax has discovered that Bokhara clover (*Melilotus Leucantha major*) yields a fibre which is a good substitute for cotton, hemp, &c. It grows with great luxuriance, giving crops for several years together, if manured with gypsum. It may be left on the ground all the winter; the fibre is easily prepared, and furnishes also an admirable paper material.—'Official Catalogue, International Exhibition,' 1862.

exported, though abundant in the counties bordering the Bay of Fundy. The beautiful "bird's-eye maple" is the chief of these, being, like the curled and white varieties, much prized by the cabinet-maker; the native workman, nevertheless, reserves his best efforts for display upon the imported wood of the black walnut.

The total exports of wood are worth about 200,000*l.* per annum, being the largest item after the produce of the fisheries. Considering the small extent of improved land, that is, about one million acres, or one-fifth of the total quantity granted to buyers, and that the greater part of the remainder is more or less forested, the lumbering trade does not appear very flourishing. The proportion of large trees also is less than in the adjoining provinces, and they are almost all gone in some districts. The chief sites of the timber-cutting operations lie in the extreme north and south parts of the colony, out of the route pursued by the casual traveller, who, however, obtains a glimpse of a lumbering country on the road between Windsor and Truro. His eye is caught by great trees, their bark girdled, standing up, blanched and dead, awaiting the saw; or he passes huge piles of timber ready for carrying away during the winter frosts, covered meanwhile with creepers and wild flowers of the gayest colours, about which resplendent humming-birds are flashing like motes of coloured light; or, more commonly still, he remarks the wanton destruction of the forests by fires, and even such curious questions as "why oak trees and beeches should then replace pines and swamp ashes," cannot prevent the reflection that already some parts of once well-supplied Canada are in want of wood, nor the lament that such loss should be wilfully caused or left unchecked. It would be a profitable use of the wood thus wasted to turn it into charcoal, or even into potashes, which are valuable as articles of commerce, and are at present not exported from this colony.

Furs.—The forests and rugged parts of the country harbour many animals whose skins are valuable. The largest are the Moose and Cariboo deer and the black bear, all of which are now fast disappearing. But foxes

are numerous,—silver, red, grey, and black, and with the otter, mink, and beaver, are much hunted for their furs. The skins of the silver fox have sold for 40*l.* each! so highly prized are their peculiar lustre and beauty. Mink furs also fetch large prices. The skin of the little animal called musquash, stripped of its hair and dyed, is sold to counterfeit that of the fur-seal, the resemblance being very great. And enormous numbers of rabbits (*Lepus Americanus*) are taken by the poorer outlying settlers, who eat the flesh. As many as 60,000 rabbit skins have been exported in a year by a single dealer.*

The sportsman, besides these and other wild animals, finds abundant amusement in the pursuit of grouse and partridge, and the large numbers of water birds, snipe and wild duck, goose and teal, which frequent the neighbourhood of the numerous lakes and streams.

Important as lumbering and agriculture are--and the latter is yearly becoming of more consequence—yet upon neither of these industries does the peculiar character of this colony's resources rest. Its forests do not bear comparison with those of New Brunswick and Canada, either in point of extent or of abundance of large timber trees. As a wheat-growing country it can never compete with the vast regions lying around the great lakes. Whatever may be the progress made by Nova Scotia in these occupations, it may be always outdone by her neighbours on account of their vastly larger sources of supply.

On the other hand, this province possesses such immense stores of material wealth in her fisheries, and, above all, in her minerals, that a due appreciation and working of these cannot fail, as it seems, to place her in that foremost rank among commercial states which her geographical position suggests.

Fisheries.—Along the whole of the coast line of nearly 1000 miles the sea teems with fish in almost incredible numbers, and the numerous streams and lakes not less so. The "bay" fisheries are the same as those described when speaking of New Brunswick. The shad and gas-

* 'Official Catalogue, International Exhibition,' 1862.

pereau are fished especially in Mines Basin, and the haddock, hake, and pollock in the deeper parts of the bay. The latter, when split and dried, are classed together as "scale fish" in the statistical returns, while shad are entitled "herrings." Smelts swarm up the rivers in myriads, and are taken in early spring by lading them off the mud-banks with scoop-nets. They are of delicious flavour; but such is their abundance, that they are often thrown on the land as manure.

The principal fisheries are, however, those of the eastern coast. Here the cod is obtained all the year round, often weighing 90 lbs. The halibut is an excellent fish, though sometimes 500 lbs. in weight. Salmon are caught abundantly in the streams, and also on the coast before they enter them. And the tunny, or albicore, which is so much fished in the Mediterranean Sea, is here three times the size of the European variety. The most exciting fishery is that of the mackerel. Swarming along the coast, these fish crowd into every inlet, their greatest armies passing up the Gut of Canso into the Gulf of St. Lawrence. Their numbers are so enormous that a "schule" will extend over several square miles, smoothing the surface of the sea by its dense masses, and even impeding the passage of small vessels.* One seine will take 3000 barrels in a night. In November, 1855, at a single haul, 800 barrels were drawn on shore in Halifax city from the north-west arm; and 20,000 barrels were caught in the harbour during that autumn. A barrel weighs 200 lbs., and when salted, sells for about twenty shillings,—figures which attest at once the numbers of the fish, and the value of the fishery. And yet, the bulk of the mackerel taken are caught further north, in Chedabucto Bay.

Several species of shark occur, of which only one is abundant. This is a small kind called the dog-fish (*Spinax acanthias*), which attains a weight of 16 lbs. It is taken for its valuable oil; the residue being used for fattening pigs, and for manure. Some seal-oil is made

* Hamilton.

for exportation, but only in small quantities. In 1861 fish-oil, to the extent of 2,300,000 gallons, was exported, nearly all of it being obtained from this little shark.

There is probably no market so well and so plentifully supplied with fish as that of Halifax. Salmon is fourpence a pound; delicately flavoured whiting are bought at one penny each; trout, up to four pounds each, at eightpence per dozen; and smelt at twopence. A customer generally receives a lobster gratis to make the sauce with. One penny is the usual price, but sometimes a shilling for a wheelbarrow full;* and it is estimated that all together, for export and for home use, a million dozen lobsters are sold every year at Halifax. Lobster-catching is a common amusement in the harbour: the only apparatus required is a slight stick, ten feet long, split at one end, and tied to prevent the opening becoming too wide. The sportsmen take a light boat, or a canoe if procurable, and paddle into any of the hundred creeks of the basin, where the lobsters may be seen crawling on the bottom. The forked end is then slipped over the animal's waist, and he is lifted by it into the boat. In a few hours the craft may be filled. We have measured the claw of one monster, and found it 15 inches long. These crustaceans are sometimes thrown on the northern shore by gales in sufficient abundance to be used as manure. Oysters are similarly plentiful. The whole coast is an oyster bed, which might be turned to immense profit. Those of Tatamagouche, near Pictou, are esteemed the best flavoured.†

The Reciprocity Treaty has produced its effects upon the fisheries of this colony as upon those of its neighbours. The most grievous complaint is that made of the practice

* 'Official Catalogue, International Exhibition,' 1862.

† Among the edible mollusca of Halifax are two oysters, three scallops, *P. Islandicus* being very abundant; many clams, all *Veneridæ*, *Cyprina Islandica* wearing the title of the Black Quahog. A large *Modiola* also, and two *Fusi*, *Islandicus* being one; and *Solen ensis*. What would a British conchologist say to a supper of P. Islandici! Near Annapolis, pearls are found somewhat largely in *Unio Margaritiferus*: our pearl mussel.

of "trawl" line fishing, both on the banks and in-shore. Large hooks, three feet apart, are laid near the bottom, where they take larger fish it is true, but also those which are depositing their spawn; and it is alleged that the fisheries will be ruined if the efforts now making by the Colonial Government to prohibit this practice are unsuccessful.

Another result should be to arouse the colonists to greater care and energy, if they would not have their own profits monopolised by the Americans. There was room for improvement, perhaps there is so still. A great trade existed in cured herrings with the Slave States of the Union. In 1854 the Nova Scotia fishing masters complained to the English consul in Virginia that their fish were undervalued in the States markets. He went without delay to Richmond, but, on opening the barrels so rated, their contents speedily made known the condition they must have been in before the curing process commenced, or possibly the inefficiency of the process itself. He subsequently reported that he had not found his suggestions concerning greater care had been very well received.* The present value of the fisheries' produce exported is upwards of 500,000*l.*; and by the census of 1861, 14,300 men were directly engaged in this branch of industry.

Minerals.—Coal.—The mineral resources of the province remain to be briefly considered. Of these we give the first place to the extensive deposits of coal. As in the case of the trap rocks, the coal formation of Nova Scotia is also continuous with that of New Brunswick. Here, however, there has hitherto been discovered the largest quantity of available coal. It is chiefly worked in three districts, each having its peculiarities. On the Cumberland Basin the South Joggins mines are distinguished by numerous small seams, the biggest of which is three feet six inches

* Reports from Foreign Countries.—Blue Book for 1854. An official brand is the true remedy for this carelessness. With this guarantee, the Scotch herrings are beating the Norwegian fish out of the continental markets: the brand having been lately discontinued in Norway.—'Official Report on British Fish,' 1858.

in thickness. Its coal, yielding 36 per cent. of volatile combustible matter, is esteemed for its illuminating properties. The largest coal-field is that of Pictou, where the beds are few in number, but of extraordinary depth, the two main seams being 22½ and 37½ feet thick. The supply is practically inexhaustible. The Albion mines are the most important works, whence large quantities of coal are sent to the United States for use as steam-coal, and for the production of gas. Oil-coal has also been recently discovered in this field at Fraser Mine. This mineral is wholly dissimilar in appearance from the jet-like Albertite of New Brunswick. It has an earthy fracture, and is very light. Picked samples will yield 199 gallons of oil per ton, and the average is 70. The third coal-field is that of Sydney, in Cape Breton Island, which covers 250 square miles, and is scarcely inferior in importance to the last named. Sydney coal is remarkable for the small quantity of ash (5·5 per cent.) which it contains: whence it is principally used for domestic purposes; but the newly-opened pits at Lingan, to the east of Sydney, produce a coal almost equal to that from the Joggins as a gas-producer.

The total amount of coal raised in 1860 was 306,000 tons, of which the greater part was sent to the States. It is impossible to over-estimate the value of these extensive coal-fields in regarding the future of Nova Scotia. The surrounding countries are either totally or comparatively deficient in this essential article. They have all entered upon a race of progress; and in proportion as they advance, so will the demand for coal increase. Locomotives, steam-vessels, mills, manufactures, light, all require continually enlarging supplies of fuel; and this colony is by position the natural supplier of the demand. Already Sydney feels her growing consequence to the traffic of the St. Lawrence in the number of steam-vessels which stop at that port to coal.

Iron.—Iron-ore of rich quality is extensively found in the western part of the province, but has not yet been worked to any great extent. The largest returns are obtained from mines in Londonderry, on a feeder of

Cobequid Bay. Here are rich beds of magnetic ore and hæmatite, yielding iron of the first class for the manufacture of steel; and highly appreciated by the Americans for making large ordnance. This deposit is to be traced for more than 20 miles in the cliffs on the north of Mines Basin, and being in close connection with abundant supplies of wood and coal for fuel, and limestone as a flux, it must eventually become largely productive of iron. Both specular iron and hæmatite are also found on the Nictau and other streams of the Annapolis Valley, where works are carried on to some extent. Digby, in the southern part of this valley, possesses rich ores of copper, which are also known to exist in Cape Breton Island, and in the mining country south of Pictou Harbour. Lead, manganese, and plumbago are found on the shores of Cumberland Basin, and the latter somewhat largely at Parsboro'.

Stone.—Very beautiful marbles are quarried at Five Islands, near the port just named. Limestone and gypsum occur abundantly, and are largely used for lime and manure, and the latter for plaster of Paris, and ornamental purposes. In 1860, 105,000 tons were exported from the eastern shores of the Bay of Fundy. It is seen in fine cliffs, especially on the Shubenacadie River, where Sir C. Lyell found a mass 900 feet thick, which he traced for 12 miles across the country.* All the northern ports supply excellent freestones for building purposes, and the granites of the east are equally valuable, the quarries near Halifax being those best known. Grindstones are a considerable article of export to the States; Minudie, near the South Joggins, has a specialty for them, and the rise of the tides allows them to be loaded at the quarry's mouth.

Both the jeweller and the mineralogist will find much to reward attention to the products of Nova Scotia; and the frequent landslips, especially on the coast of the Bay of Fundy, annually reveal fresh crops of valuable gems and beautiful specimens of rare minerals.

* The same writer mentions the occurrence of fossil wood, with the marks of beavers' teeth upon it, but which the finders insisted were evidence of man's handiwork.

Gold.—We have purposely deferred to a separate section all reference to the recent discoveries of gold. The geological character of the granitic region early led Mr. Dawson, its first explorer, to predict the probability of finding gold. But it was not till March, 1861, that an accident fulfilled this expectation, when a man, stooping to drink at a brook, saw some shining particles among the pebbles. This was near what is now Tangier, about 40 miles east of Halifax, and in the chief gold-bearing district in the colony. A few months later the Ovens diggings, near Lunenburg, were discovered. At first the quartz veins high in the cliffs were worked; but the sands below, caught in the fissures of highly-inclined slate-rocks, soon drew attention by their richness and ease of working. And widely, indeed, the demure Dutch maidens opened their eyes when they found that the sand they had so plentifully bestrewn on their floors from time immemorial was nothing less than gold-dust worth 400 dollars a bag. A third locality, richly auriferous, was opened at Sherbrooke on St. Mary's River, near Country Harbour. But gold is known to exist at numerous places scattered over the granitic metamorphic division, and also in Cape Breton Island. Except at the sand-diggings of the Ovens it is usually sought in the quartz veins which penetrate the slates. The quartz is dug out and crushed by mills erected for that purpose, and the metal is afterwards separated by amalgamation with quicksilver. No very large nuggets have as yet been discovered, although the washings frequently yield well. Some Tangier quartz was ascertained to contain gold at the rate of 40*l.* worth to the ton, and a sample from Lunenburg, analysed in London, yielded 61 ounces per ton.

This discovery cannot fail to attract emigrants to the colony, but it may be doubted whether gold mining will produce the rush of mere hand labourers which the diggings of our Australian colonies so frequently excite.

Trade.—The commercial prospects of Nova Scotia must not be wholly passed over without remark. For the last ten years there appears but little increase in the values of the exports and imports. These were, in 1861, 1,150,000*l.*

and 1,550,000*l.* respectively, to which should be added about 60,000*l.* for ships sold to Great Britain and the neighbouring colonies. The chief items of this trade have been already noticed, with one exception, viz., the important traffic with the West Indian Islands. These now form the principal market for fish, which is exchanged for their sugar and other produce. It is in fostering this intercolonial trade that the commercial progress of Nova Scotia most certainly lies. By her geographical position, and by her splendid harbours, she is eminently calculated to command the carriage of the St. Lawrence valley. The vast populations to the west of her are demanding yearly more of the produce of the West Indies and of Europe. And Halifax, only 2,350 miles from Plymouth, ought to be the great emporium of the countries in its rear. To fit it to become so the present railway to Truro must be united to the Grand Trunk Line of Canada. Already the telegraphic communication with America passes through the colony, commencing at Aspy Bay, in Cape Breton Island. The canals joining Halifax Harbour to the Shubenacadie, and opening the Bras d'Or on the south, will greatly increase the means of communication in the province. The mercantile marine, its writers boast, is scarcely less than that of England at the end of William the Third's reign; and they offer to supply the inland navigation of this country with new vessels at less cost than the old vessels now bought up for this trade. With such advantages of position, and with such valuable articles to sell as the colony possesses, the commerce of Nova Scotia may be safely affirmed to be capable of almost indefinite extension.

CHAPTER IV.—PRINCE EDWARD'S ISLAND.*

Physical Geography: Coasts, Interior. **Productions:** Vegetation; Fisheries; Agriculture, Climate; Manufactures and Commerce; Condition of the People; Absenteeism.

Prince Edward's Island.

