

CONSCIOUSNESS

the higher associational activity of the brain, the formation of judgments and their connection into chains of reasoning, thought, and consciousness in the narrower sense, are developed in them after the same fashion as in man: they differ only in degree, not in kind. Moreover, we learn from comparative anatomy and histology that the intricate structure of the brain (both in general and in detail) is substantially the same in the mammals as it is in man. The same lesson is enforced by comparative ontogeny with regard to the origin of these psychic organs. Comparative physiology teaches us that the various states of consciousness are just the same in these highest placentals as in man; and we learn by experiment that there is the same reaction to external stimuli. The higher animals can be narcotized by alcohol, chloroform, ether, etc., and may be hypnotized by the usual methods, just as in the case of man.

It is, however, impossible to determine mathematically at what stage of animal life consciousness is to be first recognized as such. Some zoologists draw the line very high in the scale, others very low. Darwin, who most accurately distinguishes the various stages of consciousness, intelligence, and emotion in the higher animals, and explains them by progressive evolution, points out how difficult, or even impossible, it is to determine the first beginning of this supreme psychic faculty in the lower animals. Personally, out of the many contradictory theories, I take that to be most probable which holds *the centralization of the nervous system* to be a condition of consciousness; and that is wanting in the lower classes of animals. The presence of a central nervous organ, of highly developed sense-organs, and an elaborate association of groups of presentations,