

The nodule was found at Instow, in one of the clayey beds traversing the Carboniferous grits, which here occupy a nearly vertical position. I have often worked in the same locality, and during the last ten years have obtained a great number of similar nodules; but, so far, had never known them to contain any other fossils besides *Goniatites*, *Streptorhynchus crenistria*, *Spiriferæ*, and plant-remains. However, on a careful re-examination of these specimens, I detected scales belonging to the same fish upon four different fragments of rock, and on removing more of the stone, found beneath the surface scales of two other species.

A continuation of the search will, no doubt, afford further results, and I trust will enable me to describe and figure these new fossils.

NOTICES OF MEMOIRS.

I.—NOUVEAU BASSIN HOUILLER DÉCOUVERT DANS LE LIMBOURG HOLLANDAIS.—[ON A NEW COAL-FIELD IN DUTCH LIMBURG.]—A privately printed Report, by Prof. G. LAMBERT, of Louvain, dated March, 1876. Two Maps and a Plate of Sections. Abstracted and Translated by G. A. LEBOUR, F.G.S. London and Belgium.

“IN the early days of Coal-mining in Europe those portions only of the Coal-measures were made use of which cropped out at the surface, or were not overlain by more recent formations. As by degrees these portions have become exhausted, the workings have been extended beneath the newer rocks.

“It is thus that in Westphalia, Belgium, Northern France, and the North of England, the Coal area worked or known is now ten times what it was fifty years ago.

“Especially of recent years has the increase in the price of coal given rise to the most active and successful researches and explorations.

“Hence the formation of a great Coal-mining centre in the Department of the Pas-de-Calais, in France. Hence also the splendid discoveries which have been made in the northern part of the Ruhr basin. In this basin, towards the north, a new Coal-bearing zone has been determined and entered upon, not less than 15 kilometres in breadth, and to which no northern limit has yet been found. On the contrary, it appears as if the thickness and regularity of the seams increased as the workings gradually advance in that direction.¹

“The increase in thickness towards the north of the beds overlying the Coal-measures delays the establishment of collieries in this new Coal-field.

“Fortunately, these beds belong almost exclusively to the Lower Cretaceous, and consist of unctuous clayey marls, which hold very little water, are easily worked, and do not fall in; so that pits five metres in diameter can be sunk to the Coal-measures, *i.e.* 200 or 300 metres in depth, at less cost than has been incurred for several

¹ At present the breadth of this Coal-basin already proved, measured along the meridian passing through Bochum, is of about 50 kilometres.

shafts of from 50 to 100 metres in the 'couchant' district of Mons—sunk through much-fissured and open chalk, and especially through the bands of flints, with much water, which are never absent from the lower part of this chalk in Hainault.

"In the northernmost part of this new zone, and in the neighbourhood of the River Lippe, the Tertiary sands overlying the Cretaceous rocks, and the Permian Magnesian limestones which seem to occur there, will probably offer great difficulties in pit-sinking. It is, however, scarcely necessary to trouble oneself on this head, since the more easily-attainable portion is sufficient to meet the requirements of many years to come."

[Here follows a reference to some Sections given in a Plate appended to the Report. These Sections illustrate the structure of the Coal-fields of the Ruhr, of Theux, and of Durham. A Section taken from a well-known English paper shows the Coal-fields of Canobie and Plashetts, and from the context it would appear that the author regards the latter as of Coal-measure age. This is a mistake; the Coal-seams of North-west Northumberland belonging, it need scarcely be said, to the Carboniferous Limestone series.]

"A striking fact is revealed by the examination of these three sections, and by a study of the three great basins to which they relate, viz. that in these three basins the southern portion of the Coal-measures is much contorted by pressure in every direction exerted upon them during, or soon after, their formation, and prior to the deposition of newer beds.

"It follows that the southern limit of these basins is very irregular, and that at certain points lateral basins are found branching off from the principal ones, or even small circumscribed isolated basins.

"To the north, on the other hand, as is shown by the Sections of the English and French basins, there is great regularity, apparently increasing in that direction, as does also the richness of the basin.

"This fact is of great importance with regard to future explorations at points lying between these Sections; for wherever the known portions will show much dislocation, numerous changes, and high angles of dip, it will be well to explore the northern part to a great distance, in order to see whether the principal regular basin does not lie in that direction.

"From this point of view Dutch Limburg, and probably also Northern Belgium, are favourably situated for the discovery there of the prolongation of the Coal-measures.

"It is admitted that the Belgian Coal-measures are due to the same mode of formation as those of Germany and the North of England, between which they lie, and of which, in our opinion, they should be considered as forming part.

"A recent fact justifies this assertion. The prolongation of the basin of the Ruhr to the west, now well proved by the Homberg pit, on the left bank of the Rhine. And besides this, the discovery of coal at Crefeld, that is to say, much further west of the Rhine.

"This extension is moreover clearly indicated by the general strike of the encasing primary rocks.

“On looking into the matter carefully, it is easy to see, that in its westernmost part the German basin bends slightly to the south, and from what we have said above it is also easy to perceive that the basins of Stalberg and the Worm merely form the southern ridge of the great basin.”

“According to this view, the Coal-measure zone in question would extend nearly continuously from Eastern Westphalia, or from the sources of the Lippe near Paderborn, to Scotland, about 250 leagues. Compared to other neighbouring geological formations, and even to other Coal-bearing deposits, this great extension is not astonishing, since the great Carboniferous horizon of North America is worked over a distance of more than 350 leagues from E. to W.! In other words, this deposit is within reach over nearly that entire distance. With us, or in Europe, the points which are rich and easily worked, such as everything seems to show that the Dutch Limburger one will be, have hitherto been few and rather limited in extent. This is no doubt why their connexion, or the continuity of the great deposit, had never until now been clearly recognized. We may add that if the northern extension of the Belgian basin has not been inquired into before, it is because the question is of purely scientific interest, the value and extent of that part of it which was already known having easily satisfied the demand hitherto.”

[Here follow particulars as to previous trials for coal in Dutch Limburg.]

“Four borings, Nos. 1, 2, 3, and 4, have been put down at considerable distances apart, and in each case the Coal-measures with coal have been proved.”

[The accounts of these borings are then given in detail. From them the dip of the Coal-measures is inferred to be 1·16 in 100 to the North. Then comes an estimate of the area of the new Coal-field, which, according to the author, is at least 10 kilometres in breadth. In a letter to Prof. Prestwich, F.R.S., Prof. Lambert adds the following paragraph.]

“To the reasons which I have given in favour of the northern extension of the Coal-fields of Germany, France, Belgium, and England, and of their continuity, it may be added that north of the Ruhr basin at Osnabruck and at Ibbenburn (north of the Permian), well-characterized Millstone-grit occurs with seams of coal—or, better, of anthracite, dipping to the South.

“Lastly, is it reasonable to suppose that the Coal-measures running from Paderborn eastward to the Channel, and probably as far as Scotland to the West, has not a breadth proportional to its length, as is the case with all the Carboniferous formations?”

REPORTS AND PROCEEDINGS.

GEOLOGICAL SOCIETY OF LONDON.—I.—June 7th, 1876. Prof. P. Martin Duncan, M.B., F.R.S., President, in the Chair.—The following communications were read:—

1. “On British Fossil Cretaceous Birds.” By Harry Govier