Prince Edward's Island is a small colony, consisting only of the island so named, situated in the southern part of the Gulf of St. Lawrence. It is separated from the northern shores of New Brunswick and Nova Scotia by Northumberland Strait, which, north of Bay Verte, is only nine miles wide. With an area of 2133 square miles, its greatest length is 130 miles. Its breadth varies considerably, being 34 miles towards the east, while in two places deeply-cut arms of the sea reduce the width of the intervening land to a few miles.

Physical Geography.—This island must be regarded as a detached portion of the neighbouring mainland, to which it bears a close resemblance. Its northern coast is an irregularly-curved line, concentric with that of the gulf, so that if it were prolonged in both directions to the end of Cape Breton Island and the heads of the Bay Chaleur, the seaboard of the gulf would be somewhat more circumscribed than at present, but scarcely altered in shape. The shore on the south side of the island is very irregular, having a general north-west and south-east direction. The sections displayed in the opposite coasts of the Northumberland Strait indicate a great similarity

* 'Prince Edward's Island in 1818,' by a Resident; 'Geography of,' by Rev. G. Sutherland; 'Remarks on Census of 1861,' by the Collectors; Parliamentary Papers; Private Information.

between their geological formations; insomuch that the undulating surface of Prince Edward's Island appears to be entirely a continuation of the lower eastern division of New Brunswick, and of the flatter parts of Cumberland and Pictou, in Nova Scotia. Sandstones of various colours and degrees of hardness constitute the greater part of the island, interspersed, however, with thin layers of limestone and clay. Occasionally, the latter are sufficiently bulky to be of economic value, as the beds of grey limestone on Governor's Island, in Hillsborough Bay, and those of clay fit for pottery and bricks, which are found in most of the townships; but the prevalent rock is sandstone reddened by iron, although neither this metal nor any other has hitherto been discovered, except in such small quantities as to be practically useless.

The country is so intersected by arms of the sea that there is scarcely any part of it more than six miles from the tide-mark. These inlets often take the form of rivers (being favoured by the general lowness of the land), and sometimes nearly extend from shore to shore. Thus Hillsborough River is a north-east prolongation of the bay so named, whose head-waters approach within two miles of those of Savage Harbour on the northern coast. So, too, further to the west, Richmond Bay on the north, and that of Bedeque on the south, leave a narrow isthmus between them only three miles wide, and a like distance divides Egmont Bay from that of Richmond. The island is in this manner divided into three unequal sections; and the easy access consequently obtained to some point where water-carriage commences is one of its chief natural advantages.

The western coast is remarkably unbroken: its cliffs are probably formed of like materials throughout, and are therefore worn away equally. Neither is it so much exposed to the storms of the gulf, to which may be attributed the deep indentations of the northern coast. This agent, however, like all others in nature, supplies its own counterpoise in the long narrow sand-banks which stretch across the broad mouths of these openings, converting them into beautiful sheets of still water, locally

called "ponds," but at the same time impairing their efficiency as harbours for large vessels.

The eastern coast presents a great contrast to the western, and displays a series of alternating headlands and deep narrow bays. Of these, Cardigan Bay with its several arms, which form Georgetown Harbour, is well adapted to become the principal port in the colony; its capacity and depth of water, its good entrance, and its position on the track of vessels passing through the Gut of Canso—the highway to the gulf—are all in its favour.

Both the northern horns of the rudely-shaped crescent which the island resembles, terminate in lofty cliffs, and the country behind them is elevated, though tolerably level. A fine line of precipices also bounds the extreme south-east, forming the edge of an upland promontory which ends in Bear Cape. Unfortunately the deep water off this coast is not continued into the mouth of Murray Harbour, otherwise a convenient port.

In the interior, gentle swellings and undulating valleys everywhere vary the surface. The frequent remainders of the forest which formerly covered the island, and the universal presence of water, with outlines of charming intricacy, contribute to form very pleasing scenery. The top of Tea Hill, near the capital, commands an extensive view of Charlotte Harbour—the Port la Joie of the first colonists—with the adjoining sea-coast; and to the north-west, overlooks the most broken and lofty parts of the colony. But even these nowhere rise beyond the dignity of hills, or possess those rugged features which impart to the western region of New Brunswick the aspect of an alpine country. Rounded ridges here traverse the island in a north-east direction, probably in agreement with the strike of the strata. They are best defined near the northern coast, but are highest and most wild near the centre, where parts of several townships are composed of land of very poor quality.

To the west, between Holland and Egmont Bays, is a low tract, some of which is a marsh. Marshes also occur at intervals all along the south coast, where they produce good crops of hay. But the same action of the sea which

has caused them has also thrown up banks of sand and mud, rendering the water near the shore of the harbours so shallow that long piers are requisite, even at Charlottetown, for loading and unloading vessels.

Vegetation.—The extensive forests have been greatly thinned by fire and the lumberer's axe, and now exist only in patches. One of the largest of these occupies the most western part of the island, beyond the marshes above mentioned. The trees are those of New Brunswick with scarcely an exception, although the supply of timber bears no comparison with what may be furnished by that colony. The export of wood shows, indeed, a marked and steady decline. In 1852 it was worth more than 25,000*l.*; in 1860, not half as much. It should be stated, however, that ship-building has been more energetically carried on of late years; so that this colony now furnishes a large portion of the boats and vessels used by Newfoundland in her fisheries. Birch timber is the best and largest exported, and, like that of the neighbouring colony, is chiefly sent to Great Britain.

The few scores of Micmac Indians which still linger in the north-west make their canoes of the bark of the black birch, using withes of black spruce for sewing the pieces together, and stopping the fractures with its gum. As in the adjacent colonies, the maple supplies sugar from its sap, and a small bush of the myrtle tribe yields a wax-like substance, which coats its berries, and is employed as a material for candles. The medical plants sarsaparilla and ginseng are abundant in the swamps. The latter is believed to be the same as that which is so highly prized in China, that expeditions of troops are annually sent beyond the Great Wall to collect its roots. These are worth their weight in silver, and might, one would think, be profitably exported from Prince Edward's Island and the other North American colonies.* Moist places

* The Americans export it to Canton. This root (*Panax Ginseng*, or *quinquefolium*; *Araliaceæ*) is regarded with almost superstitious reverence by the Chinese; and Dr. Lindley countenances the idea that it possesses aromatic and stimulating effects when fresh, of use in some nervous disorders.

also produce the so-called Labrador tea in abundance. It is a low evergreen shrub (*Ledum palustre*), allied to the Rhododendrons, and frequent all over the colder parts of the continent. Its leaves are about one and a quarter inches long, and half an inch broad, curled under at the sides, glossy pale green above and hoary beneath, and possess slightly refreshing properties, which have led to their use as a substitute for tea. Many varieties of berries—the strawberry, currant, cranberry, &c.,—are common in woods and waste places, and all sorts of introduced English fruits thrive in the gardens.

Fisheries.—It has been observed that the produce of the forests is diminishing in quantity. It is satisfactory to notice that with respect to the fisheries the change is in the opposite direction. This is chiefly due to the energy of American settlers. Their countrymen have largely engrossed the fisheries of the island, but capital is wanted by the inhabitants, and the settlement of such persons as are willing to employ it in developing the resources of the colony is by all means to be encouraged. Thus, the exports of fish, which in 1852 were valued at less than 9000*l*., had increased nearly threefold by 1860. Two-thirds of the quantity sent is bought by the United States, plainly indicating the share of that country in enlarging the trade, and the rest is exported to Nova Scotia and New Brunswick. The fisheries are mainly distributed along the northern coasts. The cod and hake occur abundantly during the greater part of the year. From July to November immense "schules" of mackerel enter the gulf. These are followed first by the herring, and then by the alewife, and as all the latter enter the harbours and streams, the in-shore fishermen find abundance of profitable employment. Excellent trout inhabit the rivers, and smelt come up them in enormous numbers, and are caught with a scoop-net. Salmon are now confined to St. Peter's Bay and other north-eastern estuaries, where they are usually taken with a spear. So, too, are eels, and spearing them by torch-light, or through holes in the ice, is an exciting amusement. The spear-head is a most ingenious contrivance. It has two points about

six inches apart, which gradually meet, but separate again immediately, so as to enclose an oblong space, in which the iron spike lies like the spindle in a weaver's shuttle; the prongs being of elastic wood, admit the fish's back through their point of meeting, guiding it directly on to the end of the spike. With this instrument skilful fishermen take eels when gliding along at the rate of 10 miles an hour. These fish are much sought after, particularly the sea variety.

Agriculture. Climate.—The forests failing in their supplies, and the fisheries requiring capital, there remains a third great branch of industry in agriculture, and to this the colonists have always paid the most attention. Both the soil and climate are fitted for the occupation. The former is generally a light-red loam, always darker and better on the highlands. In some parts it is nearly all sand, in others a stiff clay, but these are exceptional cases. In assessing the quit-rents a threefold division was adopted, which is still maintained. According to this, three-eighths of the land was of the first quality, rather more of the second, and the residue of the third. And although this partition had some reference to the timber upon the lots, yet trees when of fine growth usually indicate good ground; and in fact it is ascertained that a large part of Prince Edward's Island is capable of producing abundant crops under the same amount of care and skill as is commonly bestowed upon an English farm. The climate possesses the general character of that of the adjacent colonies, with the extremes moderated by the equability of the surrounding gulf. This is most evident in the reduction of the summer heat, which seldom rises above 90° Fahr. The thermometer occasionally sinks in winter to −23°, and the result is to give a yearly mean of 40°, which is three degrees below that of Nova Scotia. The winter season lasts from the middle of December to the middle of April, but with the discontinuance of the prevailing north and north-west winds the snow disappears, the ice breaks up, and vegetation makes rapid progress. The end of April and May is the sowing-time; haymaking is the work of

July, and the harvest occurs in September; potatoes and turnips are secured in the following month, and then the beet-root, cabbage, or other winter-food for cattle. The Indian summer is not always experienced, though very delightful when it does happen, presaging, it is thought, a prevalence of severe cold. But even the greatest heats of July are delightfully modified by a few hours' north wind at intervals.

The principal grain crop is oats, of which 2,219,000 bushels were raised in 1860. Barley and wheat were grown in smaller quantities, 346,000 bushels being the return for the latter. Buckwheat, though sown, is not a favourite crop, while potatoes seem to be so, nearly 3,000,000 bushels of them being obtained in 1860; and these and oats constitute the chief items of agricultural produce exported. The low summer temperature has, possibly, some effect in causing the small return of Indian corn, but neither climate nor soil is a sufficient obstacle to the growth of wheat in much larger quantities than at present. The obnoxious fogs of the southern colonies are rarely felt here, and the land, with proper dressing, bears good crops. The neighbourhood of the shore in the central county, and the extreme north-west of the island, produce the greatest relative quantity of this grain. This is partly due to the readiness with which the fertilizing "mussel-mud" can be obtained in those situations, and in part also is to be explained by their vicinity to a market. But the indigence of the cultivators is the cause bearing most directly upon the nature of their farming operations. Poor Highland families from the north of Scotland, and equally poor and unskilful Irish, still compose a large majority of the inhabitants not born in the colony, as they did also of the original settlers. Some, even in 1861, we read, had not seed for their little clearings, others were eking out a subsistence from such vegetables as they could till with a hoe alone.* Such people cannot be expected to cultivate farms; and

* See Remarks of Census Collectors. These are to be received with caution, as they usually end with a request for a new road, wharf, or some other improvement at the expense of the Treasury.

where they are in better circumstances, it would seem that some inherited predilection for particular crops is shown by the returns, rather than that the capabilities of the country are limited to the growth of oats and potatoes.

Of horned cattle and sheep the colonists possess a fair proportion, though still a much smaller number than might be profitably kept. At a hasty glance, the whole island looks as if it had been intended for a vast dairy farm,* and there can be no doubt about the fitness of large portions of it for such a purpose. But the winter-food of animals requires more skill and capital in its collection than is often possessed by the inhabitants; hence, the stock are mostly killed in autumn, or exported to Newfoundland and other markets, some reaching Bermuda.

With all its drawbacks it is pleasing to record that agriculture is progressing in the colony; and that an Agricultural Society, of which the late Prince Consort was the President, has greatly contributed to this result. The total exports of farm-produce in 1860 were worth 119,000*l*., having more than doubled in eight years.

Manufactures.—The manufactures of the colony seem also tinged with the home traditions of the people. Flax has been cultivated to a small extent, but with a most favourable result. We have some before us which, we are assured, bears comparison with the best Irish flax. As yet the manufacture of linen can hardly be said to be commenced; but the production of flax for exportation might readily become an important occupation. The most characteristic manufacture is that of a stout woollen cloth, appropriately named "Home-spun," which is much in request by persons whose business entails exposure to severe weather. Other articles of warm clothing are made of wool and fur in considerable abundance. Much leather is also manufactured, and the people supply themselves with boots and all kinds of saddlery. Maple sugar and bay-wax candles have been mentioned before; and among the minor industries may be classed the

* Wood's 'Prince of Wales in North America.'

preparation of goose-down, and of the hair of the black fox, from which the best gilders' pencils are made. An indigenous grass is used for plaited articles, which produces the effect of Tuscany straw; and very pretty wares are made by the Indian women with split maple wood, dyed of various colours, and adorned with quills and bead-work.

The commerce of the island shows an advance corresponding to that of its supporting industries. In 1860 the imports amounted to 230,000*l.* in value, and the exports to 201,000*l.*, to which must be added the significant item of "new ships," worth about 60,000*l.* more. From Great Britain are imported piece-goods and hardware, including iron. Spirituous liquors, sugar, and molasses are largely purchased from Nova Scotia, being the produce of the West Indies. Our manufactures and tea are also similarly re-exported, and wooden articles of domestic use are brought from New Brunswick. In return, Prince Edward's Island sends us wood and bread-stuffs, and the same articles, with the addition of fish, to the United States. By far the largest trade is carried on with the latter country; and of all our colonies, this island has benefited most by the Reciprocity Treaty.

The principal port is that of Charlottetown, the capital. It is a fine basin formed by the union of three salt-water arms,—the Hillsborough, York, and Eliot rivers,—while its cruciform outline is completed by the entrance, in which are 11 fathoms of water at low tide. George Town and Bedeque are also chief ports, after which are New London on Grenville Bay, and Crapaud on Holland Bay, both on the northern coast. There are numerous small harbours and coves, but all suffer in common from being closed by ice during the winter months. The mail is then brought from Nova Scotia by an ice-boat mounted on iron runners; but such are the dangers and delays, that sometimes days elapse without the strait being crossed.

Population, &c.—By the census of 1861, the population numbered very nearly 90,000 persons, 300 of whom were Indians. The latter inhabit Lennox Island, and a few other small reserves of land. When "the Island" became

definitively ours in 1763, it was as a part of Nova Scotia, and bore the name of St. John. Six years later it was made a separate colony, and in 1800 received its present title, after Prince Edward, Duke of Kent, who had shortly before visited Halifax, and had taken some interest in the new province. In 1764, the island had been divided into townships, or lots, of about 20,000 acres each, which were given by ballot to certain persons who deserved well of Great Britain, either as sufferers in the late war, or for actions of bravery. Of the latter class were the 78th Highlanders, whose officers obtained no less than four of these lots. A small quit-rent was to be paid, and a settlement effected at the rate of one person for every hundred acres. Hence arose all the evils of absenteeism, under which the colony still groans. The settlers, being mostly tenantry of the grantees, had little wealth, and often less knowledge of farming, and made slow progress; while the money which was paid as rent was taken away, instead of being spent in developing the resources of the country.

Another retarding cause has doubtless been the extreme anxiety manifested to own land, with very slender means of cultivating it. Political quarrels, also, arising out of the fact that responsible government, and all but universal suffrage, are the only apparent remedies for absenteeism, have too often drawn away the attention of the colonists from more profitable employments.

Against this is to be set the industrious habits which commonly prevail among the islanders; and also the very laudable desire evinced for education, in which again we see the influence of the Scotch element in the population.* Indeed, one-third of the whole revenue is spent in providing schools and teachers, insomuch that there are almost more seminaries than roads to them. But this anomaly will soon right itself if the colony continues its present rate of progress.

Its government is gradually buying up the claims

* It is the only colony, as far as we know, except New South Wales and the Cape of Good Hope, which has published a "Geography" of itself for use in its ordinary schools.

derived from the original grantees. Other debatable land questions have been settled; and it is to be hoped that no new complication of political affairs will check the advance which the island has now entered upon, and to which its natural fertility, salubrious climate, and extensive fisheries should all be made to contribute.

