

## OUR CANADIAN PORTRAIT GALLERY.

## No. 112.—MGR. BOURGET, R. C. BISHOP OF MONTREAL.

Mgr. Ignace Bourget was born on the 30th October, 1799, in a concession of the parish of Point Levis, known as Arlaka. He was one of a numerous family, his father having thirteen children of whom Ignace was the 11th. He commenced his studies in a small school in a neighbouring parish. He then entered the Quebec Seminary, where, having decided on devoting himself to the priesthood, he passed through a course of theology, and then removed to the college at Nicolet. In 1821 Mgr. Lartigue, the newly consecrated bishop (auxiliary) of Montreal, requested his superior, Mgr. Plessis, to appoint him a secretary to assist him in his many functions. M. Bourget, who was still at Nicolet, was fixed upon, and that year he was transferred to Montreal. During the lifetime of Mgr. Lartigue, M. Bourget entered heart and soul into the plans of the prelate for the improvement of the diocese, and in 1837, Mgr. Lartigue having been definitely appointed titular bishop, M. Bourget was consecrated in the new cathedral—for which Montreal owed much to his untiring activity and zeal—Bishop of Telmessia, *in partibus infidelium*. This was an occasion of great joy among the citizens of the city, to whom the young prelate had endeared himself by his fervent piety, his unceasing activity, and his uniform kindness and consideration. Three years later Mgr. Lartigue died and Mgr. Bourget was appointed to the episcopal see of Montreal, of which he formally took possession on the 23rd April, 1840.

One of the first acts of the new bishop was to appoint a chapter. This institution had existed during the early days of the colony, but soon fell into desuetude. He then devoted himself to promoting the welfare of his diocese by the establishment of religious societies and confraternities. Of these he has introduced or established in the diocese some thirteen or fourteen, among them the Jesuit Fathers, the Oblate Fathers, the Sisters of the Providence, of the Good Shepherd, etc. To Mgr. Bourget is also due the introduction of the Roman liturgy in Montreal. In 1852 the cathedral was burnt down. It was then the Bishop conceived the idea of building a new and magnificent building in the centre of the city,—a building that should have no equal on this continent. To this object he devoted himself with his usual ceaseless energy, and he now has the satisfaction of seeing his darling project in a fair way of accomplishment.

The great event of Mgr. Bourget's life—at least one of the greatest—occurred on the 29th ult., when the people of the whole diocese turned out to celebrate the fiftieth anniversary of his ordination, and to renew their pledges of respectful love and esteem. The celebration of the Rt. Reverend Prelate's *noctes d'or* will form the subject of illustration in our next.

## THE VOICE OF THE ROCKS.

## A CABINET OF SCIENCE FOR THE DOMINION.

On St. Gabriel street, facing the Champ de Mars, there stands a handsome, three-story building, which, as a large brass plate on the door informs us, is the Museum of the Geological Survey of Canada. Thousands pass before it every day without noticing it, but it is perhaps the most remarkable, and certainly one of the most important buildings in the Dominion. Let us enter it. In the vestibule, seated at a little desk, we find the gentlemanly guardian, who, in reply to our inquiry, informs us that the collection contains a complete series of specimens illustrating the geological character of Canada from the lowest stratum to the highest. The collection being public property the public are allowed to inspect it, free of charge. We are first ushered into a large well-lighted room on the left of the vestibule. Glass cases are ranged along the wall and glass cases set upon long narrow tables in the middle of the floor. These are filled with specimens of primitive or igneous rocks such as form the first and most ancient deposit of the earth and which crystallized from the action of the central fire. There are of course granite and its components, quartz, feldspar and mica. Also, gneiss, sienite, hornblende and porphyry with its rich specks of green and white. In this room, too, are found specimens of the different ores which show the mineral and metallic wealth of the Dominion. Iron is abundant and so is copper. There are traces of silver, and gold dust is imprisoned in diminutive, almost capillary phials. A case is reserved for a graduated exhibition of Canadian coals, chief of which were taken from the magnificent beds of Nova Scotia. In a second room opening on the first are gathered the rocks which are used for building, industrial and decorative purposes. If this is strictly speaking a less scientific show, it is unquestionably of great practical utility. Here are found, in slabs and other wrought forms, marbles of every hue and grain—the buff sandstone, the snowy limestone, the delicately foliated serpentine or verd antique. These are all highly polished and flash like mirrors. Alongside, are exhibited splendid specimens of the chalcidony, the jasper wherewith the gates of Paradise are inlaid, the agate whose magic properties made it the *fidus Achates* of the wandering *Aeneas*, and the purple amethyst whose property once was that it rendered innocuous the heady tumes of wine. In this room, finally, are ranged collections of mineral paints, mineral manures, and lithographic stones.

