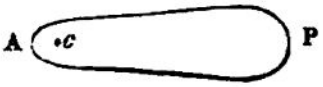
http://www.geology.19thcenturyscience.org/books/1863-Dana-ClassAnim/README.htm

The following figures serve in a similar rude way to illustrate the condition of the force in the three subdivisions of Decapod Crustaceans; figure 3, in the Crab, which has the abdomen (the part so large in the lobster) almost wanting and very feeble, and the systemic center (*c*) very close to the front margin; fig. 4, in the Shrimp which has the body prolonged before and behind, but especially in the latter direction, the posterior portion or abdomen being of great size and powerful as an organ of motion; fig. 5, in certain species of the Squilla group, in which the cephalothorax is weak, its appendages feeble, the abdomen 2 or 3 times as long as the anterior part of the body and relatively to the cephalothorax far more powerful than in the Lobster or Shrimp. Other classes of animals afford similar illustrations.

3.

4.



There are probably no characters connected with the structure, growth and habits of an animal that have not something to reveal with reference to grade, under this principle of cephalization. To read the truth, especially among the lower subdivisions of a class, the families, genera, species, may often require profound study, and even a higher stage of science than the world has now attained to. But the necessity of profound study, when knowledge below the surface is sought for, is not peculiar to this department of nature.

I repeat, then—cephalization does not "consist in a transfer of members" one way or another, but is *manifested* by the whole animal structure within and without.

2. Our objector says that this character of cephalization "really appears to be of high systematic value in Crustacea"; but, as the neuration of the wings is a good characteristic in one group of Insects and not in an another, so it is not necessarily good in other animals.

This comparison of the principle of cephalization, the origin of a host of characteristics, with the single superficial one *from the neuration of the wings*, is in accordance with the misquotation making cephalization to consist in a transfer of members, &c.

The laws of cephalization pertain to the elemental forces of the organism, or the fundamental nature of animal life, as much as the laws of attraction to the fundamental nature of a molecule; and, therefore, if true of one branch of the Animal Kingdom, they must be true of all. Yet the exhibition of these laws in the structure will be widely different, as the structures themselves are various in character. They cannot be precisely the same in footless Worms as in Crustaceans; or in Crustaceans as in In-