

II. PALEOZOIC TIME.

SUBDIVISIONS.

The higher subdivisions of Paleozoic time are as follows:—

1. *Eopaleozoic Section.*

- I. CAMBRIAN ERA.
- II. LOWER SILURIAN ERA.

2. *Neopaleozoic Section.*

- I. UPPER SILURIAN ERA.
- II. DEVONIAN ERA.
- III. CARBONIC ERA.

Paleozoic time is naturally divided into two sections at the break between the Lower and Upper Silurian. This boundary line is marked in the history by an epoch of mountain-making in eastern North America and western Europe, and by a somewhat abrupt transition in the animal life of the seas. These sections are here named by using prefixes to the term paleozoic derived from the Greek *ἠώς*, *dawn*, and *νέος*, *new*.

The first of these sections, the *Eopaleozoic*, was characterized by the fact of almost universal seas over the continental area, and of universal marine life, and also by the more specific Paleozoic fact, that marine Invertebrates, or the species of the inferior division of the Animal Kingdom, were displayed under nearly all their grander types before the close of this section of Paleozoic time; and also that the highest division of the Animal Kingdom, Vertebrates, was represented by species of the inferior type of Fishes.

The second of the sections, the *Neopaleozoic*, was characterized by the gradually increasing extent of dry land over the continental area, and the covering of the emerged surface with land plants, and finally with great forests; and also by the multiplication of terrestrial species of animal life among Invertebrates, and finally among Vertebrates. With the progress of the era, Cryptogams, plants of the lower division of the Vegetable Kingdom, reached their culmination in grade, size, and diversity of kinds; and the superior division of the Vegetable Kingdom, Phænogams, was represented by species of the inferior type of Gymnosperms.

The Eopaleozoic section was, biologically, following Agassiz's method of designation, the time of the Reign of the Invertebrates, and prominently of Trilobites; the Neopaleozoic, in its Upper Silurian and Devonian eras, the time of the Reign of Fishes, and in the Carbonic era, that of the Reign of Amphibians.

The first real progress in correlating the Paleozoic rocks of North America and Europe was made through the labors of the geologists of the survey of the State of New York, and those of Murchison, Sedgwick, De Verneuil, and others abroad. But, in this