Having "done" these two rooms, we ascend a first flight of stairs and with it mount to another stratum in the geological scale. This is the Silurian. Here imbedded in the rocks are found the first fossils, remains of the primeval and lowest forms of life. We have spread out before our eyes the crinoids or sea urchins, the sea-anemones or polyps of the Radiata class; the acephala or headless clams, the brachiopods that creep upon their arms, the gasteropods that crawl upon their bellies, the pteropods that have pseudo-wings, the cephalopods or mollusks that walk upon their heads. Next come a few species of Articulata. This whole room is full of interest, being especially rich in specimens of the Potsdam and Hudson River groups.

A small room, on the side, is consecrated to the Quebec group. It contains a fine series of trilobites entombed in their beds of slate and limestone. Another small room on the same flat is devoted to the primordial Silurian period and is distinguished for a variety of casts. One monster cast imbedded in the wall is particularly worthy of attention.

We next ascend to the third story and are introduced to all

the higher geological strata. First of these are the middle and upper Silurian, subdivided into the Niagara, Onondaga, Heidelberg and other groups. The Silurian in the disposition of this Museum is made to take a vast range, including the Cambrian and Cumbrian strata. This is well enough, though, perhaps, for the purpose of study—to which the Museum ought naturally to be adapted—a more minute and modern classification might be an improvement.

We pass next to the Devonian or old sandstone beds with which the name of Hugh Miller is immortally associated. Here the cases are filled with fine specimens. It would take too long to particularize, but as we move along the splendid array, our eye is caught by a large-eyed, beautifully striated trilobite, the *Phacops Bufo*—an ebony toy such as the voluptuous Cleopatra or the long-tressed Berenice might have worn upon her bosom as an amulet against the treacheries of an amorous fate.

The carboniferous period which follows is not so well represented, though one of the most interesting in the whole geological scale. The higher strata, up to the drift, are likewise singularly meagre. Of detached fossils there are almost none. Canada seems to have furnished few of the great mammals and other animals which swarmed in the waters and woods of the tertiary era. There are some giant teeth and tusks in this room, but they are not labelled. The only authenticated specimen of the kind is a Harp Seal, whose skeleton has been restored. It was found 30 feet below the surface in clay pits, at Montreal, in 1861. Strange, too, to say, Indian remains are very rare. One or two lance heads, an axe, a hammer, a dagger and a few other trinkets are the only relics of the Aborigines who so thickly inhabited this country for many ages.

It will be seen from this cursory description that the Geological Museum of St. Gabriel Street is a vast treasury from which the student of science can draw the vastest and the most accurate stores of information. It was, indeed, for this purpose that the collection was made, and such care has been taken to preserve it in good order. Its position in Montreal is most favourable as being central, though probably, there would be no great objection if it was transported to Ottawa, as has been proposed. Young Canadians who wish to study the history of the earth's crust, leaf by leaf, penetrate all the mysteries of the interior of our globe and, more especially, learn the transformation which their own native land has undergone in the lapse of infinite past cycles, cannot do better than consult this collection and go over rock by rock.

