

Fenian pirates, it would have been the duty of the civilized nations of the earth to have united for the purpose of "wiping them out."

With much regret and some thankfulness we see that the viper so long nursed in the American bosom has at length planted its venomous sting in its own nest. Our regret is that such a horrid affair should have occurred anywhere; our thankfulness that—since it had to happen—it took place in New York, where American politicians, both Democratic and Republican, have openly pandered to, and encouraged, the Fenians in their murderous designs upon Canada. Elm Park, a favourite resort of the denizens of the "Empire City" for pic-nics and summer festivals generally, was made the scene, on the 12th July last, of a most brutal and murderous affray between Orangemen and Fenians, in which countless heads were damaged, many women and children severely injured, and eight or ten men killed. Perhaps this exhibition will teach the Americans that they made a grievous mistake in encouraging a portion of their adopted citizens to make war upon the peaceably disposed subjects of Queen Victoria in Canada; perhaps they will, in turn, be brought to understand the full force of the ancient saw that "it is easier to raise the devil than lay him;" and if from this they can extract a few grains of wisdom to guide them in the future, then it need hardly be said that the display of Fenian and fiendish ruffianism by which the greatest city of the Great Republic was recently disgraced will have altogether been thrown away. By-and-bye it may be discovered that true liberty is better conserved by the watchful assertion of legitimate authority, than it ever can be by the recognized supremacy of mob rule. These are matters which, now-a-days, concern everybody, where everybody has more or less of a share in the government of the commonwealth; and, nowhere does this more concern the general welfare than in the United States, where, whatever else the *vox populi* may be, it is undoubtedly the guiding principle of the ruling powers at Washington, as well as at the several state capitols throughout the Union.

THE NORTH-WEST TERRITORY.

No. 11.—BRITISH COLUMBIA.—THE MAINLAND.

By the Rev. *Æn. McD. Dawson, Ottawa.*

THE COLUMBIA RIVERS.

Although the great COLUMBIA ought to be the chief river of this important colony, it has no claim to this honour, bestowing, as it does, its accumulated waters on a foreign State, and fertilizing plains which, of right, should belong, together with the stream itself, to the British portion of the Continent. The Columbia must, however, be classed among the rivers of the colony. Its entire course, with the exception of a considerable portion towards the sea, is within the land to which it has given its name, and the right to navigate its waters is secured to the British Columbians, in virtue of the very treaty by which so important a part of the river itself was unworthily alienated. This fine river has its source in the Rocky Mountains. It is augmented and enriched in its tortuous course by numerous tributaries. The wealth which flows to it by so many channels it distributes, patriotically, in the ravines and valleys of the colony which bears its name, before it is obliged by the cunning, and certainly not overhonest acts of diplomacy, to take leave reluctantly of its native land. It leaves behind it rich deposits of gold, as a parting gift to the parent soil, and it gives beauty and fertility to many a smiling vale, before it descends to the broad plain which it has carried away with it to the territory of the stranger. The grandest mountain ranges of North America are connected with this magnificent river. It flows rapidly from its source down the valleys and ravines of the Rocky Mountains in a north-westerly direction, for one hundred and fifty miles, when, suddenly changing its course, it flows, due south, along the eastern slope of the Gold Mountains, for two hundred and fifty miles, sweeps along the Selkirk range, and finally terminates its windings of one thousand miles at Astoria, in the United States.

THE FRASER.

The FRASER, with its numerous tributaries, is wholly within British Columbia. Although not one of the greatest, it may be unhesitatingly pronounced one of the finest rivers in the world. In whatever way we view it, this noble river commands our admiration. Arising in a glacier region of the Rocky Mountains, it flows at first laboriously through the snows of a perpetual winter. Reaching lower declivities, it bounds with astonishing rapidity through rocky channels, as if enjoying its newly emancipated condition. Scarcely ever moderating its career, it hurries through flowery and pleasant valleys, which it hardly deigns to salute as it passes, till it gains its narrowest channel, between mountains of solid rock, where, resuming all its impetuosity, it rushes headlong till it escapes into a wide and beautiful plain, through which it glides in tranquil dignity to the Pacific Ocean. This plain is one of the most fertile in the world, and it enjoys a delightful climate. Winter may be said to be unknown. So that the Fraser, born of perpetual frost, basks, ere it attains its full growth, in the sunshine of continual summer. This fine river is remarkable also on account of the extraordinary sources of

wealth which it presents. On its banks and on those of its tributary streams are found the richest gold mines that have as yet been discovered. It abounds, moreover, in the most useful kinds of fish. To the lovers of fine scenery it offers a highly varied treat. Geologists will, no doubt, find exercise for their ingenuity, in endeavouring to account for what the uninitiated might call the capricious ways in which it directs its waters. It flows, at first, from its source, one hundred and fifty miles, towards the North-West. It then turns abruptly and proceeds about four hundred miles, due south. Approaching the boundary of the United States it starts back and, reflecting at a right angle, flows north-westwards once more to its ocean terminus in the straits of Georgia, thus completing its impetuous and erratic course of six hundred miles.

