

Here certainly one cannot complain of lack of noise and bustle. The main thoroughfares were a seething mass of humanity. Stalls lined the sidewalks all along. A ramble through Whitechapel, Shoreditch, Hoxton, etc., was quite amusing, and the huxtering, chaffing, bargaining, and sharp retorts were laughable in the extreme. I was passing one of the vegetable stalls, when a poor woman who had been squeezing all the cabbages to find one to her liking, complained that there were no hearts in them. "Why my good woman," said the vendor, "you don't know where to look for the heart," and taking up one of the rejected cabbages he showed her the stump, "there," said he, "that's the place to look for the heart, feel if that's not hard enough for anybody"; of course there was a laugh at the woman's expense, but whether she was convinced that the cabbage had heart enough for her, deponent sayeth not. Notices in the windows of many of the grocers' shops gave intimation of how necessary it was for a large portion of the London operatives to look a long way ahead. They were to the effect that "Christmas banks" were already in operation, and by the payment of a small weekly sum from the time the banks were opened till Christmas, the person paying would be entitled to a goose and the ingredients for the national "Christmas pudding"; and as an inducement to invest, some of the notices contained the generous announcement that "spice would be given free." Of course, these institutions are no new things; still the fact that hundreds have to make provision six months ahead in order to enjoy their "Christmas dinner" leaves much to be inferred as to the state of things that requires such a means to an end. The street cars—or "tramways" as they are called here—though not very long in use in London, are fast coming into general operation. The vehicles are similar to those in use with us, with the exception that many of them have seats upon the top as well as inside, a suggestion which, I imagine, might be followed by the Toronto company with considerable pecuniary advantage. What, with the tramways, busses, underground railways, etc., a person can make any point in the city (large as it now is) or suburbs in a very short space of time.

Leaving London we proceeded across the Straits of Dover to Antwerp, where we paid a hurried visit to the Cathedral, a fine edifice, 500 feet long and 250 wide. The steeple is of the most beautiful and delicate workmanship; but it is rather curious that a wide difference of opinion exists as to its height, some authorities giving it as high as 466 ft., whilst others give it as 400 and 336 ft. An object of interest in connection with it is a splendid iron canopy, near the foot of the tower, the work of Quentin Matsys, the blacksmith of Antwerp, with whom there is a beautiful romance connected. He fell in love with a painter's daughter, but was refused by her father, who would bestow her hand only upon a painter. He abandoned the anvil and took to the easel, and eventually far surpassed the father in his own art, as his masterpiece "The Descent from the Cross," in the museum testifies. He won the lady, and these two monuments remain to attest to his genius. In the interior of the Cathedral are a vast number of exquisite wood carvings and a splendid collection of paintings by the old masters.

From Antwerp we pushed on to Brussels. This city—the capital of Belgium—is beautifully situated on the river Senne, some fifty miles from the sea. There are two magnificent boulevards, a fine park, a number of fountains, some of the most elaborate designs; but the most antique and celebrated of all the fountains is the world-renowned "Mannikin," a fine bronze figure, two feet in height, of an urchin boy, who discharges a stream of water in a natural manner. I am informed that tradition invests this antique little figure with an importance which is exhibited on fete days, when he is dressed in uniform, and decorated with the order of St. Louis. One of the principal squares is *Place des Martyrs*. It was chosen for the sepulchre of both citizens and military who fell in the revolutionary struggle of 1830, and a fine marble statue of Liberty has been erected over their graves.

Leaving Brussels we run across Belgium to Cologne. This, I think, was one of the finest tracts of country that we have passed through, the crops appeared very fine, and everything bore the appearance of thrift. One thing, however, that impressed me very painfully was the mental position allotted to the women (and so far as I can learn this is not confined to Belgium, but applies to all parts of the Continent.) By long odds, the farms appeared to be worked by women, and it was the exception, rather than the rule to find men working in the fields. Not only this, but I actually saw women at work with pick and shovel, work-

ing on the railways, and, also, where buildings were being erected, working as laborers, and carrying mortar, in small tubs, upon their heads. I also frequently saw them yoked to vehicles, dragging their farm and garden produce to market. This was certainly one of the most painful and revolting sights, but it appeared to be done as a matter of course.

The chief glory of Cologne is its splendid Cathedral, a structure that in point of elegance of proportion and elaborate finish is considered one of the most magnificent specimens of Gothic architecture in the world. It occupied something like 600 years in course of erection, and the two main steeples yet remain to be built.

