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strata, not characterized by the presence of fossils, as are stratigraphically and structurally connected with Cambrian strata identified by organic remains.

Professor Geikie, in the last edition of his Manual of Geology (1885, p. 65), has included the Cambrian as a subdivision of the Silurian system. I do not now wish to question the wisdom of this for the geologic section as it occurs in England and the Continent; but of the presence of a well-defined geologic system beneath the Lower Silurian (Ordovician) strata characterized by the Second fauna of Barrande, or the Trenton fauna (including the Upper Calciferous) on the North American continent, there is little doubt. The geologic sections, given in this paper, show that it has a total thickness of over 18,000 feet and contains a known fauna of 92 genera, including 393 species; that but very few of these species pass up into the Calciferous horizon of the Lower Silurian (Ordovician), and that the faunas of the two systems are so distinct in their general facies and also in detail, that they are quite as readily separated as the Lower and Upper Silurian, Silurian and Devonian, or Devonian and Carboniferous faunas. There is no doubt that in certain areas the faunas of the Cambrian and Lower Silurian (Ordovician) systems are intermingled in the passage beds between the two systems, but the same is more or less true of all the great divisions of the entire geologic series, from the Archean to the Quaternary.

Strata of the Cambrian System.

In beginning the study of the Cambrian system, I looked for well-defined Paleontologic horizons with relation to which the various local sections and their contained faunas could be compared. It was evident that the Potsdam faunas of New York and the Mississippi Valley were at or near the summit of the Cambrian, but further than that there was little data. Mr. E. Billings called the Georgia or Olenellus fauna "Lower Potsdam," and considered the Paradoxides fauna as of older date : but, as late as 1885, one of our best-known paleontologists wrote: "my own impression, at the present, is that the New York typical Potsdam is about equivalent to the lower portion of the Wisconsin areas, and that the Acadian beds of Canada and Vermont, and perhaps the other Atlantic areas, are not appreciably different in age, but that the difference in faunes is more the result of conditions upon which life depended than a difference in time." (Bull. Amer. Mus. Nat. Hist., vol. i, p. 140, 1885.)

The results of the study of the Middle Cambrian faunas will appear in Bulletin 30, of the U.S. Geological Survey, and I have taken much of the data of this paper from the introduc-