The Fraser presents another geological phenomenon, which has been remarked, on a smaller scale, in Scotland, which bears affinity, in more than one respect, with British Columbia. The *parallel roads* of Glenroy, in the former country, have long been an object of interest and attraction to travellers. They are also highly interesting in a geological point of view. They must, however, hide their diminished heads in presence of the grander phenomena of the colony which claims the Fraser for its principal river. The *terraces, benches or roads* of this great river are truly remarkable. Geologists only can speak of them as objects of science. It belongs to us merely to note these terraces as features in the river scenery of British Columbia. They are first observed on the North Thompson, a tributary of the Fraser, from thirty to forty miles above Kamloops, and they are invariably seen all along the main river (Thompson) until its junction with the Fraser at Lytton. They stretch along this river from a little north of Alexandria to the Canons, above Yale, a distance of above three hundred miles. These terraces, or '*benches*,' as they are called in the country of the Fraser, are perfectly level, and of exactly the same height, on each side of the river. They differ from the parallel roads of Glenroy in their enormous extent, being vast plains as compared with the mere ledges of the Scottish terraces, and they are also free from the erratic boulders which mark the latter. In most places there are three tiers, each tier corresponding with a similar one on the opposite side of the valley. The lowest of the three, where the valley expands, presents a perfectly flat surface frequently of many miles in extent, raised some forty or fifty feet above the level of the river bank, with a sloping front resembling the face of a railway embankment. Higher still, the second tier is generally cut out of the mountain side, seldom more than a few acres in extent, and raised sixty or seventy feet above the lower one; while marked at an inaccessible height along the face of the bluffs which run down to the river, and probably from four hundred to five hundred feet above it, is the third tier. These terraces are quite uniform, and of even surface, and entirely free from the great boulders so numerous in the present bed of the river, being composed of shale, sand and gravel, the detritus of the neighbouring mountains. They are clothed with bunch grass and wild sage, while here and there a few scattered pines relieve the yellow barrenness so characteristic of the district. The Arthabaska, the Kootanie, and the Columbia are distinguished by similar terraces. Californian and Mexican rivers are also marked by the same phenomena. But nowhere do the terraces or benches appear to be comparable, in extent and regularity, with those of the Thompson and Fraser.

Wherever such terraces occur in different countries, they are found to exist in three successive tiers, as in British Columbia. This would appear to be indicative of as many distinct epochs, when great geological disturbances took place. Gold is found in all these terraces, in the finest state of "flour gold," but not in such quantities as to compare with the rich "diggings" of Cariboo. Bunch grass also seems to be a peculiarity of the parallel roads. It is not observed anywhere else in the colony. In those parts of the valley of the Columbia, where there are terraces, it grows with great luxuriance, a circumstance which clearly shows its connection with the terrace districts. The kind of soil formed by the disintegration of the soft volcanic rocks of these regions, is probably favourable to its growth.

THE THOMPSON.

THOMPSON RIVER, the chief tributary of the Fraser, is remarkable on account of the beauty and fertility of the country which it traverses. Mr. J. Cooper, in his evidence before the House of Commons, says, that "there is a large beautiful district called Thompson's River, about one hundred and fifty miles inland. It lies in the same latitude nearly as Vancouver's Island." When asked whether there be a considerable extent of country upon the mainland, adjoining Vancouver's Island, calculated for settlement, Mr. Cooper answered: "Yes;" alluding to the valleys of the Thompson, (Question 3,914), "one of the most beautiful countries in the world." The Thompson, although a tributary only of the Fraser, is itself, with its north and south branches, a great river. It has its source a little to the west of the height of land, in the higher valleys of the Rocky Mountain range, in a small marshy lake, called *Albreda Lake*. This lake must have been drained, at one time, by streams flowing from both its extremities. The northern end is now blocked up by a beaver-dam grown over with grass, and the infant Thompson flows from the cradle of its waters, by the southern outlet. Several streams joining it from the westward, it soon gathers strength, and assumes those

