

whole is that of a larch twig in early summer, when the minute and tender cones, possessed of all the beauty of flowers, first appear along its sides.

Among conifers of the Pine and Araucarian type we mark the first appearance in this system, in at least Scotland, of the genus *Thuja*. One of the Helmsdale plants of this genus closely resembles the common Arbor Vitæ (*Thuja occidentalis*) of our gardens and shrubberies. It exhibits the same numerous slim, thick-clustered branchlets, covered over by the same minute, sessile, scale-like leaves; and so entirely reminds one of the recent *Thuja*, that it seems difficult to conceive of it as the member of a flora so ancient as that of the Oolite. But not a few of the Oolitic plants in Scotland bear this modern aspect. The great development of its Cycadaceæ,—an order unknown in our Coal Measures,—also forms a prominent feature of the Oolitic flora. One of the first known genera of this curious order,—the genus *Pterophyllum*,—appears in the Trias. It distinctively marks the commencement of the Secondary flora, and intimates that the once great Palæozoic flora, after gradually waning throughout the Permian ages, and becoming extinct at their close, had been succeeded by a vegetation altogether new. At least one of the Helmsdale forms of this family is identical with a Yorkshire species already named and figured,—*Zamia pectinata*: a well-marked *Zamia* which occurs in the Lias of Eathie appears to be new. Its pinnate leaves were furnished with a strong woody midrib, so well preserved in the rock, that it yields its internal structure to the microscope. The ribbon-like pinnæ or leaflets were rectilinear, retaining their full breadth until they united to the stem at right angles, but set somewhat awry; and, like several of the recent *Zamiæ*, they were striped longitudinally with cord-like lines. (Fig. 133.) Even the mode of decay of this *Zamia*, as shown by the abrupt termination of its leaflets, exactly resembled that of its existing