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"A Method for the Investigation of Fossils by Serial Sections." By W. J. Sollas, D.Sc., LL.D., F.R.S., Professor of Geology and Palæontology in the University of Oxford. Received May 19,—Read June 11, 1903.

(Abstract.)

Mechanical difficulties preclude the study of fossils by serial thin slices, but serial polished surfaces may be obtained at any desired degree of proximity, and these, when the fossil and its matrix offer sufficient optical contrast, serve most of the purposes of thin slices. They may be photographed under the microscope, so as to furnish a trustworthy and permanent record. The sections may be used to obtain reconstructions of the fossil in wax. Several fossils have been successfully studied in this way: such as *Palæospondylus Gunni*, *Ophiura Egertoni*, *Lapworthura Miltoni*, *Monograptus priodon* and *Palæodiscus ferox*. The sections are obtained at regular intervals, usually of 0·025 mm., by means of an apparatus designed for the purpose by the Rev. F. Jervis-Smith, F.R.S., Reader of Mechanics in the University.

"An Account of the Devonian Fish, *Palæospondylus Gunni*, Traquair." By W. J. Sollas, D.Sc., LL.D., F.R.S., Professor of Geology and Palæontology in the University of Oxford, and Igerna B. J. Sollas, B.Sc., Lecturer in Zoology, Newnham College Cambridge. Received May 19,—Read June 11, 1903.

(Abstract.)

This fossil, which has been variously referred to an alliance with Lampreys, Tadpoles, and Lung-fish, has been successfully studied by means of serial sections. The ventral surface of the head bears four pairs of branchial bars, with the last of which two post-branchial plates, the so-called "post-occipital" plates, are associated; in front of the branchial bars are two pairs of structures, which are regarded as representing the lower jaw and hyoid; they are supported by a