

walls of buildings, or from quarries, where the commencement of atmospheric action can be traced.

MANCHESTER, 31st May, 1869.

D. MACKINTOSH.

TEETH OF *CLIMAXODUS*, FROM THE COAL MEASURES.

SIR,—I again venture to trouble you with a few remarks on the rare Coal-measure fish *Climaxodus*, about which, so far as I have been able to ascertain, nothing whatever is known beyond the fact of its having possessed teeth of a very peculiar form.

On page 496 of the GEOLOGICAL MAGAZINE (November, 1868), there appears a figure of the first specimen of *Climaxodus* discovered by me in the shale of Newsham Colliery, Northumberland, and at page 42 (January, 1869), reference is made to three additional specimens from the same Colliery. Since those communications appeared I have found four specimens of *Climaxodus*, three of which closely resemble the figure just referred to, but one appears sufficiently distinctive in its form to justify its being erected into a new species. In size it very closely resembles that which I named *Climaxodus ovatus*, but in its general outline, and especially in the ridges which traverse its surface, it is remarkably unlike any specimen I have previously found or examined. I propose for it the specific name *vermiformis*, as descriptive of its leading peculiarity, viz. the possession of vermiform ridges across its surface. *Climaxodus vermiformis*, is from the Low Main Coal Shale, Newsham Colliery, Northumberland.

General character: Tooth longer than wide, gradually narrowing towards the posterior extremity, the crown crossed by vermiform, irregularly bent, transverse ridges at right angles to its length; the surface somewhat rough and granular.

*Climaxodus vermiformis*, sp. nov. The specimen is nearly perfect, a fragment of the posterior extremity being absent; the length of the specimen is six-eighths of an inch, the width at the broadest part is also six-eighths, and the narrow posterior end is four-eighths of an inch wide; the crown is crossed by three very irregular vermiform ridges, the second ridge being excessively bent, at one part of its course it approaches the first ridge within one-sixteenth of an inch, and at another part it is four-sixteenths of an inch from it; the third ridge is imperfect, but the portion that remains indicates that it also crossed the crown of the tooth in a tortuous manner, the crests of the ridges on the crown of the tooth are nearly on the same level, and the spaces between each ridge are deeply concave; the surface of the bone forming the tooth, when seen by means of a microscope, presents a shimmering lustre, although the tooth, when examined by the naked eye, appears perfectly black. The tooth is attached to a thin plate of bone, and the curve of the plate supporting the tooth is sigmoidal and resembles that of *Climaxodus ovatus*, a specimen of which may be seen in the British Museum by anyone who is desirous of an acquaintance with the teeth of this obscure Carboniferous fish.

T. P. BARKAS.

NEWCASTLE-ON-TYNE, June 11th, 1869.