In conclusion, it may be asked how this vast museum was accumulated? It is the pride of Canada that she was one of the first to appreciate the importance of those geological surveys, since adopted in every civilized State. It was also her peculiar good fortune to have the services of a man, who ranks second to none in scientific reputation, and whose zeal for its favourite profession is commensurate with his proficiency in it. To Sir William Logan belongs the chief glory of the Geological Survey of Canada and of the fine cabinet which we have described. Assisted by an efficient staff he has explored the country from one end to the other, making wonderful discoveries. His reports and other works, embodying the fruit of his researches, are monuments of learning sufficient to immortalize any man. On account of age and infirmities, he has been obliged to resign the direction of the museum, and it is now in the hands of one who is thoroughly competent to succeed him. Let us hope that according as it becomes better known, this museum will be more frequently visited and thus contribute to spread the taste of geological science among our young men.

## SIGNS AND TOKENS.

Of the signs and tokens of death there is no end. The crowing of a hen is a sure forerunner, so is also the squeaking of a mouse behind a bedstead. If a cow breaks into your garden, there will be a death in the family within six months; if a pigeon enters a house, a child will infallibly die. When a death takes place, all the doors and windows should be unfastened, as in many parts of the country it is thought that the first pains of purgatory are inflicted by the soul squeezing through the closed doors. We have something like this in Swift's "Journey from this World to the Next," where the spirits, conversing on their way to the throne of "Micros," relate to each other how they had to wait till an open door or window in the house in which the death had taken place, enabled them to get free from it. Every one knows the Celtic superstition of the "fetch," or appearance of one's double, being an immediate forerunner of a violent death. There are very few of the peasantry, or indeed of the better classes, who do not believe firmly in the "Banshee," or that its wail will not bring death or misfortune to the house near which it is heard. There is an old belief that no one can die on a bed containing game feathers; and another, that has some amount of truth in it, that death must take place at the turn of the tide. Shakespeare commemorates this in Madam Quickly's account of Falstaff's death, "a' parted even just between twelve and one, even at turning o' the tide." Dickens too, in "David Copperfield," makes old Barkis's spirit go out with the tide. These are some of the most common beliefs and superstitions which are to be found in England. To turn now to a more distant and less enlightened country; the observances among the Chinese are the more extraordinary from their being carried out under the sanction of religion. No Chinaman will open a shop marry a wife, without first "chin chinning Joss," as it is termed, and casting lots to see if the "gods" are propitious or otherwise. The method of carrying this out is as follows: each temple in China has belonging to it about a hundred stanzas of poetry relating to a variety of subjects; each stanza is numbered and printed on a separate piece of paper; in addition to this, there are a quantity of lots made of bamboo slips about eight inches long, and corresponding to the number of stanzas, and referring to them by number. The individual who wishes to make application to the "god" presents himself before his image on his knees, and after performing the "ro-too," by touching the ground with his head nine times, states his name and residence, the object of his inquiries, and, whether on his own or another's account, he then takes a bamboo tube containing the lots, and shakes it gently before the idol until a slip falls to the ground. He then rises from his knees and picks up this slip, and places it so that the "god" can see the number of the lot written on it; he then takes two pieces of wood, each having a round and a flat side, called a "kapue," after passing these through the incense, he tosses them into the air before the idol; if they fall so that both round sides are uppermost, the answer is negative and

everything is unpropitious; if they fall with one round and one flat side up, the answer is in the affirmative, and the man may go on his way rejoicing. When a Chinaman dies, and his bereaved relatives wish to communicate with him, a medium is employed. These mediums are females, and are of two classes. One of them professes to obtain and transmit the news required, by means of a very diminutive image made of the wood of the willow tree. The image is first exposed to the dew for forty-nine nights, when after the performance of certain ceremonies it is believed to have the power of speaking. The image is laid upon the stomach of the woman to whom it belongs, and she by means of it pretends to be the medium of communication between the dead and the living. She sometimes sends the image into the world of spirits to find the person about whom intelligence is sought; it then changes into an elf or sprite, and ostensibly departs on its errand. The spirit of the person enters the image, and gives the information sought after by the surviving relatives. The woman is supposed not to utter a word, the message seeming to proceed from the image. The questions are addressed to the medium, the replies appear to come from her stomach; there is probably a kind of ventriloquism employed, and the fact that the voice appears to proceed from the stomach undoubtedly assists the delusion; any way, there are scores and scores of these mediums implicitly believed in, and widows who desire to communicate with their deceased husbands, or people who desire any information about a future state, invariably resort to their aid.—*Belgravia*.

