

these, when connected by means of five smaller osculant groups, compose the whole province of Zoölogy.' Now these smaller osculant groups are to be viewed as circles, for, as it is elsewhere stated, 'every natural group is a circle, more or less complete.' This, in fact, is the third general principle of Mr. McLeay's system, and he has exemplified his meaning of a natural group in the above diagram, where all animals are arranged under five large groups or circles, and five smaller ones. Let us take one of these groups, the Vertebrata: does that form a circle of itself? Yes; because it is intimated that the Reptiles (*Reptilia*) pass into the Birds, (*Aves*), these again into the Quadrupeds, (*Mammalia*), Quadrupeds unite with the Fishes, (*Pisces*), these latter with the amphibious Reptiles, and the Frogs bring us back again to the Reptiles, the point from whence we started. Thus, the series of the vertebrated group is marked out and shown to be circular; therefore, it is a natural group. This is an instance where the circular series can be traced. We now turn to one where the series is imperfect, but where there is a decided tendency to a circle: this is the Mollusca. Upon this group our author says, 'I have by no means determined the circular disposition to hold good among the Mollusca; still, as it is equally certain that this group of animals is as yet the least known, it may be improper, at present, to conclude that it forms any exception to the rule; it would even seem unquestionable that the Gasteropoda of Cuvier return into themselves, so as to form a circular group; but whether the Acephala form one or two such, is by no means accurately ascertained, though enough is known of the Mollusca to incline us to suspect that they are no less subjected, in general, to a circular disposition than the four other great groups.' This, therefore, our author considers as one of those groups which, without actually forming a circle, yet evinces a disposition to do so; and it is therefore presumed to be a natural group. But, to illustrate this principle farther, let us return to the circle of Vertebrata. This, as we see by the diagram, contains five minor groups, or circles, each of which is again resolvable into five others, regulated precisely in the same way. The class Aves, for example, is first divided into rapacious birds, (*Raptores*), perching birds, (*Insessores*), gallinaceous birds, (*Rasores*), wading birds, (*Grallatores*), and swimming birds (*Natatores*); and the proof of this class being a natural group is, in all these divisions blending into each other at their confines, and forming a circle. In this manner we proceed, beginning with the higher groups, and descending to the lower, until at length we descend to genera, properly so called, and reach, at last, the species; every group, whether large or small, forming a circle of its own. Thus there are circles within circles, 'wheels within wheels,'—an infinite number of complicated relations; but all regulated by one simple and uniform principle,—that is, the circularity of every group."