noble proportions, which distinguish it among the rivers of British Columbia. The northern branch must not be forgotten. It arises in an elevated glacier region of the Rocky Mountains, and adds its turbid waters to the limpid stream of the South Thompson, a few hundred yards above Fort Kamloops, a post of the Hudson's Bay Company. Opposite this Fort, the two rivers, although flowing in a common channel, still remain distinct, the river from the north shewing its glacier origin by the turbidity of its waters, which contrast strikingly with the pellucid stream from the south. Seven miles lower down, the united river expands into a lake,—(Kamloops.) From this lake it flows, clear and limpid, to Lytton, where it is lost in the turbulent and muddy Fraser. The country watered by these lower portions of the Thompson, resembles California. There are the same characteristics of rolling hills, rising in every direction, covered with bunch grass, whilst here and there are seen a few solitary pine trees. This region is distinguished also by extensive tracts of rich pasturage, on which were sustained, in the days of the Hudson's Bay Company, numerous herds of cattle, flocks of sheep and horses. The Thompson is no less Californian as regards its treasures of gold. Its magnificent *parallel terraces* have been already alluded to, when speaking of this river in connection with the Fraser.

To be continued.

SCIENTIFIC.

NAPHTHALINE AND ITS USES.

Naphthaline is one of the products of the distillation of coal tar. It is commonly associated with anthracene, and until recently there were not sufficient uses known for it to render its manufacture and preservation worthy of notice. Now that its associate anthracene is likely to come into demand, more attention is bestowed upon naphthaline, and the inquiry arises for what uses is the substance applicable. We have on a previous occasion spoken of a fine dye that is made from it, and we hear that this pigment is meeting with much favour. Naphthaline is a pure white substance similar to alabaster. It crackles like sulphur in the hand, and also becomes negative electric when rubbed with silk. It can be used as a solvent for indigo and for the sulphides of arsenic, tin, antimony, also for phosphorus, sulphur, iodine, benzoic and oxalic acids. This property can be taken advantage of for the purpose of adding these substances to other mixtures, and may be applicable to india rubber, collodion, etc.

Even when purified, naphthaline possesses a strong persistent odour, recalling the smell of coal tar creosote, and this has suggested its use as a disinfectant and as a remedy against the ravages of moths and other insects among woollens, plants, and objects of natural history. Where its somewhat disagreeable odour does not stand in the way it can be very advantageously substituted for camphor.

Now that we are likely to have this interesting substance in larger quantities than formerly it will probably be applied for the preservation of meat, very much as has been done with paraffine. Its melting point is too low for candles, but mixed with other hydrocarbons it may possibly be used as a source of light. When burned in its pure state it gives rise to copious clouds of fine lamp-black.—*Scientific American.*

ARTIFICIAL INDIGO.

We have mentioned the discovery of a method for the artificial production of the madder dye, alizarine, from a coal tar product known as anthracene. There is now talk of a way of making indigo by the action of chloral on aniline. The preliminary steps have been taken, and enough has been learned to admit of the taking out of a caveat, but the dye itself is not yet in the market. We shall watch with interest the development of this new industry, and shall not fail to communicate the results to our readers.—*ib.*

NEW USES OF COLLODION.

Collodion is now used as a substitute for india-rubber for the setting of false teeth. The solution of gun cotton in alcohol and ether is poured out in thin layers until it sets, and while still moist the impression for the mouth is made with it. It is coloured in imitation of flesh, by organic dyes, thus avoiding the poisonous mercury salts usually employed for that purpose.

Sets of teeth mounted upon collodion are said to be more agreeable to the mouth on account of the lightness of the material. They are also as permanent as any made from india-rubber.

Collodion is also used in the manufacture of billiard balls, and of a variety of toys. For this purpose the gun cotton need not be made of such expensive material as is required in photography.

Now that gun cotton is used for so many purposes it may be well to caution manufacturers against the dangers of explosions. Recently at a billiard manufactory in Albany the establishment was destroyed by the ignition of the cotton by mice nibbling some matches that had been carelessly left near it. There is also danger of the spontaneous decomposition of the gun cotton.

It is somewhat curious that, although gun cotton has been in use a good many years, our knowledge of its properties is still quite limited, and from recent researches it appears that what we call collodion is a complex body capable of further subdivisions by water and other agents, so that its various constituents will hereafter be sought out and adapted to their various uses. Such researches are now going on, and will add to the value of collodion in photography.—*ib.*

CHINESE GOLD-LACKER.—The gold-lacker lining of a Chinese cabinet in the Museum at Cassel peeled off, and thus gave Dr. Widerhold the opportunity of studying the composition of this substance. On examining it he found particles of tin foil attached to the lacker, so he comes to the conclusion that this material formed the ground upon which the lacker varnish was laid. His attempts to imitate the varnish were perfectly successful, and he gives the following directions for the preparation of a composition which closely resembles the true Chinese articles. First of all, two parts of copal and one of shellac are to be melted together to form a perfectly fluid mixture, then two parts of good boiled oil, made hot, are to be added; the vessel is then to be removed from the fire, and