## ORIGIN OF COAL.

A mistaken impression is somewhat widely prevalent that, in the coal-fields, we have the remains of ancient forests—in other words, it is supposed that wherever there was a forest in primeval times, there now exists a coal-field of greater or less extent. In connection with this view, also, the opinion is entertained that the forests now in existence will, in the process of time, and after due geological changes, become the coal-beds of future ages. But although, as we shall presently see, the coal-fields are undoubtedly due to the vegetation of former eras, it is far from being the case that the primeval forests became converted in a general way into coal. Conditions of a peculiar, and to some extent exceptional, character were requisite for the formation of coal-fields. If we consider the evidence given by the coal-fields themselves, we shall see what these conditions were. The beds or seams of coal form but a small portion of the thickness of the great geological group of strata to which they for the most part appertain. This group is called the carboniferous, and not uncommonly "the Coal;" but even where coal is most abundant, it forms only a minute part of the whole mass. Thus it has been estimated, Sir Charles Lyell tells us, that in South Wales the thickness of the carboniferous strata amounts, in all, to between 11,000 and 12,000 feet, (or more than two miles;) "but the various coal seams do not," according to Professor Phillips, "exceed in the aggregate 120 feet," or less than one-hundredth part of the whole. In North Lancashire the carboniferous strata occupy a depth of more than three and a half miles, with the same relative disproportion between the thickness of the coal seams and that of the complete series of strata. Again, in Nova Scotia, the coal-bearing strata attain a thickness of more than three miles. Here, no fewer than eighty seams of coal have been counted (seventy-one having been exposed by the action of the sea;) but these seams are nowhere more than five feet in thickness, and many are but a few inches thick. Thus it is evident that the formation of coal can have been in progress but a short portion of the time during which the carboniferous series of strata was in process of deposition. Throughout by far the greater portion of that time, other minerals were being deposited. It is next to be noticed that under each coal seam a stratum of ancient soil exists, in which there are commonly found the roots of ancient trees; while above the coal, there is commonly a layer of shale or sandstone, in which not unfrequently the trunks of those trees are found either fallen or still in their original position, and only partly converted into coal. The bark remains, but is transmuted into coal; the hollow of the trunk, decaying long before the trunk gave way, is represented by a cast in sandstone. Thus, if we try to picture to ourselves the state of things which existed when such a seam of coal first began to be covered up by the next higher deposit, we see that there must have been trees standing erect above a layer of vegetable matter, the roots of the trees being imbedded in the soil which forms the deposit next below the coal. The vegetable layers may probably have been two or three times as thick as the resulting coal seam, and were reduced by pressure to their present thickness; but such layers cannot at any time have reached to the branches of the forest trees. Then the process of deposition began. This can only have happened when some subsidence of the soil had caused it to be submerged to a greater or less depth. We can infer from the depth of the strata overlying the coal seams that this state of submergence continued in many cases for a long period of time; and it is equally clear that the formation of the vegetable layers themselves must have been a process occupying a considerable time, since tall trees grew before the next submergence took place. So soon as submergence was complete, the tall trees perished and began to decay. The stout trunks above the vegetable layer were broken off and swept away by the sea. The forest itself, properly so called, was for the most part thus destroyed. It was the decaying refuse of the forest, intermixed with the lowlier growths, which formed the coal seam as it now exists. Among these were the lower parts of the trunks of the ancient forest trees. These became converted, like the rest of the vegetable matter, into coal.—*The Cornhill*.

OUR DIGESTIVE ORGANS.—The result of much scientific research and experiment has within the last few years enabled the medical profession to supply to the human system, where impaired or infective, the power which assimilates our food. This is now known as "Morson's Pepsine," and is prescribed as wine, globules, and lozenges, with full directions. The careful and regular use of this valuable medicine restores the natural functions of the stomach, giving once more strength to the body. There are many imitations, but Morson and Son, the original manufacturers, are practical chemists, and the "Pepsine" prepared by them is warranted, and bears their labels and trade-mark. It is sold by all chemists in bottles 3s., and boxes from 2s. 6d., but purchasers should see the name