To-morrow we proceed up the Rhine to Mayence.

PRE-ADAMITE EARTH.

[No. 2.]

BY R. R. Y.

The Silurian Period, which immediately succeeds the clay state, and with which the name of the late eminent and lamented Sir Roderick Murchison is so closely identified, introduces us to a condition of the world, in which the area occupied by water is greatly contracted, and dry land appears to a considerable extent, diversified with mountains, valleys, and rivers, the land being to some extent covered with several species of flowering plants. In the waters, animal life has become vastly increased and varied. The Grauwacke period was signalized by the existence of a few species of three orders—Zooephytes, Mollusca and Crustacea, and each of these continue to exist in increased numbers, though of different species.

Amongst others, now appearing for the first time, mention may be made of the beautiful Encrinite or lily-like coral, and the Trilobite. The latter is a Crustacean, small in size, but very beautiful and complex in structure. The eyes are particularly striking and interesting. Several fossil specimens have fortunately been obtained, and so perfectly has their structure been preserved, that it can be studied almost as well as if the Trilobite yet existed. The result of the examinations made is to show that each of these eyes is composed of not less than four hundred spherical lenses in separate compartments, on the surface of a corner projecting conically upwards, so that the animal, when in its usual place at the bottom of the water was enabled to see in every direction without making any movement. It has been pointed out by Dr. Buckland, that these eyes possess an additional interest, from the fact that by means of them we can assure ourselves that the atmosphere and water of the present time are identical in composition with those of the period in which the Trilobite lived—a period separated from us by an incalculably great interval of time. And again, we are justified in inferring, that the sea must then have been in general as pure as at present; because, had the water been usually turbid or chaotic, a creature destined to live at the bottom of the sea, would naturally in such a case have no use for such delicate visual organs.

But the most important addition to the new animal forms of this period, was the introduction of representatives of the Vertebrate type, but of a low order, viz.: Cartilaginous fishes or those which are destitute of true bone, and having unequally lobed tails. The formation of the Silurian system seems to have been frequently interrupted by violent volcanic eruptions, and the greater part of the earth's surface greatly disturbed, resulting in a change of conditions which led to the deposition of the Devonian system, or Old Red Sandstone. The world at this time presents to our view an almost unbroken expanse of water. The considerable stretches of land which had before existed, have been almost entirely overwhelmed, and we observe it here and there in the form of small islands. This aspect is maintained during a very lengthened period, a circumstance indicated by the fact of the extraordinary thickness of the deposits, which in some places are no less than 10,000 feet, although in other districts are comparatively thin, and in appearance the strata presents an equally varied character. Thus, in some parts of Scotland and elsewhere, the greatest tranquility prevails, and on the shores of the island groups, the waves gently advance and recede, leaving the ripple marks on the fine sand, and even the distinct impressions of the rain drops may be observed all over the sand unwashed by the sea; while in other parts of the world, we see occasional volcanic action, the waters agitated and thrown into powerful currents, detaching and carrying large numbers of rock fragments which by the constant action of the water are worn into a round form, and deposited over the bed of the ocean. At the

commencement of the Devonian period, there was a comparative scarcity of living creatures, a circumstance which may perhaps be accounted for by having regard to the volcanic eruptions, which are also supposed to have produced the large quantity of peroxide of iron, with which the whole system, but particularly the lower part is impregnated. This peroxide of iron may have acted either in preventing the multiplication of animal life, or have led to the obliteration of their remains; and there is another circumstance which is worthy of notice, viz.:—that almost the entire races of animals and plants in being, during the Silurian period, have disappeared. Those which are now observed are altogether new, many of them being of a very peculiar kind, and as we advance these become greatly increased in number and variety, indicating increasingly favorable conditions of life. It is also important to observe that not only are the animals and plants of this period of a higher type than those of the Silurian, but that this same fact of advancement in organization is continued throughout the Old Red Sandstone period. The period is brought to a close in a manner similar to its commencement. The volcanic forces, act upon a gigantic scale, upheaving large portions of the bed of the ocean, throwing up numerous large mountains and ranges of hills such as those of Scotland, while much of the dry land previously existing is submerged. The changes thus produced in the conditions and aspect of the world together with operation of other causes, is productive of the most important and striking results. For a considerable time an alteration has been taking place in the climatic conditions, the heat has been increasing all over the northern hemisphere, abundant rains descend, great swelling rivers, and vast swamps are formed, and the atmosphere highly charged with moisture. As a consequence of this, we see the land is gradually overspread with a vegetation of extraordinary luxuriance, particularly over a large portion of Great Britain, the United States, New South Wales, &c., where coal is found, such material being now after much discussion proved to be undoubtedly the accumulated and transformed remains of the plants of coal or Carboniferous period.

