

the increase in thickness of the sedimentary strata towards the north-east and east of the N. American continent, and their attenuation and replacement by limestones in opposite directions. In the case of these sediments they are truncated along their thickest margins; and the fact, which I have pointed out, that the British and European formations exhibit similar phenomena of attenuation and truncation, only in an opposite direction, leads us to a similar conclusion with reference to the position of the derivative lands. Prof. Le Conte admits (p. 100) that the great thickness of Carboniferous strata would require a large land-mass to the east of the Appalachian region; but, he adds, "There is no reason why the eastern land-mass, which sufficed to contribute 30,000 feet of Silurian and Devonian sediments, should not have been sufficient to contribute the much smaller amount of sediments of the Carboniferous period." This, however, allow me to say, is begging the question at issue between us. I maintain in the first place, that the narrow strip of land (comparatively speaking) allowed by Prof. Le Conte was quite insufficient for the production of 30,000 feet of conformable sediments; and secondly, that this continuous accumulation of such sediments must have caused the originating land-mass to recede farther and farther eastwards into the Atlantic area, down to the close of the Carboniferous (or Permian) epoch.

Prof. Le Conte is scarcely correct in stating, that in my map, fig. 3, I have completely abolished the Atlantic Ocean by converting it into land during the Carboniferous epoch. As a matter of fact, I have indicated the land as far south as lat. 38° — 40° , making it intentionally vague at this line. As will be seen, on referring to the map itself, the main land-areas are represented as occupying the Arctic regions; and there is an interesting fact tending to corroborate the view of the land connection between Europe and America during both Devonian and Carboniferous times which should not be lost sight of, viz. the general resemblance, and partial identity, of the land floras of both regions during these epochs. Altogether it would appear that there is cumulative evidence of the general correctness of the views I have endeavoured to enunciate, whether we have recourse to the organic or physical aspects of the question.

EDWARD HULL.

OBITUARY.

CHARLES WILLIAM PEACH, A.L.S.,

BORN 1800. DIED 1886.

CHARLES W. PEACH, Geologist and Naturalist, was born in 1800 at Wansford in Northamptonshire. His father was a harness-maker. He first went to a dame's school in the village, and at the age of twelve was sent to a school at Folkingham in Lincolnshire, where he remained three years. He was appointed to a post in the Revenue Coastguard in January, 1824, and sent first to Southrepps in Norfolk, and afterwards to Weybourn, Cromer, etc. Here he first commenced

the study of Natural History, and began to make a collection. He made the acquaintance of the Rev. J. Layton, then living at Catfield. With this excellent geologist he explored the cliffs and the submerged Forest-bed, and assisted him greatly in collecting the large series of teeth and bones of elephants which are now preserved in the British Museum.

From Norfolk Peach was sent to Lyme Regis and Charmouth in Dorsetshire, and thence into Cornwall, where he worked at the geological formations along the coasts, and found fossils where no fossils had been found before. At the meeting of the British Association held at Plymouth in 1841, he read his first paper entitled "The Organic Fossils of Cornwall." The following year at the Manchester Meeting he read a paper before the Zoological Section, "On the Marine Fauna of the Cornish Coast." Charles Darwin, in his monograph on the *Balanidæ* (Ray Society, 1854, p. 157), quotes Mr. Peach's observations on the exuviation of the integument of the *Balani* on the Cornish coast. He was acknowledged to be one of the most original observers in Geology and Zoology, and was taken by the hand by Murchison, De la Beche, Buckland, Forbes, Daubeny and Agassiz.

While residing at Fowey, he was made an Honorary Member of all the local scientific Societies of the Duchy, and he added many organic remains from the Devonian rocks to the collection of the Royal Geological Society of Cornwall, and this collection seems to have remained as he left it nearly 40 years ago.

