

as Cambrian, must now be relegated to the pre-Cambrian series (ante, p. 1168). Above the quartzite and shales which include the *Olenellus*-zone there lies a series of limestones which attain an aggregate thickness of about 1500 feet. Their original upper limit, however, cannot now be ascertained, for it has been concealed by the great dislocations which have so complicated the structure of that region (see Figs. 311, 334). We cannot tell what additional thickness of limestone may have been accumulated in the northwest at the time when only mud, silt and sand were deposited over the southern parts of the British area, nor by what kind of sediment the limestones were succeeded. The limestones are most fully developed around Durness in the extreme northwest of Sutherland, where they have yielded a large number of fossils. The facies of these fossils, however, is so peculiar that it has not yet been possible by their means to correlate the rocks containing them with the Cambrian formations of Wales. The limestones are so crowded with worm-casts that, as Mr. Peach has pointed out, nearly every particle of their mass must have passed through the intestines of worms. Hence they are obviously of detrital origin, and were probably formed in chief part by small pelagic animals. Only one coral has been found in them. The most abundant fossils are chambered shells (*Orthoceratites*, *Lituites*, *Nautilus*); next in number are gasteropods (chiefly *Maclurea* and *Pleurotomaria*), while the lamellibranchs and brachiopods come last. The bivalves have their valves still united, and the lamellibranchs retain the positions in which they lived. "All the specimens show that every open space into which the calcareous mud could gain access, and the worms could crawl, is traversed by worm-casts. In the case of the *Orthoceratites*, they seem to have lain long enough uncovered by sediment to allow the septa to be dissolved away from the siphuncles which they held in place; many of these siphuncles are now found isolated." Sponges of the genus *Calathium* are scattered through the calcareous sediment, and likewise the doubtful but characteristic Cambrian forms, known as *Archæocyathus*, which, once referred to the sponges, are now thought to be more probably allied to the madrepores. The general assemblage of fossils, as was originally pointed out by Salter, is of a distinctly North American type, and does not resemble that found in the slates, flags, and grits of Wales. The conditions of deposit must have been so entirely different that a great contrast in the organisms of the two areas of sedimentation could not