

## EXPLANATION OF THE FIGURES.

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**FRONTISPIECE.**—The diagram opposite the title page is intended to present, at one view, the distribution of the principal types of animals, and the order of their successive appearance in the layers of the earth's crust. The four Ages of Nature, mentioned at page 221, are represented by four zones, of different shades, each of which is subdivided by circles, indicating the number of formations of which they are composed. The whole disk is divided by radiating lines into four segments, to include the four great departments of the Animal Kingdom; the Vertebrates, with Man at their head, are placed in the upper compartment, the Articulates at the left, the Mollusks at the right, and the Radiates below, as being the lowest in rank. Each of these compartments is again subdivided to include the different classes belonging to it, which are named at the outer circle. At the centre is placed a figure to represent the primitive egg, with its germinative vesicle and germinative dot, (278,) indicative of the universal origin of all animals, and the epoch of life when all are apparently alike, (275, 276.) Surrounding this, at the point from which each department radiates, are placed the symbols of the several departments, as explained on page 155. The zones are traversed by rays which represent the principal types of animals, and their origin and termination indicates the age at which they first appeared or disappeared, all those which reach the circumference being still in existence. The width of the ray indicates the greater or less prevalence of the type at different geological ages. Thus, in the class of Crustaceans, the Trilobites appear to commence in the earliest strata, and to disappear with the carboniferous formation. The Ammonites also appeared in the Silurian formation, and did not become extinct before the deposition of the Cretaceous rocks. The Belemnites appear in the lower Oolitic beds; many forms commence in the Tertiary; a great number of types make their appearance only in the Modern age; while only a few have continued from the Silurian, through every period to the present. Thus, the Crinoids were very numerous in the Primary Age, and are but slightly developed in the Tertiary and Modern Age. It is seen, at a glance, that the Animal Kingdom is much more diversified in the later than in the earlier Ages.

Below the circle is a section, intended to show more distinctly the relative position of the ten principal formations of stratified rocks (461) composing the four great geological ages; the numerals corresponding to those on the ray leading to Man, in the circular figure. See also figure 154.