JANUARY 9, 1865.

ALEXANDER WINCHELL, Esq., Professor of Geology, University of Michigan, was elected a Corresponding Member of the Society.

XVII. *Notice of the occurrence of RHIZODUS HIBBERTI in CARBONIFEROUS strata in the neighbourhood of GLASGOW.* By
MR. JOHN YOUNG.

THE earliest notice of this fossil is, so far as I am aware, in the "Natural History of Rutherglen and East Kilbride," by the Rev. David Ure, published at Glasgow in 1793, which contains (pl. xix., fig. 4) a figure of the anterior portion of a jaw with one of the frontanary teeth broken across, and three of the serial teeth. Its identification with the species under notice is confirmed by Ure's description.

Previous to the opening up of those valuable fields of blackband ironstone, which lie immediately to the north of Glasgow, the remains of *Rhizodus Hibberti* were considered to be rare in our strata. But in the working of one of these beds, termed the "lower band" of the Possil ironstones, and which lies about 428 fathoms under the "Ell" coal, there have been lately found at some of the pits at Keppoch, near Possil, more remains of this fish than have hitherto been obtained from any of the Carboniferous beds in the west of Scotland. These consist principally of teeth, with occasionally a portion of the jaw-bone and some of the plates of the head. Most of the teeth exist singly, and are found scattered promiscuously in the ironstone and the coal shale with which it is associated. They have, in most cases, been broken off close to the bone of the jaw; but this circumstance may have arisen from that portion of the tooth imbedded in the jaw being softer than the harder or more exposed portion, which is, I think, proved by the fact that when any portion of the base of these teeth is preserved, they are, in general, crushed quite flat.

Some of the teeth of *Rhizodus Hibberti* from the Possil ironstone measures four and a half inches in length, and one and a quarter

inches in breadth above the bone of the jaw, and must have belonged to a large and formidable fish. No large fragments of either the internal skeleton, or the outer covering of scales, have yet been found in this locality. The other fossils hitherto yielded by the Possil beds, consist of nearly perfect specimens of some of the smaller genera of coal-fishes, such as *Palæoniscus*, *Amblypterus*, and *Acanthodes*, together with very large examples of *Lingula squamiformis*, and one or two other marine shells, *Entomostraca* and plants. In the upper ironstone of the Possil series, the remains of *Rhizodus Hibberti* have also been found, but they are rare in that position; they also occur further to the north of Glasgow, in the lower limestone series of the Campsie district at Craigenglen, the Linn of Baldernock, and at Castlehill, Barriston, but the specimens found are of a smaller size than those from the Possil pits. At Castlehill they occur in clayband ironstone, along with fragmentary remains of other fishes. Some of the scales from this locality, when broken across, show very finely the different layers of bone of which the plates and scales are built up.

The remains of *Rhizodus Hibberti* occur in the Carluke district, and at one or two other localities in Lanarkshire and Ayrshire, but do not seem to be abundant; and although possessing a considerable range in our Carboniferous Limestone, I am not aware of their being common in our Upper Coal measures—all the specimens I have seen being from the former group. The species of *Rhizodus* common to our higher coal beds are, *Rhizodus sauroides* and *Rhizodus granulatus*. In the east of Scotland, *Rhizodus Hibberti* is very common in the Burdie-house limestone, near Edinburgh, and in one or two localities in the Fifeshire coal-field: but no perfect examples have yet been found, so that its general form is unknown; it is supposed, however, to have resembled somewhat the *Holoptychius* of the Old Red Sandstone. Among the teeth from the Possil ironstones, there are slight variations in form, some being more robust than others, some, again, more curved; but I do not think these variations are sufficient to warrant any specific distinctions.

XVIII. Mr. JAMES THOMSON exhibited—

A slab of shale from the Upper Carboniferous series, Watston, Stonehouse, Lanarkshire, containing several of the cranial bones,