

§ 98. Not having stratigraphic evidence of the relation of the Georgia or Middle Cambrian fauna and the Paradoxides or Lower Cambrian fauna, other than that they occur in the same area and are not in the same stratum of rock, we turn to the fauna to aid in the settlement of the question.

Of the 32 genera of the American Paradoxides horizon, 15 pass up into the Olenellus horizon, viz: Arenicolites, Protospongia, Archæocyathus?, Eocystites?!, Lingulella, Acrotreta, Acrothele, Kutorgina, Orthis, Stenotheca, Hyolithes, Agnostus, Microdiscus, Solenopleura, and Ptychoparia. Of these, Arenicolites, Protospongia, Lingulella, Kutorgina, Acrotreta, Orthis, Hyolithes, Stenotheca, Agnostus, Microdiscus?, and Ptychoparia continue on up into the Potsdam or Upper Cambrian horizon, leaving but four genera that are common to the Middle and Lower Cambrian horizons. One genus, Dendrograptus, is doubtfully identified in the Paradoxides horizon of New Brunswick, and occurs in the Upper Cambrian, but is, as yet, unknown in the Middle Cambrian. The genus Agraulos is also found in the Lower and Upper, but not in the Middle Cambrian. Of species, not one of the 64 of the American Lower Cambrian fauna are known to occur in the Middle Cambrian fauna, which, with its 107 species, stands out clearly from the older fauna and also from the more recent Potsdam fauna, as but 3 of its species, *Protospongia fenestrata*, *Stenotheca elongata*, and *Acrotreta gemma*, are known to be common to them; and 16 of the genera in the Middle Cambrian are not known to pass up into the Potsdam or into the Lower Silurian (Ordovician) fauna. Not one species is known to be common to the Lower and Upper Cambrian horizons.

GENERAL PALEONTOLOGIC CHARACTERS OF THE FAUNA.

PLANTÆ.

§ 99. Owing to the obscure character of the two species of *Pakeophycus*, it is difficult to say that they were not formed by filling in of worm borings or the trails of some annelid or mollusk. *Cruziana* I now believe to have been a fucoid, and hope soon to present the reasons for the belief, as a beautiful series of specimens was obtained from the Upper Cambrian strata of the section in the Grand Cañon of the Colorado, Arizona.

SPONGIÆ.

§ 100. The sponges of the Middle Cambrian bid fair to form one of the important elements of the fauna, as they now include 5 genera and 10 species, and the collecting at Silver Peak, one of the most prolific localities in Nevada, has been of a superficial character. *Etmophyllum profundum* grows to a large size and is, as described by Prof. Alpheus Hyatt, the reef builder of its time. (Science, vol. vi, p. 386, 1885.) *Archæocyathus Atlanticus*, another prolific form, has a wide geographic range, as we find it both in Labrador and Nevada.