

deposit of the Lower Silurian rocks. And it is in the upper part of this lowest member of the system that the ichthyic defences, announced in 1847 by Professor Sedgwick, occur. Vertebrate remains have now been detected in the same relative position in the *seventh* and *most ancient* member of the system, that they were found to occupy in its *first* and *most modern* member ten years ago. But this is not all. Beneath the Lower Silurian division there occur vast fossiliferous deposits, to which the name "Cambrian System" was given, merely provisionally, by Sir Roderick, but which Professor Sedgwick still retains as representative of a distinct geologic period; and it is in these, greatly below the Lower Silurian base line, as drawn in 1839, that the Bala Limestones occur. The Plynlimmon rocks (*a*)—a series of conglomerate, grauwacke, and slate beds, several thousand yards in thickness—intervene between the Llandeilo Flags and the Limestones of Bala, (*b*.) And, of consequence, the defensive spine of the *Onchus*, announced in 1847 as detected in these limestones by the geologists of the Government Survey, must have formed part of a fish that perished many ages ere the oldest of the Lower Silurian formations *began* to be deposited.

Let us now, after this survey of both the amount of our materials, and the order and time of their occurrence, pass on to the question of size, as already stated. Did the ichthyic remains of the Silurian System, hitherto examined and described, belong to large or to small fishes? The question cannot be altogether so conclusively answered as in the case of those Ganoids of the Lower Old Red Sandstone whose dermal skeletons indicate their original dimensions and form. In fishes of the Placoid order, such as the Sharks and Rays, the dermal skeleton is greatly less continuous and persistent