Another distinguishing feature of this age is its profuse animal life.

The ocean swarms with living creatures of a very varied description. Fishes and coral animals exist in immense numbers. The most noticeable of the latter is the beautiful Encrinite before mentioned. It has been described as consisting of a stalk composed of numerous joints, rendered flexible by means of cartilage, and perforated for the passage of an internal canal. It is fixed at its base and supports at its extremity a cup-like body, containing the mouth and stomach. This cup-like body is composed of numerous pieces, branching out into many tentacula or arms for the purpose of seizing its prey; and the whole animal is then invested with a gelatinous covering, by which the structure is held together. In the skeleton of some specimens, not less than 26,000 bones or pieces of calcareous matter have been counted, all beautifully marked, and ingeniously adapted to each other, and in a framework so liable to be broken we find traces of a power to reproduce mutilated parts, such as that possessed by Crabs and star fishes. Their remains are found in every Stratum of a calcareous character and masses of limestone from 40 to 120 feet in thickness, are almost wholly composed of them, just as coral reef are formed of various corals.

Another great change now takes place, of so radical a nature, that almost every form of life, animal and vegetable, disappears from off the earth, and we enter upon a long period comparatively barren of life, yet not wholly so. Prof. Phillips, as quoted in speaking of this system, which is known as the New Red Sandstone, says: "The organic remains of this system, tho' few in number, are exceedingly interesting to the Naturalist and Geologist from the strong testimony they offer of the successive changes of the living creation, according to the new circumstances of the land and sea. The fossil plants, shells, fishes and reptiles of this system appear to partake both of the character of these in the older Carboniferous, and the newer oolite deposits. This period is also notable as that in which the first oviferous Quadruped made their appearance, as well as for the remarkable footprints of what appears to have been gigantic birds. This oolite period into which we now enter is one which in many respects very remarkable, especially as regards the living creatures introduced. The name which means literally egg stones, is given because of the appearance of the stones with which the strata composing the system is so largely made.

It is here we come to the first indisputable traces of insects, the specimens being

of the descriptions allied to the Beetle and Dragon fly genus. It is not however to be supposed that these were actually the first insects. Insects are not those which are likely to leave sufficient traces of their existence, and it is highly probable, that these animals were much earlier introduced. A discovery was made some time ago of a fossil belonging to the coal period, which is said to be that of a kind of scorpion, but as some little doubt exists about it, we must wait for a confirmation in similar cases. This age is further signalized as that in which as our knowledge goes, the primary members of the great class of Mammalia make their appearance, but they are as usual of the lower orders viz. these belonging to the marsupial and insectivorous orders, orders which in the present day are represented respectively by the Kangaroo of Australia, and the Anteater of America. We find besides these, great numbers of animals allied to such as the Tortoise and Turtle, a great variety of fishes, of Crustacea, Mollusca and Radiata, and especially of Reptiles. The latter undoubtedly present the most striking feature of the age. These are mostly Amphibious, and probably inhabited the shallow shores and creeks of the sea, and rarely going on land in consequence of the difficulty experienced by reason of their structure, of progressing over the ground. Mention may be made of for instance the *Ichthyosaurus*—literally "fish lizard." It is said to bear some general resemblance to the Crocodile, and was sometimes of great size—from 20 to 30 feet. It is possessed of a very large head, a long tapering tail, and four peculiar paddles, for locomotion in the water. Still more curious is the *Plesiosaurus*, a creature with a comparatively small trunk, and small head, but those connected together with such an extraordinary long and highly flexible neck, that the total length of the creature is brought up to from 10 to 15 feet. Again, amongst many others, we notice the *Pterodactyle*, or the Flying Lizard, an animal not quite so long as those just referred to, but presenting a very curious appearance. It is provided with large filmy wings, something like in appearance, but very unlike in other respects, the wing of a bat, by means of which it could suspend itself in the air for some time in looking out for its prey, the quick destruction and devouring of which was not doubtful once caught and brought within reach of the truly formidable teeth with which the *Pterodactyle* was provided. Of the land Reptiles, there are, for example, the *Iguanodon*, some 70 feet in length, and the *Megalosaurus*, also of gigantic size, and a very fine specimen of the skeleton of which is preserved in the British Museum.