One of Peach's most important discoveries was the detecting remains of Pteraspidian fish-shields, in the Lower Devonian Slates of Polperro in Cornwall. These fossils were recognized as fish by Mr. Peach in 1843. In 1851 Prof. McCoy determined the fossil to be a *Sponge!* and named it *Steganodictyum Cornubicum*. Prof. Ferdinand Roemer subsequently determined it to be the bone of a Cuttlefish, and named it *Archæoteuthis Dunensis* (1855); and in 1868 Prof. Ray Lankester, in a note to the Geological Society, stated that Huxley and Salter, as well as himself, had determined it to be the cephalic plate of a Pteraspidian fish (Quart. Journ. Geol. Soc. 1868, vol. xxiv. p. 546), which he described under the name of *Scaphaspis Cornubicus*. He says, "The merit of first recognizing the fish-nature of these remains belongs to Mr. Peach, who more than twenty years since wrote of them as such" (*op. cit.* p. 547). See also *GEOL. MAG.* 1868, Vol. V. pp. 247-248, and 1869, Vol. VI. pp. 77-78. Mr. Pengelly, writing on the same subject, says:—"Mr. Peach's judgment has received the fullest justification, and we all congratulate him heartily on the fact" (Trans. Devonshire Assoc. for 1868).

Having been transferred from the Coast-guard to the Customs, Peach was removed from Cornwall to the north of Scotland, being stationed first at Peterhead, and afterwards at Wick. It was whilst at the latter place that he made the acquaintance of Robert Dick, the Thurso Baker-Geologist and Botanist, and the account of their friendship and mutual studies is contained in some of the most interesting chapters in Dr. Smiles' "Life of Robert Dick," part of

which book is devoted to a biographical sketch of Mr. Peach, to which we are indebted for many of our facts. Here he continued his study of geology and zoology. Whilst travelling round the coast of Caithness in search of wrecks, he made good use of his spare time, hammering the rocks in search of fossil plants with which the dark flagstones of the district abounded. He was the first to find fossils in the limestones of Durness in Sutherland. Obscure organic remains had been detected by Macculloch in the quartz rocks of Sutherland; but they passed out of mind, and their organic nature was stoutly denied by Sedgwick and Murchison. Peach, however, in 1854 brought to light a good series of shells¹ and corals, which demonstrated the limestone containing them to lie on the same geological horizon as some part of the Lower Silurian of other regions. He also found a new fossil fish, which was described in the *Decades of the Geological Survey*. At the meeting of the British Association at Liverpool, 1854, Peach read a paper on "The Remains of Land Plants and Shells in the Old Red Sandstone of Caithness." In August, 1858, Mr. Peach accompanied Sir R. I. Murchison to the Orkney and Shetland Islands, and finally the two geologists landed at Cape Wrath, and proceeded to visit the Durness Limestone, where all that Peach had already discovered was confirmed by the personal observation of Sir Roderick, who, proceeding to Leeds, laid before the Geological Section of the British Association, "The Results of his Researches among the older rocks of the Scottish Highlands," doing full justice to Mr. Peach's discovery of organic remains of the Lower Silurian age in the Crystalline Limestone of Sutherland, similar to those which occur in the Lower Silurian rocks of North America.

He was a Fellow, and served the office of President of the Royal Physical Society of Edinburgh.

In 1868 Peach was elected an Associate of the Linnæan Society of London.

The "Neill Gold Medal" was awarded to Mr. C. W. Peach in 1874, by the Royal Society of Edinburgh, for the addition of about 20 species of *Echini*, *Medusæ*, and *Sponges* made by him to the known fauna of the British seas.

Though his long and active life had entitled him to rest both from official and scientific work, his vigorous mind and great love for science urged him to further investigations, and in the plant-bearing beds of Edinburgh, Falkirk, and Fife, he made important discoveries, not only of new forms of plant-life, but of materials which increased our knowledge of already described forms.

He died at 30, Haddington Place, Edinburgh, on February 28th, in his 86th year. His son, Mr. B. N. Peach, F.R.S.E., F.G.S., has for many years been attached to the Geological Survey of Scotland, and is the author of several important geological and palæontological memoirs.

¹ *Maclurea Peachii*, which was named after Mr. Peach, and several other forms.