

The earlier physiologists concerned themselves almost wholly with the functions of man and mammals; and even now the physiology of the lower animals lags far behind, and that of plants still further. It was in the hands of Johannes Müller (1801-1858) that comparative physiology fairly began. A genius beyond doubt, and with the widest of interests, he was especially distinguished by the ease with which he turned from one method to another in seeking to solve a problem. Now he would appeal to physics and again to psychology, here he sought the chemist's aid and there the embryologist's; he tried all methods to gain his end. In showing how animals of high and low degree shed light upon one another, he founded comparative physiology, and gave a new dignity to zoology.

One is somewhat ashamed to speak of the advance of comparative physiology, for so little has been securely achieved. It is only in contrast to the ignorance of the subject in pre-Darwinian days that what has been done in the Victorian era appears great.

There are various reasons why comparative physiology lags so far behind comparative anatomy. There are the intrinsic difficulties of the subject, for the lower we descend in the animal kingdom the more baffling is the study of function, morphological simplicity implying physiological complexity. As Prof. Foster has said: "Physiology is, in its broad meaning, the unravelling of the potentialities of things in the condition which we call living. In the higher animals the evolution by differentiation has brought these potentialities, so to speak, near the surface, or even laid them bare as actual properties capable of being grasped. In the lower animals they still lie deep buried in primeval sameness; and we may grope among them in vain unless we have a clue furnished by the study of the higher animal." The history of the science shows a passage from man to animal, from higher animal to lower animal, and, most tardily of all, from animal to plant.

Another difficulty is consequent on specialization. The