

physical conditions of the unconformity that a great period of erosion existed whose duration might readily have permitted of the deposition of the great series of strata that occur below the Upper Cambrian, over the area of Utah and Nevada. I now think that in the Grand Cañon section the Middle Cambrian and the Lower Cambrian were periods of erosion, and not represented in the section, and that the 4,000 or 5,000 feet of limestone of the Eureka and Highland sections and the detrital sediments of the Wasatch section are the deposits accumulated in the sea of the Great Basin area when the area of the Grand Cañon was a land surface. The latter was of considerable extent, as essentially the same section as that of the Grand Cañon of the Colorado occurs in Llano County, Central Texas, and in Minnesota and Wisconsin.

§ 88. The strata of the older series of the Grand Cañon section are in a remarkable condition of preservation, considering their geologic age. In the Chuar formation, or the upper 6,000 feet, limestones and argillaceous shales alternate, that lithologically resemble the Trenton limestone and Utica shales of the New York section. The party-colored shales of the lower 700 feet recall the friable clays of the Permian. In fact, there is no evidence of the great age of these strata in their physical aspect, as they might be taken quite as readily for the friable and unchanged strata of the Trias and Cretaceous series of Southern Utah. The lower 6,000 feet are sandstone, with interbedded lava flows toward the upper portion. Ripple marks and mud cracks abound in many of the layers, but not a trace of a fossil or the trail of a mollusk or annelid was seen.

§ 89. Midway of the lower portion of the shales and limestones of the overlying Chuar strata the presence of a fauna is shown by a minute Discinoid or Patelloid shell, a small Lingula-like shell, a species of Hyolithes, and a fragment of what appears to have been the pleural lobe of the segment of a trilobite belonging to a genus allied to the genera *Olenellus*, *Olenoides*, or *Paradoxides*. There is also an obscure *Stromatopora*-like form that may or may not be organic. The fauna, as given above, is very unsatisfactory, but it shows the presence of a fauna that is Cambrian in character, as far as we know, although it may be a trace of a fauna preceding that of the Lower Cambrian of the Atlantic border; and as the stratigraphic evidence favors this view I do not think we can consider it of Cambrian age.

§ 90. The fourth section of the table is that of Georgia, Vt. While the Potsdam horizon is probably present, it is not certainly known in the section. The section is represented on the same proportional scale as Nos. 1, 2, and 3, although we fully appreciate the fact that a much thinner series of strata in one locality may represent the same relative period of deposition in another area where the accumulation of sediment was very much greater. When we attempt in the future to corre-