

In the northeast of Ireland a broad belt of Silurian rocks, crossing from the southwest of Scotland, runs from the coast of Down into the heart of the counties of Roscommon and Longford. It is marked by the same graptolitic zones that occur in Scotland. The Glenkiln shales with their typical Llandeilo graptolites are found to the south of Belfast Lough, while the Hartfell shales with their Caradoc fossils have also been observed.⁸³ The richest fossiliferous localities among the Irish Silurian rocks are found at the Chair of Kildare, Portrane near Dublin, Pomeroy in Tyrone, and Lisbellan in Fermanagh, where small protusions of the older rocks rise as oases among the surrounding later formations. Portlock brought the northern and western localities to light, and Murchison pointed out that, while a number of the trilobites (*Trinucleus*, *Phacops*, *Calymene*, *Illænus*), as well as the simple plated *Orthidæ*, *Lep-tænæ*, and *Strophomenæ*, some spiral shells, and many *Orthocerata*, are specifically identical with those from the typical Caradoc and Bala beds of Shropshire and Wales, yet they are associated with peculiar forms, first discovered in Ireland, and very rare elsewhere in the British Islands. Among these distinctive fossils he cited the trilobites, *Remopleurides*, *Harpes*, *Amphion*, and *Bronteus*, with smooth forms of *Asaphus* (*Isotelus*), which, though abundant in Ireland and America, had seldom been found in Wales or England, and never on the continent.⁸⁴ In the southeast of Ireland a large tract of Silurian rocks extends through the counties of Wicklow, Wexford, and Waterford. In this area also the Llandeilo and Caradoc graptolitic zones occur. Even as far south as the southern coast-line of Waterford black shales continue the physical aspect of the Glenkiln shales, and contain some of the same graptolites. We have thus evidence that the black carbonaceous mud in which these graptolites lived spread over the sea-floor for a distance of at least 300 miles.

b. Upper Silurian

Wales and Shropshire.—This series of rocks occurs in two very distinct lithological types in the British Islands.

⁸³ W. Swanston, *Trans. Belfast Nat. Field Club*, 1876-77. Lapworth, *Ann. Mag. Nat. Hist.* iv. 1879, p. 424.

⁸⁴ "Siluria," p. 174. The upper portion of the Pomeroy section has yielded Llandovery graptolites, so that the strata there are partly Lower and partly Upper Silurian.