CHAPTER V.—NEWFOUNDLAND.*

Position. Size. Coast Scenery: St. John, South Coast, West Coast, North-east Coast, Interior;—**The Labrador;**—**Industry,** Agriculture, Climate; the Fisheries, the Banks, History of; Trade.

NEWFOUNDLAND.

NEWFOUNDLAND is a large island enclosing the Gulf of St. Lawrence on its eastern side; separated from the mainland on the north-west by the Strait of Belle Isle, 60 miles long and 12 wide; but leaving a much broader opening on the south-west, where Cape Ray is fully 70 miles distant from Cape North, in Cape Breton Island. It contains an area of 35,850 square miles,† and extends from the 47th to the 52nd parallels of N. latitude (which is that of the northern part of France), and includes within its shores the meridians 53° and 59° west. It is projected eastward beyond any other part of North America by its whole breadth of 300 miles, so that Trinity Harbour is only 1834 miles from Valencia Bay in the south-west of Ireland; and these places were therefore chosen as the termini of the Atlantic Telegraph cable. Rudely triangular in shape, it resembles Cape Breton Island in throwing out a narrow peninsula far to the north, part of which approaches Labrador, and forms with it the fine cliff scenery of Belle Isle Strait. Towards the south-east is the still more remarkable peninsula of Avalon, united to the main body of the island by a low, narrow neck between Trinity and Placentia Bays.

* Official Returns. 'Journal of Bishop of Newfoundland,' 1850; Rev. W. Gray's 'Sketches of Newfoundland and Labrador,' &c.

† Official Return.


Nº 1
Newfoundland
60
58
56
54
52
64
62
60
58
LABRADOR
ATLANTIC OCEAN
CANADA
NEWFOUNDLAND
Sandwich B.
Hawk B.
Castle I.
Belle Isle
Strait of Belle Isle
C. Norman
Quirpon I.
Griguet B.
Hare B.
St. John's B.
Hawke Harb.
C. Whittle
White Bay
Bay of Notre Dame
B. of Exploits
Fogo I.
C. Freels
B. of Islands
Fillamore
Grand Pond
Red Indian L.
Gander B.
Pond
C. Bonavista
Trinity Harb.
Bay of St. George
Trinity Bay
St. John
C. Spear
Grand B.
La Poile B.
Burgeo B.
Fortune B.
Placentia
Placentia Bay
Toad's Cove
Aquaforta Harb.
Miquelon
Langley
St. Pierre I.
St. Mary B.
C. Race
The Banks
58 W. Gt.
56
54
Stanford's Geog.l Estab.t
London: Published by the Soc.y for promoting Christian Knowledge

Coasts.—The waves and storms of the ocean have eaten their way into the coasts of this island on all sides, and have caused the massive and lofty lines of cliffs which everywhere meet the approaching mariner. The first view to a visitor from Europe is very imposing. The grand precipices of slate rocks, dipping almost perpendicularly to the south, which compose Cape Spear and the adjacent coast, look like some gigantic wall rising from deep water, against which the vessel is on the point of being dashed. But suddenly a cleft appears, and she passes safely between two fine headlands, 600 and 700 feet high, into the landlocked and capacious harbour of St. John. This is the capital and chief port. The city is on the north side of the inlet, built on the side of a hill, the unfinished cathedral forming the principal object. On the opposite shore a high range is covered with a forest of spruce and pine, and a few birches and other hard-wood trees. Below, the still waters are crowded with shipping; further up the valley, the slopes are well cultivated; and the view is shut in to the west by a line of rugged heights, which repeat on a still vaster scale the outlines of the coast.

Ten miles from the capital (crossing the peninsula on which it is situated) are the shores of Conception Bay, with Harbour Grace on its western side. This is, after St. John, the most frequented port in the colony. The route winds through beautiful scenery, and finally descends to an inlet called Portugal Cove, where the lofty shores are alternately forested slopes and broken cliffs, and into which runs a river whose course is a succession of cascades. Across the mouth stretch the precipitous flanks of Belle Isle, equally valued for its fertile soil and as a fishing station, and beyond all, the horizon is filled by the broken and picturesque forms of the coast in the neighbourhood of Harbour Grace and Carboniere. Almost the same features are presented by a second peninsula, on which these towns are placed, and on whose western side is Trinity Harbour. The whole south-east of the island is indeed cut up into long riband-like land-masses, whose edges are again fringed and

tattered by lofty bluffs and deep winding fiords. Fifty miles south of St. John is the fine but little frequented harbour of Aquaforte, the road to which passes around and across a series of these openings and projections, affording scenes of grandeur and beauty little suspected by the majority of English tourists. Toad's Cove, one of the most strikingly beautiful, reminds us of the entrance to the Dart, with all its vertical dimensions greatly increased. A roaring stream crosses the road and falls over into the winding lake beneath, producing a fine effect.*

South Coast.—The southern coast is almost equally broken, and is further diversified by groups of islets of every form and size,—from huge heaps of naked rocks, whose scored sides teem with sea-birds, to low banks of the brightest green, where the grasses are intermixed with a profusion of wild flowers. These islands, however, render the coast navigation difficult, and, combined with the frequent fogs and strong tides, often highly dangerous. The best-known harbour is La Poile, near 58° W. long.; but small settlements of fishermen are scattered all along, upon the shores of the numerous bays and coves. Burgeo, more to the east, is one of the most important of these; and another is on Grundy's Passage near Cape Ray. This is a fine inlet, studded with islands, and enclosed by lofty cliffs, over which in one corner falls a pretty cascade.† It receives a river which is navigable for boats, and on whose banks the views partake of the features of the Malvern Hills and the River Wye, modified by their own peculiar abruptness. More hard-wood trees occur here than in the eastern parts of the island, and many varieties of birds enliven the scene.

West Coast.—Immediately to the north of Cape Ray is the entrance to Great Codroy River. It is a broad stream, flanked by fertile meadows, which support the numerous cattle of the settlers. Such spots occur frequently on this western coast. The largest openings are St. George's Bay, where the water is often too deep for anchorage,

* Gray's 'Sketches.'

† 'Bishop of Newfoundland's Journal,' 1850.

though excellent harbours exist among its minor inlets; and the Bay of Islands, with its fine arm, called the Humber River. The latter is navigable for 15 miles, and will accommodate vessels of any size. The scenery of the bay ranks among the boldest in Newfoundland. Perpendicular cliffs, hundreds of feet high, rise out of the deepest water; other elevations are clothed to a height of 400 feet with birch, beech, and poplar of luxuriant growth, overtopped by lofty pines; and, rising above all, are the bare rounded summits of the Blow-me-down Hills, shrouded in mists, and originating the squalls referred to in their expressive name. A small farm has been cleared by one settler, another keeps sheep on the natural grass-land, and swine in the beech-woods; the gardens are well stocked with English vegetables, and the banks of the streams are bordered to the water's edge by fragrant rose-trees, much loved by the bees, and by wild gooseberries and raspberries, which look like cultivated fruit.

North-east Coast.—At the extreme north-east of the island are several flourishing French settlements, of which Quirpon is the chief. It is on an island, and the port is formed by the "tickle," or strait, between it and the mainland. A few English settlers also inhabit these shores, but the French are much disposed to monopolise the entire fishery, which is very productive.

The Bay of Exploits is further south, under the 55th meridian. It is a fine estuary, receiving the river of the same name; and is chequered with almost innumerable wooded and rocky islands, while the mazy channels and sheltered tickles afford safe and most capacious anchorage.

Interior.—The interior of Newfoundland is very imperfectly known. It appears to be an uneven table-land, but slightly wooded, and in many places covered with marshes; it contains also numerous lakes, emptying themselves by rivers, which are mostly torrents hurrying to the sea over beds half choked with rocks. Possibly a better acquaintance with the country would discover features of very different character; but the inhabitants of the island are too much employed in fishing to care

about exploring a tract which does not seem to offer many gratuitous advantages.

The Labrador.—For governmental purposes a part of Labrador is united to Newfoundland. It commences westward at the boundary of Canada, in W. long. 57°, at the commodious little harbour of Blanc Sablon, and its small feeder, the Rubicon. To the north-west its limits are not defined, being conterminous, however, with those of the Hudson's Bay Company's territory. Many fishing stations exist, which are partially deserted during the winter. Forteau on the Strait, and Battle Harbour just outside it on the north, are the most frequented. Others are St. Francis Harbour and Sandwich Bay, the latter a fine basin 20 miles long and 10 broad, forming the estuary of the Eagle River, and three other streams. The mountains, forests, and waterfalls around this landlocked bay are well worth a visit; and the finest salmon are caught in the rivers. Henley and Castle Islands, off Battle Harbour, are twin masses 200 feet high, whose upper halves display fine series of basaltic columns, two feet in diameter. Hawk Bay contains an island of granite, whose masses are thrown into the most fantastic shapes. The outer coast, on the whole, coincides with the popular idea of Labrador; beset by icebergs, and exposed to the arctic storms, its bluffs are mostly as bare as can be imagined; but ascending the numerous creeks, or winding among the innermost tickles, the most marked change takes place: the heat is frequently great, fine timber and luxuriant vegetation cover the hills, abundance of wild fruits line the shores, and fish, and wild animals, birds and mosquitoes, fill every nook with life.*

Agriculture.—The agricultural capabilities of Newfoundland are very imperfectly developed. There are but few of the inhabitants who are solely farmers, and tillage is regarded as only of secondary importance to the fisheries. Every inlet possesses more or less of flat land near its head, which is always of great fertility. The

* A small mosquito, no bigger than a gnat, known as "the Nipper," especially produces most lively recollections in all those who have once experienced its attacks.

humid climate is probably an obstacle to the extensive growth of wheat; but barley and oats ripen well, and turnips and potatoes are grown with success. In some situations the bare rock is turned into a productive garden by bringing up earth, which is measured characteristically enough by the fish-barrel. The boys of Burgeo once made a present to the clergyman of the settlement of 3000 barrels of soil, and walled his garden round to prevent the rain carrying it away. But this was an instance of respect for the person, rather than of any great liking for horticulture. And to the too general neglect of cultivation are to be attributed the dearness of provisions in places at a distance from the chief ports, and the want, almost amounting to starvation, which we read of as occurring in unfrequented spots, though sometimes possessing abundance of good soil.

Climate.—The climate is necessarily much tempered by the surrounding ocean. According to Dove, the hottest month at St. John's is August, the mean of which is 59° Fahr., and that of February, the coldest, is below 23°. But these figures are far from indicating the extremes of heat and cold. The winter is longer and the cold more severe on the western than on the eastern coasts; and even in July, immense icebergs drift southward, chilling the air in their neighbourhood. Earlier in the year, they greatly retard the spring. Nevertheless, the severe cold is considered invigorating; and persons in delicate health are expected to improve during the winter season: while length of years is one of the distinctive marks of the inhabitants.

The industry connected with the forests is small, and chiefly confined to cutting wood for fuel, and the building of boats and fish-stores. Much wood is imported from Nova Scotia, but in outlying districts, the erection of a church may depend upon a shipwreck supplying large timber at a comparatively cheap rate.

Scarcely anything is known of the mineralogy of the island. It has been asserted that both coal and iron have been found, but the authority does not appear, and such minerals have not been worked. Specimens of silver,

combined with quartz and with lead, have been sent to England, and also of the gray oxide of copper, though without any account of their prevalence or locality.*

The Fisheries.—The Fisheries are, as they have always been, the absorbing object of interest in Newfoundland. The population of 123,000 is reduced to less than one-half during the fishing season. The settlements are fixed with regard to the fishing-grounds. Fish are the crop, whose abundance means comfort, and failure, distress. The majority of the people live on salt fish, assisted, however, by United States pork, and corrected with spruce beer. Boys are fishermen at ten years of age: and even their noted breed of dogs are fishers by instinct.

The Banks.—The Great Bank is the site of the largest fisheries. This vast submarine plateau is 600 miles long and 200 broad. It lies to the east of Newfoundland, commencing in lat. 50°, and running far to the south, spreads out and grows higher as it proceeds. The depth over it varies from 25 to 95 fathoms; and it stands on a lower platform, the eastern edge of which forms the Outer Bank. The warm Gulf Stream washes its southern side, where it falls in a rapid slope to 3130 fathoms. And on the banks the cold current from the north brings a temperature often 20° lower than that of the water from the tropics. It is this meeting of such unequally heated currents which produces the prevailing fogs. To the cool waters from the arctic regions is due the excellence of the cod fishery here so extensively followed, for the best fish are always found in the colder seas. And even the banks themselves, as Lieutenant Maury suggests, may owe their existence to the same currents. Enormous icebergs come down Davis Strait by hundreds, all bearing some burden of rocks or gravel. As they drift southward, their number is thinned by the increasing heat, but none pass the northern edge of the Gulf Stream, and the Great Bank is the accumulation of the solid matter thus furnished. Its shape and outline, indeed, correspond with this suppo-

* Lead occurs at La Manche in Placentia Bay; gypsum at Codroy; and beautiful white marble on the Humber.—Perley.

sition, which has the further merit of combining the attendant phenomena in an interesting manner.

History.—The fisheries on these banks and off the adjacent shores have been an object of contention for centuries. France, Spain, and England quarrelled for their possession from the time of their discovery, till the peace of Utrecht, in 1713, when the supremacy in these waters passed to Great Britain, leaving only the small islands of St. Pierre and Miquelon in the hands of the French. They retained, besides, rights of fishing, which were again in complete abeyance during the last war with France, while England so monopolized the fisheries that, in 1814, the fish and oil sent home were valued at 2,604,000*l*. Upon the peace which followed, the French resumed their rights, and have since established new settlements on the north-eastern extremity of the island, where they pretend to have the sole claim to the fisheries. Compared with ours, their vessels and fishing gear are larger and better, and more energy is displayed by them in taking up new grounds than by our own settlers in maintaining their right to the old ones.

In the meantime, a new and formidable competitor appeared in the United States. By the convention, signed in London, in 1818, a concurrent right to all our deep-sea fisheries was conceded to them, on the express condition that they were not to fish within three miles of the British shores, nor land there except in distress. This stipulation was quickly and constantly broken. The Americans landed on the less-peopled coasts of Nova Scotia and New Brunswick upon the most flimsy pretexts, introducing smuggled goods, and, with the connivance of the inhabitants, even curing the fish caught within the proscribed limits. Besides illegal fishing, it was complained that they spoilt the in-shore grounds by throwing their offal overboard in the bays, and by taking fish at improper times. With their intimate knowledge of the sea-board, it was easy to avoid the few cruizers of Great Britain. Their own war-vessel was reported as lying in the Bay Chaleur, "all hands fishing." The law was weak, its infringers were strong. Our rights were not exercised

by our own subjects as they should have been; the Americans profited by disregarding them. Official remonstrance had no effect; quarrels were frequent, and national misunderstandings always imminent. The Americans either could not, or would not, keep the treaty; and at length we yielded the sole right of fishing in our own waters, by the Reciprocity Treaty of 1854. It would have been more satisfactory if the reciprocal right to fish in their waters had been conceded by them, although it would have been little more than an act of courtesy, since the fish off their coasts are not equal to those further north. But looking to all the circumstances, and notwithstanding the grievous and often just complaints of the colonists, to yield was the best thing that could be done. Two courses were open to us; either to maintain our rights by keeping an expensive fleet of guard-ships, or to give them up entirely. By taking the first alternative we might have kept off the Americans, but our own people were too few, or else unwilling, to occupy their places. The numerous fishing-vessels which frequented these seas in former times were English, not colonial; and when France and America encouraged their fishermen by a bounty on their tonnage and by other immunities, ours were unable to compete with them, and the trade declined. Instead, therefore, of protecting comparatively unoccupied waters, we generously gave way to the intruders, throwing open at the same time the trade between the States and our colonies. The commerce of the latter has since greatly increased: and stimulated by the profits made by the foreigners, our own people have aroused themselves to new energy in the prosecution of their fisheries with a corresponding increase in the produce. The general prosperity thus commenced more than compensates for the loss of a monopoly which was little appreciated, and England's part in the adjustment of the dispute appears to have been as wise as it was liberal.

