

lies, yet is conformable to, the Carboniferous limestone, he adds, that in Tasmania, at least, the coal most worked is unquestionably of Palæozoic age.

Now, as Australia is so vast a region, may not much of the coal within it be of the age assigned to it by Mr. Clarke; and yet may not Professor M'Coy be also right in assigning some of this mineral to the same Oolitic age as the coal of Brora and the eastern moorlands of Yorkshire? In his surveys of Tasmania, Mr. Gould has also made the important discovery of a resinous shale, termed Dysodile, and which, like the Torbane mineral of Scotland, promises to be turned to great account in the production of paraffine.

There are, indeed, other grounds for believing that coal, both of the Mesozoic as well as of the old Carboniferous age may exist in Australia. Thus, putting aside the fossil evidences collected in Victoria by M'Coy and Selwyn, we learn from the researches of Mr. Frank Gregory in Western Australia, that Mesozoic fossils (probably Cretaceous and Oolitic) occur in that region; whilst the Rev. W. B. Clarke informs me in a letter just received, that he is in possession of a group of fossils transmitted from Queensland, 700 or 800 miles north of Sydney, which he is disposed to refer to the age of the Chalk; there being among the fossils Belemnites, Pentacrinites, Pectines, Mytili, Modiol, &c. Again, the same persevering geologist has procured from New Zealand the remains of a fossil Saurian, which, he thinks, is allied to the Plesiosaurus.†

It would therefore appear that in the southern hemisphere, there is not merely a close analogy between the rocks of Palæozoic age and our own, but further, that as far as the Mesozoic formations have been developed, they also seem to be equivalents of our typical Secondary deposits.

This existence of groups of animals during the Silurian, Devonian, Carboniferous, and even in Mesozoic periods in Australia and New Zealand, similar to those which characterise these formations in Europe, is strongly in contrast with the state of nature which began to prevail in the younger Tertiary period. We know from the writings of Owen that at that time the great continent at our Antipodes was already characterised by the presence of those marsupial forms which still distinguish its fauna from that of any other part of the world.

* Prof. Dana in his Geology of the United States Exploring Expedition under Captain Wilkes (Philad., 1849), expresses the conclusion as the result of his examination of the coal fields of New South Wales (in 1840) that they are either upper Carboniferous or Permian. "White the coal plants point to the upper Carboniferous or still higher, the fossils below the coal seem to correspond most perfectly with the lower Carboniferous epoch. The conformity and continuity of the series of beds, the frequent occurrence of Coniferous logs, like those of the coal beds, in the sandstone at different localities, together with the characters of the fossil fish, leave little doubt that the whole is one prolonged age, referable to the upper Carboniferous, or partly to the lower Permian era." (Geology p. 495.) The fish referred to is a true heterocercal form, indicating according to Agassiz, the upper Carboniferous or a transition to the Permian. This fish (*Urasthenes Australis*) is figured on Plate 1, Dana's Australian Fossils, in the folio Atlas accompanying the Report. There is sufficient evidence in the forms of Mollusca figured on the following plates, of the continuation of Palæozoic types beyond their usual limits, indicating a fauna as abnormal for the early age of that most peculiar of continents as now seen in its characteristic types.—Ems.

† Whilst this is passing through the press, Professor Owen has described this interesting fossil, before this Section, as *Plesiosaurus Australis*.

In relation to our Australian colonies, I must also announce that I have recently been gratified in receiving from Messrs. Chambers & Finke, of Adelaide, a collection of the specimens collected by McDouall Stuart, in his celebrated traverse (the first one ever made) from South Australia to the watershed of North Australia. * * *

These specimens are soft, white, chalky rocks, with flints, agates, saline and ferruginous incrustations, tufas, breccias, and white quartz rocks, and a few specimens of quasi-volcanic rock, but with scarce a fragment that can be referred to the older stages of Lower Silurian age like those of Victoria.* Again, the only fossil shells collected by Mr. Stuart (though the precise latitude is unknown to me) are Mytiloid and Mya-like forms, seemingly indicating a Tertiary age, and thus we may be disposed provisionally to infer that large tracts of the low interior between East and West Australia have in very recent geological periods been occupied by the sea. * * *

Board of Arts and Manufactures FOR UPPER CANADA.

PROCEEDINGS OF THE SUB-COMMITTEE.

At the Monthly Meeting of the Sub-Committee, held on the 24th of April, a special committee was appointed to memorialise the three branches of the Legislature to pass an Act amending the Patent Laws of this Province, so as to allow citizens of the United States, and other countries, to obtain Letters Patent in Canada on the same terms as her own citizens.

Such an amendment to our Patent Laws, by doing away with the restrictions now placed upon all but British subjects actual residents in Canada in the obtaining of patents in this Province, would enable our citizens to avail themselves of the provisions of an Act passed by the Congress of the United States, in March, 1861, section 10 of which is as follows:

"That all laws now in force fixing the rates of the Patent Office fees to be paid, and discriminating between the inhabitants of the United States and those of other countries, which shall not discriminate against the inhabitants of the United States, are hereby repealed, and in their stead the following rates are established:

- "On filing each caveat, ten dollars.
- "On filing each original application for a patent, except for a design, fifteen dollars.
- "On issuing each original patent, twenty dollars.
- "On every appeal from the examiners-in-chief to the Commissioner, twenty dollars.
- "On every application for the re-issue of a patent, thirty dollars.
- "On every application for the extension of a patent, fifty dollars; and fifty dollars, in addition, on the granting of every extension.

* It must, however, be noted that the collection sent to me consists of small specimens of rock forming an imperfect series.