

the Hymenoptera, he remarks that the Fleas are far more uniform in shape and size than the Hymenoptera, and therefore, according to the criterion mentioned, ought to be placed *first* among the *A*pipens; apparently unaware that in this bit of logic the criterion referred to is made *superior* to all others, or the most decisive of grade, and not perceiving, therefore, that the *reductio ad absurdum*, intended for the principle criticised, attaches to the critic himself. Again, by a similar misuse of the criterion connected with prehensile anterior limbs, and additional misunderstandings already alluded to, he arrives at other absurdities. In the same way he might assume that, because great length of antennæ is one of the marks of low grade,—the Macrurans (Lobsters, Shrimps, &c.,) showing by this character, as I have stated, their inferiority to Brachyurans (Crabs),—therefore Insects ought to be arranged according to length of antennæ; which would of course make very heterogeneous assemblages. Or he might next make abdomens or tails the grand criterion, (this characteristic being also set down as a mark of grade), with a like result. By thus assuming successively that each criterion is superior in value to the others, all may be run into the ground; a feat of no great prowess in logic or science.

While long antennæ and long abdomens are among the marks of that decentralization or decephalization which distinguishes the Macrurans from the Crabs, some of the higher Macrurans have, relatively to size of body, longer antennæ than the lower; and there are hundreds of Tetracapods and Entomostracans, still inferior species, that have relatively to length of body, far shorter antennæ, and shorter abdomens too, than the Macrurans. There are, in all such cases, characters to be considered of higher value before we come down to that level where length of antennæ, or of abdomen, is decisive as a mark of grade.

7. As Nature is yet an unfathomed deep, our systems must have their imperfections and uncertainties, and we our difficulties in applying principles that have been ascertained. Examples of such difficulties from the subject of cephalization have been alluded to in the preceding remarks; and here is another.

Large size in species, as all know, is sometimes a mark of superior grade. The fact is pressed upon our attention by familiar facts, as well as by the general relations in mean size of high and low types among animals. Vertebrates are larger than Insects or Worms, Insects than Infusoria, Beasts than Birds, etc.

But, again, large size is sometimes, also, accordant with, and a mark of, inferior grade. Man is smaller than his inferior the Lion; the Lion is smaller than its inferior the Hippopotamus; the Hippopotamus than its inferior the Whale; the Crab than its inferior the Lobster; the Echinus than its inferior a large