The fishermen of Newfoundland have almost entirely withdrawn from the Great Banks. The summer fisheries are situated further from the land than those of the winter season; but usually within reach of the salting and curing

stations. A line with two hooks is commonly employed. Each man has two lines, and the cod are often so numerous that he draws them in as fast as he can put on the bait. The fish are split and cleaned, and the livers carefully put aside in a barrel. A curing establishment in full work presents a most lively scene. The "rooms," or stores, stand near the beach, from which a rude landing-stage projects. Close by are the "flakes" or flat stages of spruce poles, on which the fish to be dried are spread out: and the labour is so constant, from the necessity of immediately beginning the curing process, that the shoremen are employed night and day. In other parts of the establishment the oil is separated, the "cold-drawn" being that which flows spontaneously. Heat and pressure are, however, the agents used in the extraction of the bulk of the oil obtained.

The cod-fishery is mainly pursued during the summer, commencing in June.* The seal-fishery of Labrador and the Strait is the next most important branch of this industry, occupying the time from March to June. The animals taken are valued for the sake of their oil, and especially for their skins, which form the shining patent leather of the shops.† Salmon are caught abundantly on "the Labrador," whence they are exported fresh, preserved in hermetically sealed tins, or in ice. Herrings are also plentiful in the Strait, and are caught in enormous quantities; a seine-net at a single haul securing 120,000 fish, and sometimes thrice as many.

Trade.—As may be supposed, the principal articles of export are produced by the fisheries. In 1860, the total value of exports was 1,271,000*l.*, only 14,000*l.* of which was made up of other goods. The dried cod are chiefly sent to Portugal, Spain, and other parts of the Mediterranean, and to the West Indies and Brazil. Salmon and herrings are shipped to the United States; while we receive the greatest quantity of the oil,—cod, seal, and

* In the West Fiord, in Norway, the fishery is over in April. This is a good illustration of the difference in the time of spring on the opposite coasts of the Atlantic.

† Dr. Lankester on 'Uses of Animals.'

dog-fish,—and of seal skins. Besides the ordinary qualities, estimated at a value of 87,000*l.*, the refined cod-liver oil sent to us in 1860 was 363 tuns, worth 25,400*l.*; in the same year the seals' skins amounted to nearly 600,000.

The imports were of nearly the same amount as the exports; the principal item being 200,000*l.* paid to us for cloths and cotton goods. Fishing-tackle, cordage, hardware, leather, and tea were also largely bought from us, and salt from Spain. The United States supplied most of their flour and pork; but sea-biscuits are obtained from Hamburgh. Prince Edward's Island sends potatoes and new boats; and Nova Scotia the bulk of the wood imported. The trade with the West Indies and Brazil procures the islanders coffee and sugar, and, it is said, too large a quantity of ardent spirits,—rum alone accounting for more than one-tenth of the total value of the imports, *i. e.* of 1,254,000*l.*

This account of Newfoundland may be closed, by recommending it to the notice of our numerous tourists. It is almost all untrodden ground. The visitor will find no lack of hospitality, though he may have to drink his spruce beer out of a tea-cup. If he be an artist, he may revel amid scenes of grandeur and beauty rarely equalled; if a sportsman, he may spear his own salmon, shoot his own Cariboo venison, and net his own curlew; and if gastronomically inclined, may judge for himself whether these fish, flesh, and fowl are not excellent viands. And to these recreations he may, if he chooses, add the pleasure of studying a simple-minded hardy race of men, whose respect for the old country is only paralleled by their attachment to the new.

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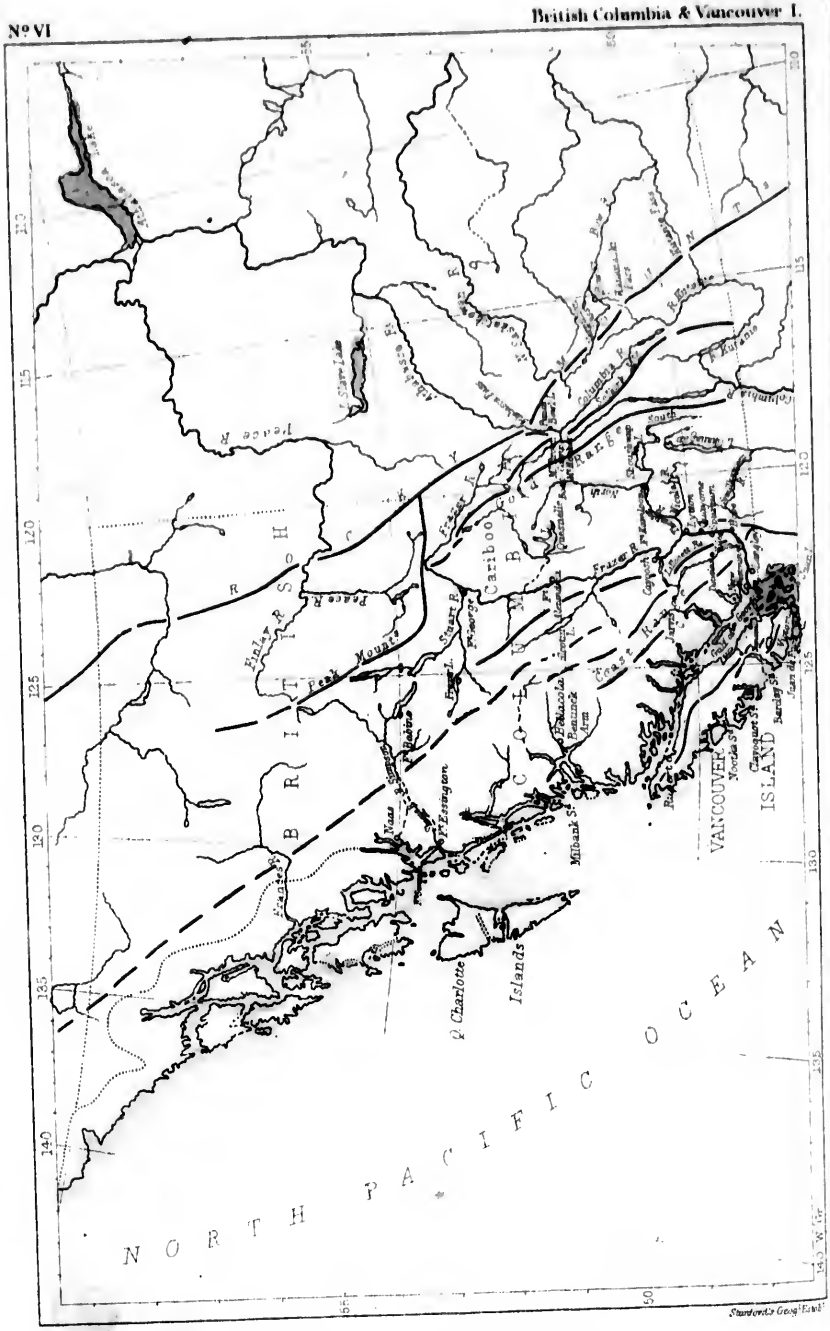

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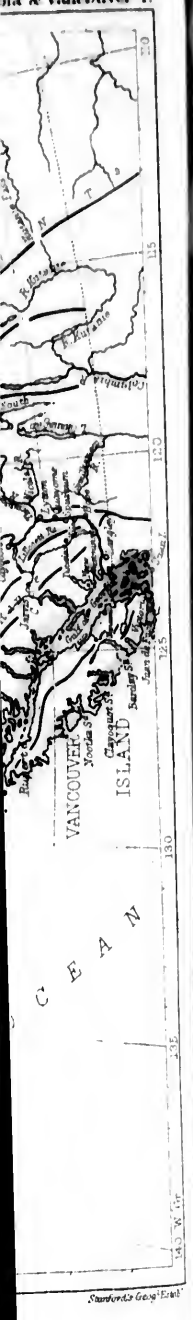

CHAPTER VI.—BRITISH COLUMBIA, AND VANCOUVER ISLAND.*

British Columbia: Mountains; Rivers, the Fraser, the Thompson; the Harrison-Lillooett Route, Coast Routes, Climate.—**Industry:** Gold-digging, Bars, Benches, Cariboo; Population.

Vancouver Island:—General Description; Coast and Harbours; Esquimalt.—**Industry:** Forests and Vegetation; Fisheries; Minerals, Coal. The San Juan Dispute.

British Columbia.

British Columbia is an extensive territory on the north-eastern coast of the Pacific Ocean. On the south, the 49th parallel separates it from the possessions of the United States. A recent Act of Parliament has extended its northern boundary from the Simpson and Finlay Rivers to the 60th parallel between the Russian territory and the 120th meridian. The main ridge of the Rocky Mountains and the coast line compose the limits of the province on the remaining sides. The latter are nearly parallel to each other, and run in a north-west direction for 800 miles. The mean width of the oblong thus surrounded is 400 miles, and the area of the mainland portion of the colony is estimated at 344,500 square

* Official Reports by Mr. Downie, Mr. Justice Begbie, Lieutenants Palmer and Mayne, and Governor Douglas, in 'Blue Books, on Columbia,' and 'Geographical Journal,' 1861; 'Bishop Hill's Journal,' 1860; 'Official Catalogues of International Exhibition;' 'Letters of Times' Correspondent,' &c. Grant's 'Vancouver Island,' 1858, and Remarks on, 'Geographical Journal,' 1861; Report of Captain G. H. Richards, 1858, in 'Blue Book on Columbia,' Part ii., &c.

miles, Vancouver Island at 13,250 square miles, and Queen Charlotte Islands at 5000 square miles.

Mountains.—The principal range of the Rocky Mountains, on the eastern side of the colony, must be regarded as the line of departure, with reference to which the other physical features are subordinate. The whole tract is, indeed, nothing else than the extremely irregular western slope of this chain, and might be very properly defined as such; for between it and the sea, the country is traversed by long ranges of mountains, like parallel lines of breakers, of which it is the mightiest; while the troughs of these seas, though terribly confused by a cross swell, contain the rivers. The main range changes its character near its centre. Here, under north latitude 52° 30′, is a singular lake, called the Committee's Punch Bowl, whose waters discharge into the River Athabasca in one direction, and, in the other, into the Columbia. It lies in the midst of lofty mountains forming a vast knot, the culminating points of which are Mount Brown, 16,000 feet, and Mount Hooker, 15,700 feet above the sea, and probably 7000 feet above the pass which skirts the lake. To the north of this, the range has not been explored, but it appears to be considerably lower than the Athabasca pass. Fifty miles from the latter, it is breached in a similar manner by the Yellow Head pass, uniting the Mette, a feeder of the Athabasca, with a tributary of the Upper Fraser. Towards the south, the range is composed of a number of long narrow valleys, overlapping each other, and reproducing on a smaller ground plan that parallelism which has been said so strongly to characterise the whole colony. Among the many ridges, one is more prominent than the rest. It is united to the chief range by the mountain knot above mentioned. Southward from this it is called the Selkirk Mountains, and encloses the valley of the Upper Columbia, not more than 30 miles wide. To the north, for upwards of 200 miles, it divides the Upper from the Lower Fraser, gradually receding to a distance of 100 miles from the main ridge, and becoming itself an intricate assemblage of mountain-valleys, including the famous gold district of Cariboo.

Beyond this, it again narrows its base, and rises to the region of perpetual snow, under the name of the Peak Mountains, which are the highest part of the system in this latitude, and form the western limit of the broad basin of the Finlay and Upper Peace Rivers. This remarkable line of elevated ground we shall refer to hereafter, from its distinguishing character, as the "Gold Range."

The next best-defined ridge of high land lies nearest to the coast. It is most like a mountain chain towards the south, where it is broken through by the River Fraser. Here it is not more than 50 miles from the shore, and preserves its features for 200 miles, the snow lying on its crest as late as July. North of this, it spreads out, and assumes rather the aspect of a rugged plateau; at the same time it increases its distance from the sea till it is crossed by the Simpson River, 100 miles above its mouth.

Again, another tolerably distinct range is found near the right bank of the Fraser, throughout its mid-course. It also is more narrow and ridge-like toward the south, where it is known as the Lilooett Range. The tributaries of the Fraser cross it in deeply-cut valleys. The depression between this and the Coast Range is almost lost in the highlands of the central parts, but its northern portion is occupied by the basin of the Chilcotin River, and its southern by a series of lakes of which the Harrison and Lilooett are the chief. A transverse valley, also occupied by lakes, connects the Lilooett with the Fraser, and is the main communication between the rich mining district of Cariboo and the coast.

The four ranges now mentioned, it will be observed, fill the whole breadth of the province in its northern part, but are so much contracted in width at the opposite end that a broad space remains between the Fraser and Columbia Rivers, from 150 to 200 miles across. This contains the basin of the Thompson, the most important feeder of the Fraser, and, to the southward, comprises several valleys which are continued across the 49th parallel: of these, that drained by the Similkameen River is the most interesting to settlers, from its fine pastoral character.

The prevailing feature of the country is aptly illustrated by the observation, that the 50th parallel crosses no less than eight principal depressions * with their dividing ridges, all at right angles, besides many others of smaller note. In fact, the only great exceptions to the meridional direction of the valleys and ridges are the "Lands Height," a range 2400 feet high, which separates the Fraser from the Peace River, and joins the Peak Mountains to the main range; and the lower course of the Thompson, including its expansions in the Kamloops and Shushwap Lakes. But the number of minor streams and hill-spurs is immense, and these are mostly perpendicular to the principal lines of the country, and constantly make travelling along the banks of the rivers exceedingly toilsome and often impossible. This peculiarity, coupled with the rapidity of the chief streams, and their liability to floods, is the reason why communication is so difficult; and hence the interest which attaches to the opening of new routes to the interior.

The Fraser River.—The principal river of British Columbia is the Fraser, first descended by Messrs. Fraser and Stuart, in 1808. Its source is on the northern side of the great knot in the Rocky Mountains, and a few miles from Mount Brown. Its upper course is 200 miles in length, with a north-western direction; then, turning in a broad curve to the southward, it soon after receives the Stuart River on the right at Fort George; and maintains the same general course of south, one point east, for 400 miles to Fort Hope. At Lytton, 80 miles from Hope, it is joined by the Thompson, its chief tributary on the left bank. At Fort Hope, it is about 100 miles from its mouth, which is reached by a nearly due west course, and is only nine miles north of the boundary line.

There is a striking resemblance between the course of this river and that of the Columbia. The upper and middle parts of the latter, contained within the colony,

* Beginning at the coast, these are Jarvis Inlet, Lake Lilooett, the Fraser, the Similkameen Valley, Lake Okanagan, the Thompson, the Columbia, and the Kutanie; all, except the Thompson, running south.

are close counterparts of the corresponding portions of the former, although surrounded by higher land—often, indeed, reaching the limits of perpetual snow.

The auriferous character of the whole basin of the Fraser, has rendered it of paramount importance. Other districts will acquire interest as the country becomes more settled; but at present little is known of their capabilities, or even of their aspect.

