

might, and who "provided him with the subject-matter of his severest as well as of his most justifiable sarcasms."¹

The great extension of the morphological or structural view of nature into distant time and space—into palæontology by Cuvier and Owen, into geography by Humboldt, Ritter, and others—*i.e.*, morphology on an extensive scale—led to an appreciation of the labours of a different class of students of nature, namely, those who—also on a large or a smaller scale—investigated the agencies which bring about and the laws which govern the change of forms. I have now to mention the last great contribution to the purely morphological view, I mean the cellular theory, which tended ultimately in a similar direction.

45.
The cellular
theory.

The earlier researches into the minute microscopic structure of organised beings—such as those of Malpighi and Grew in the seventeenth century—were conducted by persons who took an equal interest in animal and plant life.² But this class of research soon fell into the hands of specialists, with the result that anatomy, the science of animal structure, and phytotomy, that of vegetable structure, were conducted on different lines

¹ Huxley, 'Life of Owen,' vol. ii. p. 315.

² Carus ('Gesch. der Zoologie,' p. 395) mentions especially Malpighi (1628-1694) as an exception, inasmuch as he conducted his researches from a purely scientific interest, keeping them free from extraneous practical considerations. "In his anatomy of plants there are laid, moreover, the first foundations, more firmly established by all sub-

sequent researches, of the doctrine of the composition of all organised bodies out of cells, which has given to the whole conception of the living creation a definite starting-point, and in the sequel a firm basis for the genetic view." See also on the same subject, and on the relation of structural and physiological researches in the seventeenth and eighteenth centuries, Sachs, 'Gesch. d. Botanik,' p. 351, &c.