

6. *Classification hereby placed on a dynamical or sthenic basis.*—The laws of cephalization, as is apparent from the explanations which have been made, are based upon the idea that an animal is centralized force; and that the degree of concentration of this force may be exhibited in the structure; that, consequently, the various grades of species or groups become apparent, to some extent, through size and form, and their determination is thus, in part, a matter of simple measurement. Dimensions or spatial conditions have a relation to force in the animal kingdom as well as in that of the celestial spheres.

Rank or grade are thus brought to the rule and plummet, and classification, thereby, has a dynamical basis. The distinctions between groups have a dynamical or sthenic character, and all subdivisions in classification, when thoroughly understood, will have recognized sthenic relations.

It must, however, be kept in mind that the element of *size*, when used in the application of the principle, or as a mark of superiority, is not *absolute* size. For it is one of the laws of life that vegetative growth may enlarge a weak life-system to gigantic dimensions. Thus, the life-system of an Entomostracan takes great magnitude in a *Limulus*; of a Tetradeapod, in a female *Bopyrus*; of an Edentate, in a *Megathere*; of a Mutilate, in a Whale. The body of a Crab has 50 times the dimensions of that of an Insect; and its head probably 100 times that of the head of an Insect, although an Insect is the superior species.

Neither is mere muscular strength an indication of grade; for there is force used in sustaining the structure which is greater the higher the organism, and, superior to this, there is sensorial and other cephalic force. Were we to base our comparison between the grade of life-system in a Crab and that of a Bee on the ground of muscular strength, we should go far astray; and still wider from the mark, were we to rely on the relative sizes of the cephalic nervous masses; for this nervous mass in a common Crab (*Maia squinado* of European seas) has 25 to 30 times the bulk of that in a Bee. Man yields in size and muscular strength not only to the higher *Megasthenes*, but to the Whales or lowest; and the brain in the Elephant and the Whale outweighs his. The *Megathere*, although much more powerful than a Rodent, has not, on this account, as his structure and habits show, any claims to a place above the lowest of *Microsthenes*.

The terms *Megasthenes* and *Microsthenes* are not to be understood as signifying large Mammals and small Mammals, but Mammals of *strong life-system* and *weak life-system*. Comparing the typical species of *Megasthenes*^{*} with those of *Microsthenes*,

^{*} These orders of Mammals, (see last volume of this Journal, page 70, and page 342, beyond), make parallel series—the Chiropters or Bats of the *Microsthenes* representing the Quadrumanes of the *Megasthenes*, the Insectivores representing the Carnivores, the Rodents the Herbivores, and the Edentates the Mutilates.