The entrance to the Fraser is bounded by low marshes on either hand, as far as New Westminster, situated at the junction of the two arms which form its delta. By the south, or main branch, the distance up is 10 miles. The opening is further inconvenienced by sandbanks, extending five miles beyond the edge of the marsh, and in process of being added to it. The violent floods of the river have evidently brought down the matter forming these lowlands. Fortunately the same swift current keeps open a channel through them sufficiently deep to admit ships of considerable burthen. It is rather difficult to find without a pilot; but Vancouver Island acts like a vast breakwater, protecting the coast from all winds except the N.W., and although vessels have often run aground on the sandbanks, yet wrecks from this cause are very rare. The width of the stream soon narrows from two miles to one, and the bulrushes and low bushes of the swamp are exchanged for the high and pine-covered banks which overlook the capital. In rear of the latter an extensive area of tolerably flat ground stretches to the northward, greatly assisting the formation of roads through the forest to Burrard Inlet and the Pitt River. The eastern horizon is filled with the jagged peaks of the Coast Range, where patches of snow are seen glistening in the sun, though the distance is too great to observe the forests of Douglas pine, which often clothe them to their summits. The Pitt River is a navigable stream 14 miles long, leading to a fine deep lake among the mountains, of somewhat greater length. The scenery here is extremely beautiful, resembling that on the most charming of the Scotch Lakes; fir-covered cliffs rise to the height of mountains, and beautiful cascades gleam among the dense

foliage. At the head of it is some available land, but the shores are generally too steep for settlement. Returning to the Fraser, the high banks come close to the water's edge, completely hidden with a luxuriant growth of trees, —the Douglas pine, cedars, a poplar called the cotton tree, and others,—while the undergrowth is of alders and hazels, and a wild apple, whose clustering blossoms remind the emigrant of the hawthorn in May. The first station above Westminster is Fort Langley, a post of the Hudson's Bay Company, placed on a spot where the banks are lower and flatter than usual. This is 20 miles from the capital; and in another 20 miles the passage through the mountains commences, and occupies as many more. The western spurs rise rapidly from 200 feet to nearly 3000 feet. Occasionally bare bluffs are met; but the universal Douglas pine covers mountain and valley alike up to the snow patches, which often continue all the summer. The "bars" are now a prominent part of the river scenery when the water is low. They are spits of sand and mud, which run along the sides, and at times project some way into the stream, but always leave the channel clear, and often 10 fathoms deep. Higher up the river, these bars are the chief sources of gold, and here, also, they contain it in the form of fine dust. Vast piles of drift timber get caught on them, all barked and bleached, giving evidence of the powerful current and its encroachments on the upper banks. While toiling slowly through this wild scenery, the eye is delighted by the distant views which open up the valleys of the Smess and Chilewāak, where the park-like country and rich meadows seem especially to invite the farmer. On the opposite side is the fine entrance to the Harrison-Lilooett lakes and valley, at the new settlement of Caernarvon. About 85 miles from the capital is Fort Hope, most delightfully situated at the bend of the river; the mountain scenery on both sides fills the view, perhaps too much so for the agriculturist; and the River Quequealla and other streams struggle through the picturesque gorges of Mount Manson, over which is the road to the fertile valley of the Simalkameen. If this route could be made available for

the ready transit of goods, the already thriving trade with the United States up this valley would be greatly increased, and a fine district opened to settlers. Most of the surrounding hills are grassed a-top, shaded with pines; and the dells are choked with vegetation, except where the potato grounds of the Indians show their readiness to adopt new ways, and skill in carrying them out.

Entering upon the middle course of the Fraser, we approach the rugged country on its banks, which so seriously impedes the communication with the interior. As far as Fort Yale, now the town of Derby, 150 miles from the mouth, stern-wheel steamers ascend without much difficulty, and Indian canoes and miners' boats by dint of hard paddling and pulling. The mountainous banks then close in, narrowing the channel, and producing the rapids called the Canyons, which, during the summer at least, are highly dangerous to come down—impossible to pass up. The canoe voyage to Derby is very exciting, from the exertions required to stem the current, and avoid the floating wood. Yet the passenger finds time to admire the bold hills and their leafy covering, and foaming torrents, and to pick the roses as he shoots by close to the thickets. Gay butterflies flutter among the flowers on shore; and the gray waters are enlivened by the quaint painted canoes, and the bright scarlet and blue shirts of their energetic crews. Gold bars project at intervals, and are crowded with eager diggers as fast as the decreasing floods leave them bare; and here, too, the banks above the reach of the flood begin to be regarded with equal interest.

Above Yale, the river is left and the route to Lytton pursued by land. For 30 miles it is full of difficulties; perpendicular escarpments overhang the stream, and the pathway is roughly cut out of their face. Even this is interrupted by narrow fissures, which have to be crossed on frail bridges of ropes and planks, hundreds of feet above the roaring flood. At another time the path ascends a hill so steep that it appears utterly impracticable for a loaded mule, or an Indian with his pack of 100 lbs. But even this is less perilous than the corresponding

"slide," or descent, where accidents are frequent, and sometimes fatal. There is much magnificent scenery along this route, which has been compared to that of Saxon Switzerland,* though far more vast and grand. From some of the rapid rivers of Europe, too, the ferrymen on the Fraser seem to have adopted a most ingenious contrivance for saving labour. At Spuzzum, a few miles above Yale, the river is 250 yards wide: here a stout rope is stretched across it, from which other ropes are carried to the ferry-boat; these are so arranged as to keep its side oblique to the current, which then, acting like the wind upon a sail, quickly urges the boat over, and, the tackle being reversed, as speedily drives it back again.

Beyond Quayome there is a marked change. The hills are lower, and the more open country is adapted for agriculture. Fine "benches," or terraces occur, a mile wide, grassy, or but thinly timbered, and farms are commencing in many places. The climate is drier; so is the soil; and the spruce, hemlock, and Douglas pine, give way to a kind of Scotch fir.

Lytton is at the junction of the Thompson, and on the left side of the Fraser. It is situated on the upper of two benches, which together rise 300 feet above the stream. Farms are laid out in the neighbourhood, but complaints are made of the scarcity of water. The natural paucity of timber has been increased by the settlers and miners cutting down every tree within reach, so that dust and wind are the characteristics of the town. The river valley maintains the same features all the way to Cayoosh, where the Harrison-Lilooett route again joins the Fraser. Two, and sometimes three, benches rise from the water's edge to the height of 600 and 1000 feet. Their sides slope so steeply that a man can hardly mount them without using his hands. Loam, sand, shingle, and mud are their invariable components. Their flat summits are usually covered with a rich growth of "bunch-grass," with occasional belts of fir. These terraces reach back

* 'Bishop Hill's Journal.'

from the river four or five miles on each side, and often communicate with extensive and similarly grassed plateaux among the higher hills. An unlimited number of cattle might be kept on these natural pastures; but the climate appears to be too dry for arable farming.* It is also extremely cold in the winter time. Looking up the Fraser from some of the higher elevations, the same singular parallel benches extend as far as the eye can reach, always green with grass, or thinly wooded; and the whole view is closed in on both sides by mountains from 4000 to 7000 feet high. When we consider that these singular benches are thus traced through nearly four degrees of latitude, and reflect on their other dimensions, it appears an amazing theory which supposes every spadeful of the earth composing them to be auriferous. Nevertheless, the suggestion is confirmed by the experience of all who have acted upon it. And if literally true, it is only one of the wonders of the marvellous goldfield of the Fraser. For to the east of the tract last described, and contained in the great bend of the upper parts of the river, is the incredibly rich district called Cariboo, where, on almost every one of the streams, over hundreds of square miles, gold seems to be obtainable almost as fast as it can be gathered up.

The basin of the Thompson gives promise of much greater agricultural capabilities than that of the Fraser. This river is only 150 yards wide at its mouth, where it has the rapid current of the main stream; but at Fort Kamloops, 90 miles up, at the junction of its great branch, the North River, both confluents, are 300 yards in breadth, and move at a comparatively gentle rate. The land around the head waters of the Thompson is classed among the best in the colony. Its chief tributary on the left is the Nicola. Many fine tracts of meadow-land exist upon the banks of this stream, among hills 1000 feet high, which are mostly grassed to their summits, but sometimes show naked precipices of trap-rock and sandstone. The level tracts are, however, liable to be partly

* Mr. Justice Begbie.

flooded, an objection from which Kamloops is not altogether free. But with a better knowledge of the country, these low portions will be avoided as arable lands. The soil is often sandy, yet all kinds of vegetables thrive well, and at Kamloops, wheat returns fifteen fold. The North River also abounds in extensive pastures, and the hill district around Lake Quesnelle is described as affording similar advantages. On the south, and interlacing with the feeders of the Thompson, is the rich pastoral valley of Okanagan, containing a fine navigable lake, 60 miles long.

Harrison-Lilooett Route.—After the foregoing account of the Fraser, it will be easy to understand the general desire which prevails in the province to discover some less troublesome route to the chief seats of consumption in the gold-diggings of the interior. That which has obtained most favour has been several times alluded to above as the Harrison-Lilooett route, which, leaving the Fraser at a spot half-way between Langley and Hope, again joins it at Cayoosh. In actual length nothing is gained, but it has the important advantages of a lake navigation for two-thirds of the distance, and of passing through a country possessing much good land. The largest of the lakes is the Harrison, 34 miles long, whose clear blue waters are frequently 100 fathoms deep. Its sides are formed by spurs from the Coast and Lilooett ranges, which overhang the water's edge in rocky precipices and steep declivities, heavily timbered, and down which the foaming torrents rush with great impetuosity. There is little available ground, however, in the neighbourhood, and Port Douglas, at the end of the navigation, appears to be inconveniently situated. At Lake Lilooett the water-carriage is again resumed, and beyond it is a fine pastoral valley extending to the north-west. Summit Lake is too small to be of use in the transit of goods, but is interesting on account of its sending its waters in one direction to join the Lilooett, and in the other, by the Anderson and Seton Lakes, to meet the Fraser at Cayoosh. Around the latter lakes are several extensive tracts of good land, and as the route nears the chief river, it passes

along the benches peculiar to it, on one of which stands the village of Cayoosh, 150 feet above the stream.

Coast Routes.—Explorations of the coast districts have been undertaken, with the same object of finding practicable means of communication with the upper country. These regions are commonly filled with the offshoots of the westernmost range of mountains. Their terminations compose a precipitous and broken sea-board. At one time long lines of continuous cliffs oppose all attempts at landing; at another the navigation is dangerous from the intricacy of the channels among groups of rocks and islands. The meandering valleys of the interior ranges are repeated on the coast-line, with even greater depth, and form long, narrow fiords with deep water and steep sides, whose windings often enable vessels to penetrate 50 and 80 miles inland. The most complex of these is known as the Bentinck Arm, properly the name of one of its divisions. It is about 500 miles north of Victoria, in Vancouver Island, and near latitude 54°. It was here that Sir A. Mackenzie came down when he crossed the country in 1703, and the same Indian trail has now been partly followed in opening a route hence to Fort Alexandria, on the Fraser, which is estimated at 230 miles distant. On a river falling into the Arm is the rising settlement of Bellacola.

Bute Inlet, much further south, also possesses advantages for the commencement of a road to the interior. The difficulty in these cases is the necessity for importing all the provisions, and other requirements, for those engaged in the carriage of goods or passengers, as so little land is met with fit for agricultural purposes. More experience of this tract will probably give us a knowledge of many small portions of good land; and some of the islands (Savary Island, for instance, off Desolation Sound) offer a very enticing prospect, in their well-grassed slopes and apparently fertile soil. Still, unless upon some frequented line of road, these parts must wait for some time before they are inhabited by white men, or their resources known.

The River Simpson route, in the northern part of

the colony, presents a much more favourable aspect. After crossing the rugged mountains which line the coast, the banks of this river become more and more open. And, whether upon the branch leading through a chain of lakes to Fort Fraser, or by its tributary the Babine to Fort James, the trail traverses broad extensions of fine grassy country, with good soil, and but sparsely timbered by oaks and "cotton trees." Stuart Lake, on which Fort James is situated, is 50 miles long, and navigable throughout by steamers, as is also Lake Babine, 100 miles in length, and connected with the former by a portage of only 10 miles. In the neighbourhood of the fort the land is reported as "good and able to produce anything." The village of Naas Glee, at the mouth of the Babine, is a great fishing-station of the Indians, who here catch and cure many thousands of salmon annually.* It is highly probable that the more southern portion of this section of the province, about Lake Chilcotin, will also be found to contain much cultivatable land, as the route thence to Lillooett has been very favourably described.

Climate.—The climate of British Columbia is as yet only known from popular opinion, and observations upon some of its effects. Having regard to the latitude of the country, and to its situation on the north-western coast of a continent open to winds from the south-west, the *à priori* conclusion would be that the climate was very similar to that of Great Britain. The statements of residents and travellers confirm this view, with the addition that the climate of the colony is less variable, and the annual mean somewhat higher. Theoretical considerations would lead to deductions at variance with this. From the very irregular contour of the surface, so constantly formed of highlands and mountains, intermingled with tortuous valleys, often 1000 feet deep, we should argue that greater thermometrical variations would take place than in this

* Downie; who says of the 50 miles up the Babine from the village, "It is a great pity to see this beautiful country, so well adapted to the wants of man, lying waste, when so many Englishmen and Scotchmen would be glad to come here and till the soil." Naas Glee is 250 miles from Fort Simpson.

country. For such a configuration inevitably leads to local extremes of heat and cold, and to violent winds in opposite directions, bringing great and sudden changes of temperature. Lieutenant Mayne, indeed, remarks upon the variableness which he observed in the months of April and June, 1859, and quotes readings of 31°, 85°, and 40° Fahrenheit, all on the same day. And referring to the annual variation, we find that in December, 1858, the Fraser was frozen over so as to stop all communication with Yale and Langley; and at Lytton the cold was 20° below the freezing point; while, in January, 1862, at Beaver Lake, in Cariboo, the mercury froze in the rays of the setting sun.* The universal complaint of the prevalence of mosquitoes in the summer time indicates a high degree of heat at that season, so that the difference between the hottest and coldest months must be considerable. It should be observed, however, that the cold has been most felt, especially during the clear nights, by miners and others accustomed to the warm climate of California. The colony is generally allowed to be extremely healthy; nor do emigrants from Great Britain require any "seasoning" disorders to inure them to their new habitat.

Abundance of rain falls on the coast, and on the higher mountains of the interior; but the periodical floods are chiefly due to the melting of the snow. This, acting in conjunction with the summer rains, causes the Fraser to rise in May and June, and to maintain a flooded state during the greater part of the summer.

The scarcity of animal life is very striking. A few bears and deer are the larger wild animals. Hawks, ducks, loons, partridges, and robins ("as large as blackbirds and good eating") are mentioned by different explorers, but usually the exact number seen is added, their occurrence at all being remarkable. Hummingbirds are sometimes noticed, and are probably migratory. In the early days of the gold mania, many unhappy diggers, who lost their way in the mountains and became

* 'Official Catalogue.'

short of provisions, were starved to death, as the country afforded nothing eatable except berries.

Industry. Gold-digging.—British Columbia, viewed industrially, is at present little else than a vast gold-"digging."* The other resources of the province will no doubt rapidly develop themselves; but the permanent population must first become much greater, and the search for gold less a lottery, and more of a regular occupation. The immense extent over which the precious metal is deposited renders the latter alternative extremely probable. Reference has been already made to the Gold Range. This has been found to be auriferous for at least 400 miles, and all the rivers draining westward from it also produce gold.

The first discovery in 1857 was soon checked by the rising waters of the Fraser covering the bars. Great distress followed, and much sickness, and many deaths from the impossibility of supplying food and shelter to the multitudes in an unprepared and inaccessible district. The high state of the water lasts usually from June to September, but many diggings are flooded in March. In 1858, the excitement caused by rumours of great success drew thousands of adventurers from California, and much gold was extracted. All the bars between Hope and Yale were tried, and found to contain it, but very unequally disseminated through the mass of earth and gravel. Commonly a stratum only a few inches thick was worked, yet the average yield was an ounce of gold a day per man, and two pounds a day was earned by some for weeks together. The richest of all was Hill's Bar, two miles from Yale, where acres of soil have been swept away by the diggers to the depth of 10 and 12 feet, and the higher parts are now being worked. All this gold was in small particles, often so minute as to receive the name of "flour gold." The "rocker" was the only machine employed, a common wooden pail and tin pan being the most frequent apparatus. The rocker contains a sieve, beneath

* The Statistical Returns for 1860, give 10,000*l.* as the value of the furs sent to Vancouver Island; but the source is not stated.

which is a blanket, and below all a copper plate full of holes, and covered with quicksilver. The "dirt" mixed with water is thrown in, and the gold stopped according to its size, the finest particles uniting to the mercury, and forming what is termed "amalgam gold." This resembles a cake of dull yellow mud, with glistening specks scattered through it.

The belief soon spread that the diggings further up the river produced gold in larger masses, and a rush of miners took place in that direction. From Quayome to Lytton the singular parallel benches attracted attention, and upon trial proved to be almost as rich as the bars. These are worked by the "hydraulic process" as it is called. A head of water is brought to a "sluice," or long wooden box, which has the advantage over the rocker of washing the "dirt" more expeditiously. The gold occurs in what is termed a "placer," that is, a layer some feet or inches below the surface. The upper bed is washed away by directing on it a stream of water obtained from above, the force corresponding to the height of the source of supply. As a fall of several hundred feet can be often obtained, a few hours' application of the hose sweeps off a large quantity of surface earth, and then the placer is exposed. Placers extend indefinitely under each of the terraces, and promise inexhaustible stores of gold whenever they can be worked upon a large scale. British Columbia far outvies her rivals—Australia and California—in a copious supply of water. In the former of these countries water is often impossible to be had; in California we read of artificial cuts for its conveyance 40 miles long. But here, for the use of all the bars and lower benches, water is abundant. Where it is required to be brought to the diggings, it is usually the work of other parties who make the necessary ditches and "flumes," or wooden channels, by which it is conveyed. The water is then sold to the diggers, and the sale produces a good profit on the outlay.*

* At Hill's Bar in June, 1860, a flume erected at a cost of 2,400*l.* was supplying 40 claims at 1*l.* a day each. This gives a return of about 50 per cent. per month.

