all around, and the very broad central area occupied by irregular, more or less elongated reticulations. Thus the scale comes to closely resemble those of the Mormyridæ. As it now seems evident that the ancestors of the Teleosteans must have had reticulated scales, or at least that the ordinary radial sculpture is derived from the reticulated type, this *Moxostoma* scale must be regarded as uniquely primitive or atavistic for the general group to which it belongs.

3. Dr. G. A. Boulenger has very kindly sent me scales of the cæciliid amphibian *Ichthyophis glutinosus.* These are very small, embedded in the skin, cycloid in form. The pattern is extremely characteristic, consisting of concentric grooves connected at intervals by cross-lines, the whole effect being like that of bricks in a wall. The concentric grooves are probably not circuli, nor can I make out anything corresponding to the circuli of fishes. In parts of the scales, however, the markings become irregular, producing a reticulation which closely simulates that of the reticulate-scaled fishes. I believe that the scales are really comparable to fish-scales, and that the sculpture is the same as the radial sculpture of fishes. No fish scale has been seen resembling in detail that of *Ichthyophis;* such scales as those of *Chrosomus* are superficially similar, but owe their circular lines to different elements.[1]

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NOTES ON THE GENUS TYPHA AND ITS NEMATODE ROOT GALL—HETERODERA RADICICOLA (GREEFF) MULL.

DURING the summer of 1908, while investigating some problems connected with the root system of *Typha latifolia,* I found a number of abnormal growths on the rootlets. These growths appeared as irregularly spherical or fusiform enlargements, varying in size from 1 to 5 mm. in diameter. They were identified by Professor Atkinson as root galls caused by the nematode *Heterodera radicicola.* I have collected these galls at the same station (limnology station of Cornell University) three successive years, but have never found them on *Typha* in any other locality.

Professor Atkinson[1] thought, from his observations of this worm on potatoes and tomatoes, that, if favorable opportunity should occur for its introduction in the north, it might become a pest. Webber and Orton[2] say it will never become a serious pest in the north, as severe cold kills the worm. Van Hook[3] reports the worm as wintering in ginseng beds which had been mulched and also in protected forest beds. This worm has been a serious pest to ginseng in the north.

Stone and Smith[4] found the galls on outdoor plants, but concluded that they were transient.

The plants observed by me in the Cayuga marshes are located along the shore line of one of the arms of Fall Creek where moisture is plentiful in the soil all winter. Winter observations prove that the soil in which the galls are found does not freeze. None of the galls have been found more than eighteen inches below the surface.

L. N. HAWKINS

[1] Since this was written, I have found that a deep-sea eel, *Synaphobranchus pinnatus,* has scales curiously similar to those of *Ichthyophis.*

CORRELATION NOTES

IN describing the fauna of the Moorefield shales of Arkansas[1] Mr. George H. Girty lists and describes the following fossils among others from the region: *Productus inflatus* var. *coloradoensis* Girty (?),[2] *Productus arkansanus* var. *multiliratus* Girty,[3] and *Diaphragmus elegans* Norwood and Pratten.[4] By a comparison of the figures of these fossils on plate iv.[5] with fossils which the writer collected

[1] Bull. 9, Alabama Exp. Sta.

[2] U. S. Dept. Agr., Bur. Plant Ind., Bull. 17, 1902.

[3] Cornell Agr. Exp. Sta., Bull. 219, 1904.

[4] Bull. 55, Mass. Agr. Exp. Sta., 1898.

[1] "The Fauna of the Moorefield Shale of Arkansas," U. S. Geol. Survey, Bulletin No. 439.

[2] *Ibid.,* pp. 42–43.

[3] *Ibid.,* p. 43.

[4] *Ibid.,* pp. 51–52.

[5] *Ibid.,* plate iv.