**Sydney’s Geological History**

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Sydney's Geological History.

(By Geologist in the Daily Telegraph.)

The discovery of coal at Cremorne Point has created so much interest in geological matters that the following remarks on the geological history of the metropolis will no doubt prove interesting.

All the periods of rock formation into which geologists divide the earth's crust are met with in New South Wales, and the sandstone formation on which Sydney is built is relegated to the Triassic period; that is, it was formed during that time. This formation is familiarly known as the Hawkesbury Sandstone, and extends from the Hawkesbury on the north to the Shoalhaven on the south, and from the Blue Mountains on the west to the sea.

After back in the history of the worlds, during what is known as the Carboniferous period, vegetation grew very profusely; Immense forests of fern, cycads, and lycopods covered the country, and the land slowly subsiding, these immense masses of vegetation were covered over with great deposits of sediment, and formed what are now our coal beds.

The sea, invading this immense tract, deposited on it its characteristic relics - as shells, corals, and detritus from the land - thus forming the great marine beds which overlie the coal.

The land, however, was again upheaved, vegetation grew as before, and, the land subsiding once more, another bed of coal was formed.

This alternate upheaving and subsiding went on for some time, forming successive beds of coal and marine deposits. At Newcastle and Maitland these alternate beds are met with, and testify eloquently to the great changes through which the earth passed at that period.

Towards the close of the Permian period, the land was upheaved to an immense height, not horizontally, but roughly speaking, in the form of an inverted half circle, and it is on this fact that the late Government Geologist, Mr. Wilkinson, predicted the finding of coal beneath Sydney, as the coal outcrops at Newcastle in the north and at Bulli in the south. Therefore, he argued that the Newcastle coal beds dipped beneath Sydney, and came to the surface down to the southward. This theory has been verified by the boring operations at Cremorne Point.

After the land was upheaved as before mentioned, climatic conditions seem to have changed, and the soil, disintegrated by the atmosphere, was blown about by the winds, so that the country about Sydney was then a great sandy plain, which accounts for the great thickness of our sandstone, and also for the angular lamination, or “false bedding” of the sand-beds, showing the sand preserved where it was originally deposited by the wind. This is beautifully shown in the Bondi cliffs.

Towards the close of the Mesozoic period great volcanic disturbances changed the face of the country. Immense masses of basalt forced their way through the earth's crust and poured over the surface. In the north a vast outpour, filled all the valleys to the tops of the highest mountains, making one immense plain of the country about Armidale.

About Sydney the molten rock forced itself to the surface in many places. At Bondi about 100yds. north of the beach is the remains of one of these basalt dykes. The basalt, however, has now decomposed, leaving immense fissures which split the cliffs in a very remarkable manner.

At Prospect Reservoir, Five Dock, Marrickville, and at Cremorne, these dykes are also met with, whilst at Blue's Point and Goat Island the fissures left by the decomposed lava are very interesting.

About this time also there occurred a most wonderful phenomenon. An immense crack was developed in the country at the Blue Mountains, and the whole of the country between that and the sea sank to between 3,000 and 4,000ft. (This explains why the coal beds which are at the surface at Lithgow, are some thousands of feet beneath the surface at Sydney). Another crack also occurred along what is now our sea coast, and the whole of the country to the eastward sank beneath the level of the sea.

Now, as before stated, vast quantities of basalt were poured over the surface of the country, and as this rock decomposes to a shaley clay, it is supposed that the clayey shales overlying the sandstone around Sydney are the remains of this basaltic outpour. It is also supposed that our beautiful harbor owes its origin to volcanic activity, as many geologists are of the opinion that it has been by atmospheric and river erosion from fissures originally left by basalt dykes, which accounts for its great depth.

To the south of Sydney there existed an immense lagoon into which the George's River carried quantities of clay from the higher regions. In the course of time this lagoon shrank to its present limits, and the clay deposits are now worked at St. Peter's and at Marrickville for brickmaking purposes. Much of these deposits were disintegrated during periods of drought, and the sand borne by the prevailing southerly winds covered the country between Sydney and Botany, forming the various hills which arise above the plain, as Mount Rennie, Mount Carmel, &c., and it is supposed that Surry-hills were formed in this peculiar manner. At Moore Park the bore which was sunk for coal some years ago passed through 143ft of sand before the solid rock was struck.

Such is the history of the great changes through which the country about the city passed. These mighty movements must have taken ages to wreak their present effects; how long, no man can even guess, for with nature, time, as we measure it, is of no consequence, But you may perhaps say — Are none of these changes going on to-day? Well, friend, observe that wee stream dragging its little length along; see how discoloured it is. That little rivulet is slowly but surely wreaking a geological change, and in ages to come, no doubt, our geological history will have still more wonderful changes chronicled than those which I have enumerated in the foregoing remarks.