The astonishment produced by the discovery of these rich placers had not subsided before reports from various other quarters drew off large bodies of the excited searchers eager to share the first prizes in a new lottery. The banks of the Lilooett and of the Bridge River on the west, and the valleys of Simalkameen and Okanagan towards the south-eastern frontier, successively contributed their golden "dirt" to the sluice or the rocker. But in 1860 the diggings at Rock Creek eclipsed all these in richness. This is a small stream ultimately draining into the Columbia, and about 130 miles south-east from Hope. Here extensive workings of both sorts were commenced with great success. Hundreds were attracted to the spot, and a town of canvas and wood arose in the lonely glen. Twenty pounds a day were sometimes earned; and in one case three partners netted 12,000$ during the season. But not even such returns as these could secure the favour of its uneasy and fickle population. The following year the Cariboo Diggings, opened in 1859, proved so rich and attractive that Rock Creek was left to the Chinese.

Cariboo.—Fort Alexandria, on the Fraser, 230 miles above Hope, is near the southern side of the district of Cariboo; and all the streams to the north of this latitude, contained within the great bend of the Fraser, are richly auriferous. So abundant is the gold, indeed, and in such comparatively large pieces, that the miners dispense with the use of quicksilver, being able to afford the loss of the smaller particles. To illustrate this exuberance by an example, we take the following case:—A party of five men opened a claim, which was not apparently a very rich one. During the summer they had hewn timber, and made a flume to bring water to it. For the first three days they were engaged in removing the unproductive surface earth, from 8 to 18 feet thick. They then obtained 4 ounces a day, and this quantity increased continuously till they closed the workings at the end of two months with a yield of 409 ounces, worth in London, after payment of all expenses, 1400*l*. The produce has since risen to 21,875*l*. The auriferous layer was 6 feet thick, composed of blue clay, mixed with gravel and

decomposed slate, and the part of their claim worked over was 80 feet long and 25 broad.* By the most recent accounts Cariboo maintains its position as the most productive part of the Fraser gold-field, rewarding the diggers, now with thousands of pounds' worth from a hole three feet square, and now with 20 ounces of gold in the space of ten minutes.†

The remarkable absence from these statements of all small returns is accounted for by the circumstance that an unlucky miner at once hires himself for good wages to the more fortunate ones. Eight dollars a day, together with all expenses of living, is a usual rate; but this of course varies with the abundance of labour that can be commanded.

Population.—The permanent population of the colony was estimated in 1861 at 6000, not reckoning persons of colour; but it is of such a floating nature that even an approach to exactness is next to impossible. During the summer of 1862 the number was laid at about 50,000. Of these some 15,000 were Indians, to whose aptitude for civilised customs and great trustworthiness the miners of the interior are largely indebted, for to them is intrusted the purchase and carriage of nearly all the necessaries of life which reach the diggings from the coast. The Chinamen were estimated at 10,000, mostly from California. Besides gold digging, which is often done for hire, they construct bridges and restaurants, amusingly like the paintings on their porcelain. They are generally quiet and industrious, evincing much appreciation of their different treatment here and in California, where they were heavily taxed. The whites form the remaining element in the population, numbering about 20,000 men and 300 women. They are a confused medley of races, speaking many tongues. American and German from the adjoining state, Spanish from Mexico, French from Canada, with the various dialects of the natives, compose

* Times' Correspondent's Letter, dated January 20, 1862.

† 'The Guardian' of January 14, 1863, records a case in which 80,000*l.* was given for a claim of 1000 square feet, from one-tenth part of which the purchase-money was realized.

a Babel, in which pure English is in much danger of being overwhelmed.

The great distance from this country is the chief drawback to emigration to British Columbia. Still it is not greater than to the Australian colonies, even by sailing-vessels; and the route across the Isthmus of Panama is very much shorter. Moreover, it can scarcely be doubted that a few years will suffice to complete a line of easy communication, if not a railroad, across the American continent. Upon the importance and feasibility of this measure some remarks will be made in the next chapter.

Capital and labour are alone wanted to develop the resources of this colony. Its vast gold-field will furnish permanent employment probably for generations to come. Silver, copper, coal, and iron have been discovered. It possesses a salubrious climate, large tracts of fertile land, extensive sea and river fisheries, and unbounded water-power. And, besides these material advantages, it has a government, whose rule of "justice to all" has been administered with singular felicity under circumstances so trying that if anarchy and wretchedness had triumphed, it would have excited no surprise.

Vancouver Island.

General Description.—Vancouver Island is separated from British Columbia by an arm of the sea, called the Gulf of Georgia. This is from 15 to 25 miles broad, but narrows, north of the 50th parallel, into Johnston's Strait, a dangerous passage, on account of the violence of the tides. The island is 270 miles long, with a maximum width of 70 miles near the centre, from whence it tapers towards either end. But in several places the inlets and bays almost unite at the central axis. This is a chain of extremely rugged gneiss mountains, about 2000 feet high, sometimes bare, or covered with heaps of loose rocks, and at others clothed with a dense scrub, chiefly composed of the Douglas and other firs. The shores are almost everywhere steep and rocky, and extremely uninviting.

Seen from a vessel, the foreground is formed by dark frowning cliffs, against which the surf dashes with violence; the middle distance comprises rounded hills covered with fir; and the jagged mountain tops beyond fill up the picture. But little level ground is visible, and the general impression of the country is unfavourable.

A nearer acquaintance hardly appears to moderate this discouraging opinion. The view of the interior from the small flat summit of some stone-covered hill discloses only ridge beyond ridge in hopeless confusion. The broken outlines never become grand, but are wild without being romantic, rugged and yet monotonous in the extreme; and the steep, short hills and slight narrow valleys suggest the simile of some great seething mass petrified while the bubbles were in the act of bursting.* The interior is, however, very imperfectly known; and there are some grounds for hoping that with the increase of population much larger tracts of land will be found improvable than at present it would be prudent to attempt.

Coasts.—Wherever the ground is sufficiently level for culture the soil is very fertile. Some such spots exist on the coast, but they are neither numerous nor extensive. The capital of the island, Victoria, stands on one of these on the south-east shore; but the city has quite outgrown the capabilities of its situation. The small harbour has a bar at its entrance, and is encumbered within by rocks and banks, which make it tedious for a sailing-vessel to reach the quays. The water supply is also scanty, both on the borders of the harbour and in the town. The buildings extend along the quays, and straggle inland towards an open space, which is quickly walled in by a belt of pine-scrub, or by low wooded hills. But 20 miles to the north is the harbour of Saänetch, nearly opposite to the mouth of the Fraser River. Here a good anchorage, completely sheltered, is girt by open land, and the port receives the River Cowitshin, which waters the largest known plain in the island. About 20 miles further north is the harbour of Nanaimo, which, owing

* Grant.

to the coal worked in its vicinity, has acquired great importance. Here a pier enables several vessels at a time to load with coals. Some streams fitted to drive mills run into the harbour; but the amount of land available for settlers appears small. Numerous other harbours also occur in this district, whose capabilities are as yet unknown. Towards the extreme north is Fort Rupert, a post of the Hudson's Bay Company, on a small stream named Beaver River. It was hoped that coal in abundance would be obtained here, but the largest seam is only six inches thick. The country around is, however, very well wooded, and much timber fitted for spars and masts has been exported.

On the western side of the island are many fine inlets. Of these, both Nootka and Clayoquot Sounds contain well-sheltered anchorages, but apparently have little open land, or valuable timber. The natives are here most numerous; and though very independent, and hostile if not treated with tact, have evinced a great desire to trade with Europeans. Barclay Sound, to the south of these, is a broad opening, running inland 17 miles, with its entrance protected by islands, among which are convenient roadsteads. According to native report an arm of the sea, or a navigable stream, 80 miles long, runs into the head of this bay, passing through a district where coal has been seen in the banks.* This is partly confirmed by the statement of an officer of the Company, who crossed over to Nanaimo, and found an extensive lake near the centre of the island, girt by good and open land.†

Other anchorages occur at Port St. Juan and Soke, and around the latter is a small strip of rich prairie, and much fine timber. At the extreme south-eastern point of the island, and only six miles from Victoria, is the excellent land-locked harbour of Esquimált. Great importance is attached to this inlet, for the following reasons. It is easily entered and left; and within, the shipping are safe in all winds. The anchorage is good, and there is space for 12 ships of the line, and a large

* Grant. † Mr. Hope, quoted by Captain Richards.

number of a smaller class. The minor bays present facilities for the construction of wharves, and for docks also, with some small amount of excavation on account of the tides only rising to the height of 12 feet. It is, moreover, at the end of the sailing voyage from the Pacific, as baffling winds and strong currents prevail further up the strait, and will be met most economically by steamers. The entrance is also capable of being defended so that the harbour will be almost entirely secure even from the shells of an enemy. Against these advantages are the serious wants of available land and good water; although it is true that a fine lake lies at a short distance to the westward, and that a narrow isthmus alone separates the harbours of Esquimalt and Victoria. Yet, notwithstanding these disadvantages, the port is of the greatest value, both to Vancouver Island and Columbia, and not improbably will become the point of departure for vessels continuing the trans-American communication with Asia and Australia.

Industry. Vegetation.—The industry of this island is in a transition state. The Hudson's Bay Company employed the natives at certain posts to cut timber and catch and cure fish. With the cessation of the Company's rule these occupations have been discontinued, and others have scarcely yet taken their places. The small extent of cultivable ground seems to forbid any great advance in agriculture, although the produce is very fine. Much more is to be expected from the prevalence of wood. Among the trees is the majestic Douglas fir (*Abies Douglasii*), of which a specimen has been found measuring 309 feet high, with its lower half perfectly free from branches. The timber of this tree is very valuable for spars and masts of the largest size. The cypress is useful for boat-building, and the red cedar is employed for a variety of purposes, as shingles, posts, and railings. The natives seldom cultivate anything except potatoes, which grow well and are of large size. These, and dried salmon, are their chief food, to which is sometimes added a root named "camass" as a dainty. It is a a small blue-flowered plant (*Camassia esculenta*), with an

onion-like root, which is carefully stored for winter use. Among the other wild plants are cranberries, raspberries, and similar bushes whose fruit is eaten raw or preserved. The Indian tea also occurs, and the hemp-nettle produces a fibre which is likely to become a valuable article of export.

Fisheries.—The most promising natural resources of Vancouver Island are, however, its fisheries and its mines. The salmon season is in August and September, and is the happiest time of the year for the natives. The fish then swarm up every stream and inlet in incredible numbers, and are taken both with net and spear. The next two months are those of the herring fishery. The shoals of this fish are sometimes so closely packed that the natives rake them into their canoes with a stick armed with crooked nails. Cod and halibut are common, and whales, porpoises, and dog-fish supply large quantities of oil. There is also a small fish called the oolachan, like a smelt, which occurs by myriads, and yields a fine oil used as butter by the Indians, and in the place of cod-liver oil by the whites. The Sandwich Islands and the neighbouring colony afford markets for dried and salted fish, which might also be largely exported to Australia.

Minerals. Coal.—The precious metals are reported to exist in the island; but if so, they have not yet drawn attention. Copper and rich iron ore more certainly occur, but at present coal is the best known mineral. This has been chiefly worked at Nanaimo, where there is a seam six feet thick. The coal is pronounced equal to that of Newcastle, although it gives out rather more smoke, and necessitates a more frequent cleaning of the flues of engines. The field is believed to extend two miles in every direction from Nanaimo, and there are other harbours on the adjacent coast where coal is said to crop out in the cliffs. The same locality also possesses large brine springs, whence salt is manufactured to a small extent.

Until the island becomes better populated, these resources do not admit of any great development. Such unforeseen mineral discoveries have, however, been made

in this part of the world, that even the unauriferous aspect of the interior is insufficient to destroy the expectation of finding gold there. This metal occurs *in situ* in the quartz rocks of Queen Charlotte Islands, which appear to have been once continuous with this. The population in 1862 was estimated at 6000 whites and about 15,000 Indians, but the latter are rapidly diminishing.

San Juan.—In the Gulf of Georgia lies a considerable group of islands known as the San Juan Archipelago, but whether a dependency of Vancouver or not is still undecided. Its value consists in numerous excellent and capacious harbours. There are three passages through the archipelago from Juan de Fuca Strait to the Gulf. That on the west is Haro Strait, which, leaving the island of San Juan to the right, makes a sudden bend to the east. On the left side of this channel among the Saturna Islands, there is good shelter for a fleet, with easy access both by wind and steam. The next is the Middle Channel, on the west of which is the fertile island of San Juan, and its good harbour in Griffin Bay; and Stewart Island to the north, which also contains a snug shelter for steamers. The easternmost passage is Rosario Strait, where are several good anchorages, especially in Orcas Island, the largest of the group, in which are two noble sounds with unobstructed entrances, and capable of protecting the largest fleets. It is still in doubt through which of these channels the long-disputed boundary line shall pass.

When the Americans laid claim to Oregon, it was seen that the natural boundary between their territory and ours was the Oregon or Columbia River; but from their pertinaciously demanding the whole coast up to lat. 55°, the line was settled as follows. It was to pass along the 49th parallel till it reached the Gulf of Georgia, and then down the ship channel through the San Juan group, and along the middle of De Fuca Strait. When this came to be laid down, it was found that the 49th parallel passed to the north of Bellingham Bay, which the American Exploring Expedition, under Lieutenant Wilkes, had discovered to possess the largest coal deposits on the

coast,—a circumstance apparently unknown to our Commissioners. On proceeding to place the landmarks, the 49th parallel was also ascertained to reach the shores of the gulf at the head of Semiamoo Bay, just to the north of its only port, Drayton Harbour. It further cut off a few miles of the point ending in Cape Roberts, the north-western horn of this bay, and the Americans now contended that here the parallel first touched the gulf. After much discussion this was yielded; the cost of a war being not to be compared to a few square miles of rocky woodland, although the sole shelter for shipping in the vicinity was beneath its cliffs. But no sooner was the international beacon erected, than the Haro Strait was claimed as the ship-channel of the treaty, and it was insisted that Point Roberts carried with it the San Juan group and all its fine harbours. These islands had always been regarded as British territory, the ship-channel being Rosario Strait; and when the Americans attempted to settle the dispute by occupying San Juan with an armed force, the judicious conduct of the British governor* alone prevented serious complications. This is the "San Juan difficulty," and pending its peaceful solution, a small English force is also placed upon the island. It is too late now to ask that the original intention of the treaty with regard to Rosario Strait should be carried out; while no amount of previous concession will justify us in yielding the whole group. The generosity of the British nation will probably, therefore, offer to make the middle passage the boundary line, still giving to our neighbours the largest share of the islands, and the finest harbours in the archipelago.

* Douglas.

