

said to be a German science as chemistry has been named a French science. I have already referred to the great Haller in the last century, who may be called the father of physiology; to Blumenbach, the comparative anatomist; and to Liebig and Wöhler, who first among chemists succeeded in producing an organic compound by the processes of inorganic chemistry. I have now to add two names, which together mark a great revolution in our ideas of the structure of organisms, and link together the two sciences which had treated separately of the animal and vegetable worlds. About the year 1838 Mathias Schleiden¹ propounded his cellular theory con-

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Cellular
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Treviranus (1776-1837), a learned physician of Bremen, who began to write his 'Biologie oder Philosophie der lebenden Natur' in 1796 and to publish it in 1802 (6 vols., 1802-22). Lamarck used the word in his 'Hydrogéologie,' 1801. They, as well as Bichat about the same time, independently "conceived the notion of uniting the sciences which deal with living matter into one whole, and of dealing with them as one discipline" (Huxley, on the study of Biology, 1876, in 'American Addresses,' p. 136, &c.) The term, though of German origin, has not found favour in that country, and after having been used officially in France and England, makes its appearance in Germany only since the great works of the modern English school, headed by Darwin, have gained so much influence in Germany. In the meantime the biological sciences had been extensively represented at the German universities by chairs of physiology, zoology, botany, &c. According to Huxley, biology has been "substituted for the old confusing name of natural history," and "denotes the whole of the sciences which

deal with living things, whether they be animals or whether they be plants" (*loc. cit.*, p. 138). It can be divided into three branches — (1) Morphology, which comprises the sciences of anatomy, development, and classification; (2) the science of the distribution of living beings, present and past; and (3) physiology, which deals with the functions and actions of living beings, and tries to "deduce the facts of morphology and of distribution from the laws of the molecular forces of matter" (Huxley, 'Lay Sermons,' &c., p. 83, 1864). To these three Huxley adds ('Ency. Brit.,' art. "Biology") the infant science of "etiology," which "has for its object the ascertainment of the causes of the facts of biology and the explanation of biological phenomena, by showing that they constitute particular cases of general physical laws" (p. 688).

¹ Mathias Jacob Schleiden (1804-81), for some time Professor of Botany at Jena, was a man of peculiar ability and disposition, combining a philosophical mind with exact knowledge and a general literary taste, not frequently