The cotemporary plants, which are such as the palm, Arborescent fern, Cycas, &c., and the seaweeds, are distinctly of a higher order than any in preceding ages, and in the northern hemisphere, are all such as are assigned to a tropical climate. It is also, it appears, to this oolite system that England is indebted for the celebrated Bath and Portland Stone, as well as that used for paving the greater part of the streets of London. In the latter part of the system much chalk is observed, and in this we see a gradual approach to the general character of the rocks which immediately overlie the Oolite, viz., those composing the Cretaceous or chalk system. It was long supposed that this formed a complete break as regards land animals, and to a certain extent this view seems to be justified, as no trace of all those which existed in the previous period has been found, but this barren character, due, there can be little doubt, to the circumstance of the almost general submergence of land, has been redeemed to a small extent by the important discovery of the remains of some of our lively friends and supposed relatives—the Monkeys, and possibly with continued examinations others may be brought to light. In the ocean, however, animals are abundant, including a variety of species of all the orders as high as the amphibious reptile, but presenting the same general features as those of the previous age. This brings us to the close of the great secondary formation or group.

THE STRIKE AT THE NORTH SIDE ROLLING MILLS.

A large and important community, the operatives at the North Chicago Rolling Mills, have, in their recent strike of Monday, August 11, exerted an influence which has spread over the entire city.

The strike, involving the abandonment of work by nearly 800 men, originated among the heaters, who number some 33, and who perform a most important function in the operation of the mills. These men, who are skilled workmen, and peculiarly adapted to the labor in which they are engaged, have been working since May 1, 1873, upon a plan known as a graduated scale. Thus, when iron rails at \$83 per ton, the average being cent to dollar, they

were to receive 83 cents per ton for their manipulation of material. If the price went up to \$83 50 per ton, they were to receive 85 cents per ton; but if the current price was \$87 per ton, their wages would remain at 85 cents, the advantage being equal on either side, and with this arrangement the workmen were perfectly satisfied.

Upon entering the employ of the mills, and before receiving their monthly pay, the heater was obliged to sign every month a contract binding him to give two weeks' notice, in case he wished to leave. This contract, at the current rates of payment for work, the proprietors informed the workmen on the 19th of June last, would expire one month subsequent—that is, on the 19th of July. On that date the proprietors informed the heaters that, owing to the fact that material had advanced, while the manufacturers' prices had not, they would thereafter pay the workmen but 75 cents per ton, the current price being 80 cents, and that this reduction would be made throughout the entire mills. The heaters accepted the proposition under protest, desiring to lay the matter before the Convention of Iron Masters and Workers, which was to meet on the 9th of August, and this the proprietors sanctioned and acceded to. On Monday, August 11, no action being definitely taken in the matter by the Convention, the heaters struck, and were followed by the entire mill force.

The heaters hold that they strike only because the reduction is contrary to contract, no other mills having reduced the heaters' prices, and no reduction being made in the prices of rail iron. They also hold that the proprietors deceived them in stating that the twelve per cent. reduction would be universal throughout the mill, while it has only affected themselves.

In alluding to the heaters, and supporting them in the strike, the puddlers, hookers, and laborers are acting wisely. They realize the fact that if the proprietors once obtain the reduction with the heaters, their own wages will share a similar fate.

How long the strike will last it is difficult to surmise. The strikers are determined, and the laborers steadfastly refuse to resume work if new heaters are engaged.—*Workingman's Advocate*.

THE JOURNEMEN BAKERS' GRIEVANCE.

A demonstration was recently held in Hyde park, London, close by the Reformer's Tree, the object being to obtain the exemption of the baking from the operation of the Smoke Nuisance Act, or to protest against the baking trade being included in the provisions of the said act, which virtually comes to the same thing. The first resolution declared that the baking trade ought never to have been included within the provisions of the act, and was carried unanimously. The second resolution gave the public notice that if no relief was given to the journeymen bakers they would "take counsel with their employers to cease the manufacture of bread until the relief required was afforded them." This resolution was also carried. The other two resolutions protested against an act, "which commits men to prison as felons because they cannot do impossibilities," and appealed to the working men of the United Kingdom to support only those candidates for Parliament who are in favor of exempting the baking trade from the Smoke Nuisance Act. These resolutions were, as a matter of course, carried. The processionists then returned to Hoxton, whence they had come, after warmly congratulating each other.

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