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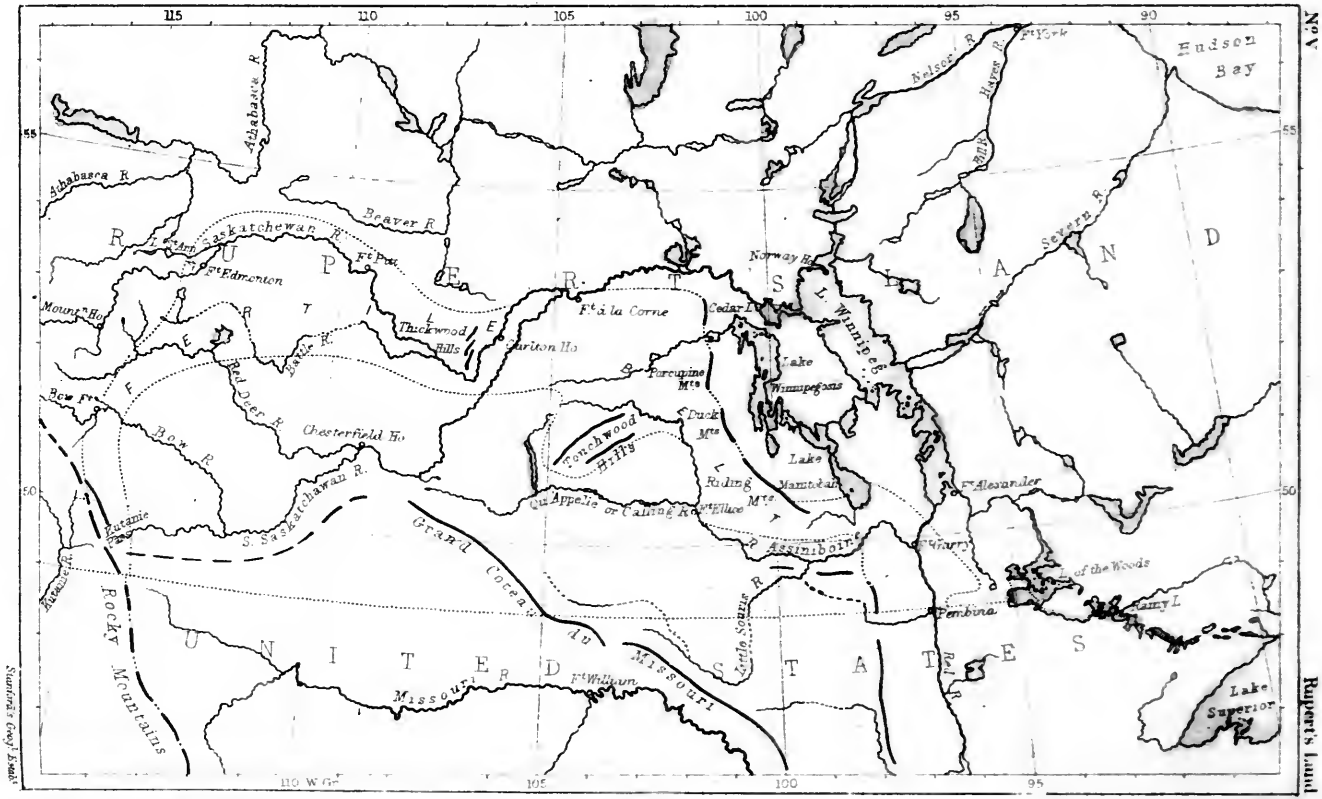

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Stanford's Geog.l Estab.t

CHAPTER VII.—HUDSON'S BAY COMPANY'S TERRITORY.—RUPERT'S LAND.*

Physical Geography: Granitic Plateau; Lake Region; Mud River; Red River; Selkirk Settlement; Locusts; Floods; High Prairies and Plains; the Saskatchawan, Fertile belt of.—**Trans-Continental Route:** Routes to Red River; Rocky Mountain Passes; the Qu'appelle Valley.

Rupert's Land.

The vast central region which constitutes three-fourths of British North America is called the Hudson's Bay Company's territory, and is known also by its lately-revived title of Rupert's Land. Some account of at least the southern portion of this large area is necessary here, in consequence of the great interest which belongs to the probability of a continental route being carried through it, and its separation as a new colony at no very distant period.

Physical Geography.—The most general characteristic of all the great physical features of this part of North America is their common direction from south-east to north-west. The only important break in the broad mass of the continent is Hudson's Bay. This inland sea is bounded on the south by the Lawrentian Mountains, whose extensions also surround its eastern and western sides. In the latter case it is a broad band of country which reaches the shores of the Arctic Ocean, and may be conveniently distinguished as the "Granitic Region."

* Hind's 'Canadian Exploring Expedition in 1857-8;' Palliser's 'Exploration of British North America;' Isbister on North America, in 'Geological Quarterly Journal,' xi., 1855, &c.

West of this is a parallel tract, forming the lowest part of the interior of the continent, marked by an almost continuous series of lakes, extending 1500 miles from Lake Superior to Great Bear Lake, some of them, as Lakes Winnepeg and Athabasca, being of large size. This is eminently the "Lake Region." Beyond it are the "Prairies" and the "Plains," rising in successive though slow steps to the base of the Rocky Mountains, whose crest forms the western boundary of the territory in question; and it will be seen, on referring to a map, that the longer axes of all the main divisions now sketched out extend toward the north-west.

Important differences of surface and composition distinguish these sections from each other, which will be pointed out in the following remarks, and their economic relations indicated.

The Granitic Plateau.—The Granite Region is a low plateau formed of crystalline metamorphic rocks, through which there have been numerous eruptions of granite. The gneissic strata first rise in ill-defined terraces toward the "Height of Land" about 60 miles north of Lake Superior, and 900 feet above it, and then fall in broader irregularities of surface both toward the north, and also from their eastern edge in the direction of Lake Winnepeg. The granitic intrusions form uneven rounded knolls, seldom more than 150 or 200 feet higher than the general undulations. These often show distinctly the scratched marks which geologists account for by referring them to the grounding of ancient icebergs; and some are rubbed so smooth, and are so bare of vegetation, that there is no foothold on their gentle slopes. So numerous are these bosses, that the whole country appears full of them. From one of the highest on Hill River, no less than 36 can be counted, all repeating the same low curves, and, too frequently, similar naked surfaces. Another prominent feature of this region is the intricate network of streams and lakes thrown over it. Undulations at right angles to the strike of the strata have ruffled their surface, and have impressed their own direction on that of the lines of drainage. Hence everywhere the main

rivers run across the plateau from south-west to north-east in beds which, though only half worn, in consequence of the unequal hardness of the rocks, are yet from 60 to 300 feet deep, and are bounded by crags of the wildest aspect. The uneven bottom of the streams is the cause of frequent rapids and waterfalls that alternate with the deepest reaches: and horizontally, the confining cliffs ever and anon recede far apart, and enclose long lakes with scarcely a perceptible current. Owing to these violent changes in their beds, the rivers are often unnavigable; even Nelson River, by which the vast basin of Lake Winnepeg discharges itself, is useless, in consequence of its many shallows and furious currents, and lakes beset with islands.

The vegetation of this region is sparsely strewn over it. The bare rock constantly obtrudes upon the eye, and where it does not, it is screened by marsh-loving plants, among which the wild rice (*Zizania aquatica*) is the most important. The Indians collect this grain for food, and it supports also countless numbers of water-fowl. Salmon and other fish abound in the streams and lakes. The country is all but uninhabited, and offers no inducements to settlers; so that as new and better routes to the interior are opened, it may become less frequented than it is at present. The difficulties of travelling through it, which is always done by boat and canoe, are so great that the Company's officers at Fort York, on Hayes River, when ordered to the Saulte Ste. Marie, the outlet of Lake Superior, have been known to send their families to England and back by the St. Lawrence as the less arduous, and, in point of time, the shorter route.* The greatest height of this plateau is 1950 feet, and it is commonly much less. It ends on the shores of Coronation Gulf in a range of hills called the Copper Mountains, 800 feet high. Measured upon a line carried north-east from the centre of Lake Winnepeg, it is 100 miles broad, and wider still further south.

Interior to this plateau are low swampy tracts, which

* Kingston.

for 150 miles gradually sink to the shores of Hudson's Bay. These easy slopes are also continued beneath its waters, where broad banks of boulders extend five miles from the sea-board, and vessels in seven fathoms of water are so distant from land, that only the tops of the trees can be discerned.

The southern portion of the granitic plateau is crossed by the chain of lakes and rivers which form the boundary line. These, and the country immediately to the north, afford many large areas of ground available for settlement, and much varied and beautiful scenery. Thus, the district surrounding the Milles Lacs is beautifully diversified by numerous lakes and islands, and short gushing streams, whose banks, though not lofty, are often naked rocks of rugged gneiss, most effectively grouping with the densely-wooded slopes. On these, white and red pine, birch, and aspen protect a luxuriant undergrowth of hazel and cherry, and different sorts of berries, among which is concealed the charred trunk of many a giant pine (some 12 feet round), which triumphed over the former forest of this region ere it was destroyed by fires. Sturgeon Lake, more to the south-west, is no less beautiful, presenting at one time an intricate maze of island scenery, and at another an open expanse of water, whose gloomy bays are lost in dark untrodden forests. In complete contrast to this are the desolate and inhospitable shores of Rainy Lake, where a thin growth of stunted timber does not hide the bare rock, or the few inches of gravelly soil which covers it in patches. Another unwelcome feature of the country is the "moss-bog," which is sometimes met with in the shallow depressions near the water's edge. The moss and mud are often knee-deep, and require to be crossed with the light step of a practised *voyageur*. These morasses extend for miles, varied only by clumps of low pines, and in particular spots by bushes of Labrador tea (*Ledum palustre*), or of the more fragrant Indian tea (*Ledum latifolium*). Again, Rainy River possesses many thousands of acres of excellent land upon its borders, a sample of which is cultivated at Fort Francis, where turnips, carrots, and

other vegetables succeed well. Potatoes are dug early in October, barley is ripe by the end of August; and wheat sown about the 20th of May is ready to be reaped by the 1st of September. Such land, following the windings of the river, stretches for 80 miles from Rainy Lake to the Lake of the Woods—the large growth of elm, oak, and basswood indicating the goodness of the soil. In the more open spaces, nutritious grasses afford abundance of self-made hay; and the camping-grounds of the Indians are identified by their tent-poles left standing, and embowered in bright-flowered convolvuli and wild honeysuckles.

The lovely scenery of the Lake of the Woods is well worth a visit from the traveller in search of the picturesque, as are also the romantic banks of the River Winnepeg, which drains it, where occur the most beautiful combinations imaginable of rock and wood, broad even stream, and foaming cataract. In the neighbourhood of this river the rice-grounds extend over many square miles in succession, and form a chief source of food for the Indians. The effects of an over-abundant rainfall in this already moist region are very painful to contemplate in reference to these poor people. The rising of the waters causes a partial failure in the rice-crops, and a similar diminution in the supply of wild-ducks, pigeons, and other birds. The same floods, moreover, so enlarge the feeding-grounds of the fish (sturgeon, white fish, and pike) that they are with difficulty caught in sufficient numbers for food. And when, as in 1857, a hard winter destroys the rabbits, the sufferings of the Indians are very great, and actual starvation is only averted by timely aid from the Company's stores, and the Canadian legislature.

Lake Region.—The western edge of the Granite Region is well marked by the numerous lakes which occur upon it. They are thickly scattered over a broad depressed area, whose mean height, that of Lake Winnepeg, is only 628 feet above the sea. This lake is 280 miles long, and in parts is 50 miles broad; and together with those to the west of it, Winnepego-sis, Manitobah, Dauphin, and

others, it covers an area of at least 13,000 square miles. The surrounding country is, besides, so little raised above the level of the permanent water-line, that the summer floods cover large tracts, and lead to the formation of marshes and quaking bogs of formidable dimensions. And where the ground is slightly higher and therefore drier than usual, the hard limestone is everywhere exposed if one of the small trees on such spots happens to be blown down. Notwithstanding its great advantages for water-communication, this part of the "Lake Region," therefore, does not offer any attractions for settlers. But the valley of the White Mud River, which enters Lake Manitobah at its south-western extremity, is admirably adapted for occupation; and the broad prairies east of the 98th meridian, drained by the Red River and the Lower Assinniboine, are computed to contain 1,500,000 acres of arable land of the first quality, in addition to an equal amount of pasturage. The White Mud River is lined by fine forests of oak, ash, maple, and balsam-poplar, and beyond these is prairie land of the richest description. Its waters abound in excellent fish. It is easily reached from Fort Garry on Red River, and has itself an uninterrupted canoe navigation for 30 miles to Lake Manitobah, while the latter communicates with Lake Winnepeg by the Dauphin, which will admit steamers of light draft. This valley is thus fitted to become the site of an important agricultural settlement, from whence the necessaries of life may be supplied to lumberers employed on the Riding Mountains, and which shall trade also with those of the eastern shores of Lake Winnepeg, and with the future salt manufactories on the western side of Lake Manitobah.

Red River.—Red River has its source in Lake Ottertail, within a short distance of some of the upper feeders of the Mississippi; and, after a westerly course of 110 miles, makes a great bend near the 46th parallel, and runs for the remainder of its length through rich prairies to its delta on Lake Winnepeg. Within British territory it has a direct course of about 90 miles, but its windings are so numerous that this distance is increased threefold

when measured on the river's bank. Its physical features are few and simple. A moderately rapid stream, from 200 to 350 feet wide, has cut out for itself a bed in the tenacious clay some 30 feet deep, the steep sides continuing for many miles together without a break. Forty miles from its mouth is Fort Garry, the head-quarters of the Hudson's Bay Company's trade in this region. It is at the mouth of the chief tributary, the Assinniboine, the lower part of which is contained in the Red River valley. Occasionally heavy layers of limestone appear in the western bank, and supply abundance of good building stone. The Selkirk settlement extends along this side for nearly 40 miles, scattered farm-houses joining the more thickly-populated villages. The opposite bank sustains a growth of elm and poplar, oak and ash, but much thinned by the requirements of the settlers. Groves of the ash-leaved maple (*Negundo fraxinifolium*) occur at intervals, and are preserved for the sake of the sugar obtained from the sap. Above, that is, south of, the settled parts, are finely-timbered banks, near which for 70 miles runs the road from Garry to Pembina, the frontier town of the United States, consisting, however, only of a few houses and sheds. A similar wooded belt stretches along the Assinniboine; and then, beyond this, all is level and monotonous. Rarely the long waving prairie grass is cropped by herds of cattle and horses; and commonly the rich flats are spread out in all directions to an ocean-like horizon, their sameness being varied by accidental circumstances alone. Nevertheless, the prairie is beautiful when the rising sun, suddenly, and at once, flashes his rosy light across the illimitable expanse; or, when setting, he mingles his crimson hues with the bright green waves of moving grass. Beautiful, too, when these same waves are silvered by the light of the moon, and the bright stars are seen to vanish beneath the horizon. At noon-day the mirage-like effects are curious, when every bush is magnified into a wood, and every slight rising into a range of hills. And surpassingly grand are the prairies when they are on fire, and the flames are seen approaching through one-half the entire

circle of vision, and the reflected lights from the rolling clouds of smoke above tell of the havoc raging below.*

Selkirk Settlement.—The colony here was first attempted in 1812, under the patronage of Lord Selkirk, who had obtained a large grant of land from the Hudson's Bay Company, in which he possessed great influence. The early Scotch and German settlers endured severe hardships till 1821, since which time their prospects have been more encouraging. In 1856 the population amounted to 6523, the Indians and "natives," who are half Indian, being three times more numerous than the whites. The "natives" are admirable hunters, and in their distant excursions in pursuit of the buffalo display singular address and endurance; but the love of a prairie life makes them indifferent farmers, and without the influence of a strong white population, they are in peril of relapsing into a savage condition. Wherever skill and industry are applied to the cultivation of the ground, the returns are unfailing and large. New land yields 40 bushels of wheat to the acre; hops grow wild; hemp and flax, cultivated at the instance of the Company, succeeded to admiration; hay is produced spontaneously, over hundreds of miles in succession; and all kinds of root-crops flourish. Unfortunately, there is no market. Carelessness is the result. A "native" grows wheat enough in one year to serve him for two, and lets his fields lie fallow in consequence; he drives his sheep over the border, and does not replenish his stock, as he has no sale at home for meat or wool. First appearances are favourable to the settlement. Substantial stone houses, the steeple of St. John's Church, and the conspicuous tin-covered spires of St. Boniface's Cathedral, arouse expectations of prosperity which are not realized on a nearer acquaintance, not for want of any natural advantages, but solely because there is no sufficient population to create an energy that shall turn to profit the unbounded capabilities of the district.

