

CHAPTER VIII.

COMPARATIVE PHYSIOLOGY OF THE NERVOUS SYSTEM.

§ 1. *Nervous Systems of Invertebrated Animals.*

OUR knowledge of the exact uses and functions of the various parts which compose the nervous system, and especially of its central masses, is unfortunately too scanty to enable us to discern the correspondence, which undoubtedly exists, between the variations in the functions and the diversities in the organization. The rapid review which I propose to take of the different plans, according to which the nervous system is constructed in the several classes of animals, will show that these central masses are multiplied and developed in proportion as the faculties of the animal embrace a wider range of objects, and are carried to higher degrees of excellence.

In none of the lowest tribes of Zoophytes, such as *Sponges*, *Polypi*, and *Medusæ*, have any traces of organs, bearing the least analogy to a nervous system, been discovered; not even in the largest specimens of the last named tribe, some of which are nearly two feet in diameter. All these animals give but very obscure indications of sensibility; for the contractions they exhibit, when stimulated, appear to be rather the effect of a vital property of irritability than the result of any sensorial faculty. Analogy, however, would lead us to the belief that many of their actions are really prompted by sensations and volitions, though in a degree very inferior to those of animals higher in the scale of being; but whatever may be their extent, it is probable that the sensorial operations in these animals take place without