Until the settlement is brought into more easy commu-

* Hind.

nication with the rest of the world, its resources must continue dormant. Fort Garry is 600 miles from Lake Superior, and the difficulties of the journey enhance the cost of carriage still further. Two serious drawbacks also exist. The first is the occasional visitation of immense swarms of the red-legged locust, which consume the green crops, and indeed attack almost everything except india-rubber clothing. Their multitudes dim the sun's light; flying at the height of 200 feet, the motion of their wings rustles like the leaves of a forest stirred by a gentle breeze: a degree of cold which freezes mercury has no effect on their eggs; and so formidable is this insect-pestilence, that it may be a grave hindrance to settlement in the Western Prairies. The upper part of Red River, including nearly half the occupied portion of its banks, is also liable to spring floods, due to the melting of the snow. No loss of life is recorded from this cause, but the inhabitants have been at times obliged to take refuge on the more elevated spots and ridges of the valley; and haystacks, farm implements, furniture, and even barns, have been carried off by the waters. The rise does not continue long, but the mischief done is sometimes considerable, and the country is too level to admit of a remedy. The floods do not extend far from the river, nor do they affect the lower parts of the settlement; and there is, therefore, abundance of available land beyond their influence. The last flood of consequence happened in 1852, and one in 1826 caused much alarm.

High Prairies. Plains.—Westward of the Lake Region now described lie the High Prairies and the Plains. These are successive terraces of large area, rising abruptly from the lower levels, and almost equally flat. The height of the first is 1100 feet above the sea, or 470 feet higher than the Lake district; and that of the second is 500 feet more. The Plains of Rupert's Land are continued from those of the United States, where they form the extensive region of permanently barren land, which lies to the east of the Rocky Mountains, and which is crossed by the upper courses of the Missouri and its

affluents, with so much loss of water from absorption and evaporation. Its north-eastern limit is called the Grand Coteau de Missouri, from its being traceable for 380 miles nearly parallel to that river, and about 50 miles from it. It enters British territory at the 103rd meridian, whence it takes a N.W. direction to "the Elbow" of the south branch of the Saskatchawan; and a prolongation of the Plain district reaches to the north of this branch, as far as lat. 52°. This Grand Coteau is a series of precipitous hills, often extremely steep, preserving a uniform height, and everywhere varied by projecting promontories and re-entering bays, exactly like, what in fact it is, the bold shore of some ancient ocean. Above this abrupt boundary, and stretching to the foot of the mountains, is the arid, treeless, table-land, among the scanty vegetation of which a cactus is the most prominent plant, and the Indian turnip the most useful.* Rank herbage occurs only in the shallow depressions; but in summer the short, nutritious buffalo grass (*Sysleria dactyloides*) is sufficient to maintain large herds of buffalo, which seek to escape the hunter by retiring to these feeding grounds of the Far West.

From beneath the Grand Coteau the true Prairie extends eastward, with an imperceptible incline towards the lines of drainage. It terminates in a similar abrupt manner in a curve, which is found about 30 miles from the banks of the Red River, and from the shores of Lake Manitobah. In the former case, its edge composes the rapidly rising terraces, which are dignified by the title of the Pembina Mountains, from the summit of which the prairie takes its departure. But west of Manitobah Lake, it assumes the form of several hill ranges, called the Riding, Duck, and Porcupine Mountains. These slope gently towards the valley of the Assinniboine and prairie beyond it; but their eastern flanks present bold escarpments and irregular bluffs, repeating in exact counterpart the outlines of

* *Psoralea esculenta; Papilionaceæ.* It is a small root, which the Indians eat raw, boiled, roasted, and pounded, and made into soup. They also cut it into slices, and when dried, pack it in bags of buffalo-skin for winter use.—Hind.

the Grand Coteau. They also rise to the same height, or 1600 feet above the sea; and from their close resemblance in so many points, it is thought that at some former period the upper plateau extended thus far, and that these hills now mark the sea-board of an ocean still more ancient than that which washed the Grand Coteau. Detached patches of the higher table-land now rise like islands out of the level prairie, such as the Turtle Mountain (lat. 49°, long. 100°), and the Touchwood Hills, about 70 miles west of the Duck Mountains.

The northern limit of the Prairie Region may be placed upon the low water-shed which skirts the North Saskatchawan, and divides its basin from that of the Mackenzie River. Here it is bounded by the so-called "strong woods" which occur in this latitude. The North and the Main Saskatchawan flow through a country of surprising fertility, now densely wooded, and now covered with the finest pasture, over which clumps of trees are scattered, presenting park-like scenery equal to the most admired at home. Continuing southward, young aspens and small oaks gradually assimilate the country to the treeless aspect of the plains. The sad evidences of devastating fires are everywhere manifest in the charred stems of magnificent trees, and sometimes whole forests of dead trunks standing out of the vigorous second growth of aspens. And it is all but proved that at one time timber covered the whole prairie, and that its gradual retrocession, still going on, is owing to the frequent and wide-spread fires. This destruction is too often the result of the wilful and improvident habits of the Indians, who cannot comprehend the consequences of their conduct; and thus true "prairie" is converted into bare, and not seldom sterile "plain."

Rivers.—On the Riding Mountains and their associated hills are fine forests of white spruce, birch, &c. They cover the western slopes; and the spruce especially abounds upon the flattish summit of the ranges, in size fit for the purposes of the lumberer. These forests are estimated to cover 3500 square miles; and numerous streams will facilitate the descent of the timber to Lake

Manitobah and the Assinniboine. The lower parts towards this river are among the most attractive portions of the whole region, and luxuriant grasses, roses, vetches, and gaudy wild flowers attest the richness of its soil. Nearer the Assinniboine, the land becomes sandy; but both the banks of the main stream and those of its feeders are heavily wooded with balsam-poplar, aspen, and ash-leaved maple.

The Saskatchawan is the most important tributary of Lake Winnepeg, which it enters through Cedar Lake near its north-west corner. The North and South branches of this noble river rise within a short distance of each other in the Rocky Mountains, and after flowing with many windings for 700 miles, they unite in long. 105° W., near Fort à la Corne, and form the "Main" stream, which has a further length of 340 miles. For at least 800 miles from its mouth, this river is navigable for boats not drawing more than four feet of water. At the Elbow, the South Branch is 600 yards wide, with a channel 10 feet deep; and 200 miles further up, Captain Palliser, in August 1858, was compelled to swim his horses across it. The North Branch presents the same advantages, the Company's heavy bateaux ascending as far as Fort Edmonton, in long. 113° W. At Fort à la Corne, with a width contracted to 320 yards, there is a mean depth of 20 feet, and except at the Grand Rapids, below Cedar Lake, there is no obstacle to the passage of steamers of suitable build and power; such, for instance, as the small powerful vessels which ascend the Missouri to Fort Benton, 3120 miles above its entrance into the Mississippi.

Fertile Belt of the Saskatchawan.—For the last 50 miles of its course, the South Branch runs through a spruce-laden, rich tract of country, forming part of the broad fertile belt which extends from the Red River by the Assinniboine and the North Branch to Fort Edmonton, and thence southward, past the ruins of Bow Fort, to the boundary. It is on this belt that Captain Palliser estimated there were 65,000 square miles of improvable land; and Mr. Hind, that 11,000,000 acres consisted of arable land of the best quality, and probably as much more of a

pastoral character. As suitable areas for settlement, in addition to those above mentioned, the latter explorer recommends a very extensive tract around the Grand Forks of the Saskatchawan, reaching up both branches for a considerable distance; and another having the Touchwood Hills for its centre. There are Hudson's Bay Company's posts at Carlton House, Fort Pitt, and Fort Edmonton; and at the latter wheat returns 20 bushels to the acre with very indifferent farming. Potatoes and vegetables succeed; and, to an artist's eye, the neighbourhood of the Fort is more like a beautiful flower-garden than wild land.* There are about 150 persons living at this station who, in the absence of buffalo meat, supply themselves with abundance of fish from St. Ann's Lake, 50 miles to the west. Towards the mountains are low wooded ridges, poplar growing on their western, and spruce on their eastern slopes. The upper part of the Red Deer River is similarly well timbered, and a site for a settlement has been found in its neighbourhood. On this river occur also beds of coal, 12 feet thick in the aggregate,† and apparently of better quality than the dull-burning ashy mineral used at Fort Edmonton. Lignite is also known to underlie the Rocky Mountains throughout a great extent; and iron ore is abundant on various parts of the Saskatchawan, and other streams in the basin of Lake Winnepeg. To these resources must be added salt, lime, gypsum, and gold. When, besides, we recall the agricultural capabilities of this district, and its fine waterway in the large river which drains it, there is assuredly reason to congratulate ourselves on possessing the only fertile region in the continent, which extends across it from east and west, and is so well adapted to become a new colony, uniting those on the shores of the Atlantic and Pacific Oceans.

The apparent history of this exceptional fertility is an interesting chapter in physical geography. We can here only indicate the nature of the connection between cause

* Keane, 'Rambles of an Artist.'

† Dr. Hector found this coal on fire in the cliff. The Indians say it is never extinguished.

and effect, by the briefest statements. A vertical section of the Rocky Mountains shows that this system consists essentially of a broad plateau of comparatively moderate height, upon which stand the parallel ranges which compose the summit. In the United States the plateau is broad, and the surmounting chains are uniformly of great altitude. Hence the warm, moist winds from the Pacific are so chilled and dried in passing across this barrier, that the arid plains to the east of it are the consequence. But between north lat. 47° and 49°, the plateau up to 5000 feet, instead of being 700 and 800 miles wide, is less than 250, and the mean height of the ranges is also diminished from 9000 to nearly 6000 feet as they cross the international boundary. Through this depression in the mountain chain the beneficent south-west winds make their way, retaining sufficient moisture to fertilize the country to the eastward: and the area of rainfall is then determined by the meeting of these warm currents of air with the prevailing north-east winds, when the former are so much cooled that they deposit the copious supplies of rain and hail which moisten the valley of Lake Winnepeg. In a similar manner the Red River Basin receives moisture from the south winds, which ascend the Mississippi and readily overflow the low watershed which alone intervenes. Thus, while the winters are undoubtedly very severe,—for instance, the winter mean of 1856 was −6·85° Fah.—the mild spring and autumn, and the comparative humidity of the summer point out the reason why Indian corn and melons ripen in the open air, and all agricultural operations may be conducted with success.

Trans-continental Route.—The question of a route across the continent in British territory is rapidly becoming of great importance. The future of Columbia and Vancouver Island depends upon it. So does the peopling, and probably the preservation, of the extensive fertile tracts above described. These central regions present no obstacle to the formation of roads, and the Saskatchawan is navigable for the greater part of its course. But the difficulties occur when the attempt is made to cross the Rocky Mountains on one side, and to

open an easy communication between Lake Superior and the Red River on the other. And it is in the latter section of the country, occupied by the Granite Region, that the real obstruction to a through route exists. At present there are two lines of communication which meet at a point situated a few miles to the east of Rainy Lake, and thence passing through the Lake of the Woods, and down the River Winnepeg, the journey is continued up the Red River to Fort Garry. Of the two lines, one leaves Lake Superior at Fort William, and runs northwards and westwards through Dog Lake, from whence it derives its title. The other is the Pigeon River route, which pursues a course through lakes and portages along the boundary line. It is somewhat shorter than the former, has more lake navigation, and was the chosen route of the North-west Company. Its great drawback is a steep ascent at the commencement, of eight miles in length; but this it is proposed to obviate by a tramroad from Fort William to Arrow Lake, near the boundary line: and if further, as it has been suggested, a good road 100 miles long were opened, running direct from the north-west corner of the Lake of the Woods to Fort Garry, the entire distance would be shortened by nearly 150 miles, and the time required for the journey reduced from the 20 or 30 days now occupied to a maximum period of six.* It may be doubted, however, whether the best line of road is yet known; and it would need a very great improvement on the present route to enable it to compete with the almost ready-made and convenient one from the United States, passing directly down the valley of the Red River.

Rocky Mountain Passes.—The explorations of Captain Palliser and Dr. Hector have shown that practicable passes exist in the Rocky Mountains at a lower elevation than any that occur in the United States for hundreds of miles south of the boundary. Of these passes the Vermilion and Kananaski appear to be the most important yet discovered. The South Saskatchawan is formed of two branches, the main one being the Bow River, and the

* Dickinson's Report to Mr. Hind. In 'Blue Book,' Aug. 1860.

southern the Railway or Belly River. On the main stream are the ruins of Bow Fort, near long. 115°. This spot is 4100 feet above the sea, and is in the midst of bald mountains rising by inaccessible cliffs 3000 and 4000 feet higher. Through these for 80 miles the valley of Bow River rises almost imperceptibly, but much overgrown with timber, to the Vermilion Pass. This is a wide valley in lat. 51° 8′, whose enclosing mountains have exchanged the slaty ridges of the outer ranges for huge masses of white and pink sandstone. The greatest height is 4940 feet. The pass issues on the western side upon the Vermilion River, a tributary of the Kutanie. It is on this descent that an important geological phenomenon presents itself. All the inner valleys of the mountains have been filled up with a singular deposit of rounded boulders, sand, and gravel, sometimes loose, sometimes cemented by lime into a solid mass. It is this which makes the ascent on the eastern side so uniformly easy, since where it is most worn away a terrace remains, along which the road is carried. But from the western slopes this deposit has been completely swept, with the single known exception of the Vermilion Valley, and in consequence this pass may be easily made practicable for waggons. After reaching the Kutanie, the route passes up that stream to its source and that of the Beaver Foot, a small feeder of the Columbia, which occur in a swamp covered with the yellow water-lily; thence, it descends the latter river and runs westward to the Thompson, and Fort Kamloops in British Columbia.

Returning again to Old Bow Fort, the reader will find on the map a small stream rising towards the south-west. By following this river to its source, Captain Palliser passed through a winding gorge, shut in by tremendous precipices, up to Kananaski Pass, 5985 feet above the sea: he then descended on the opposite side upon the Kutanie, whence, as he learned from some Indians, there is an easy road to the boundary, and westward probably to the Simalkameen Valley. He met no obstacle save that arising from fallen timber, the result of fires by lightning; and when strongly recommending this pass as suitable for

a railroad, he remarks, that by a short tunnel the elevation of the summit-level may be lowered to 4600 feet. Other authorities seem to prefer for this purpose the British Kutanie Pass, further south, in lat. 49° 20′. This is 40 miles long, through thick woods, with occasional marshes and sudden descents, and has a maximum height of 6100 feet.* Also, more to the north than any of the above, Dr. Hector passed from the broad valley of the North Saskatchawan through a country presenting no other hindrance than dense woods, to within a distance of 60 miles of the "Boat Encampment," on the northern bend of the Columbia. At this point he was obliged to retreat, in consequence of his provisions failing: but there is much reason to think that this opening may be found to offer greater facilities for a road than any yet explored.

Qu'appelle Valley.—In connection with these speculations, a singular physical feature of the Great Prairie demands attention. Stretching from "the Elbow" of the South Branch almost due east to the Assinniboine at Fort Ellice, is a valley named, after the chief stream flowing through it, the Qu'appelle.† Its highest point is only 12 miles distant from the Saskatchawan, and but 80 feet above it. Here is a lake from which the water runs both to the "swift-flowing river," and eastward to the Qu'appelle. The valley itself is a deep excavation, rarely exceeding a mile in width, but from 150 to 300 feet below the level of the prairie, and having hollows in its bed filled with lakes 60 feet deeper. Its extraordinary canal-like character has suggested to Mr. Hind the bold idea of turning the waters of the South Branch into it, either by a cutting through the "height of land" 80 feet deep, or by a dam across the Saskatchawan of a like height. While endeavouring to appreciate the great advantages of such a wonderful canal as this would then be, yet (having the

* Arrowsmith's Map, in Blue Book on British Columbia, part ii., 1859.

† A solitary Indian descending this valley heard a voice calling him. He answered and searched around, but failed to find any one. Hence the Cree name, Katapaywie sepe, Qu'appelle, or "Who calls?" River.—Hind.

fate of the Ganges canal * before us) we must express a doubt as to whether the water of the Saskatchawan would be sufficient to fill it. It may be observed, however, that the freedom from fires incident to the spread of settlements would restore much of the forest to the now bare prairie, and conduce to increased quantities of rain.

The construction of a ready means of passing across the continent, by whatever plan effected, cannot fail to be of the utmost consequence, not only to our North American possessions, but also to the colonies of Australia, and to the trade of China and Japan, to all which countries it will offer the shortest route from England. At the same time, with the golden treasures of Columbia at one end, the vast resources of Canada and the eastern colonies at the other, and the fast-developing agriculture of the central regions, such a route would seem to promise reciprocal advantages to its projectors.

* Part iii.

INDEX TO PART I.

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