

the "Physiological Division of Labour," the happy expression invented by the great French zoologist, Henri Milne-Edwards.

"Division of
Physiological
Labour."

Whilst Liebig was working at the great problems of the economy of life, and making chemistry subservient to the interests of agriculture, physiology, and pathology; another influence was exerted—mainly in Germany—on the study of the processes which take place in the living organism. This influence had its source in an application of the principles of dynamics and the more modern teachings of physics.¹ It emanated from two distinct centres—from Leipzig, where the brothers Weber² taught how to

¹ In many passages of his interesting and brilliant "Addresses" Du Bois-Reymond has dwelt on the great revolution which came over physiological studies about the middle of the century, characterising it as a special German achievement. Claude Bernard has given us an interesting account of a corresponding, but not identical, change of ideas in the great medical schools of Paris. Quite recently Sir Michael Foster has created in this country an interest in the history of medicine, notably of physiology, and has on various occasions given us masterly summaries of the results of his historical research. I may refer specially to his very lucid and fascinating monograph on Claude Bernard (London, 1899, in Fisher Unwin's 'Masters of Medicine' Series). Another authority in modern physiology, Prof. M'Kendrick of Glasgow, has treated in a companion volume of Helmholtz, dwelling mainly on his physiological labours, based upon his brilliant application of physics and mathematics. The two monographs exhibit very clearly two distinct influences which have been at work

in remodelling the science of physiology and the conceptions of the phenomena of life.

² Regarding the position and influence of the three brothers Weber, I may refer to former passages of this history (vol. i. p. 196; vol. ii. chap. vi. *passim*). The greatest of the three—Ernst Heinrich Weber (1795-1878)—occupies a unique position in the development of the "science of life" in Germany. He seems never to have come under the influence of the then prevalent "philosophy of nature," and he had accordingly, unlike Liebig and Johannes Müller, nothing to unlearn. See on this point Du Bois-Reymond's *Éloge* of Müller in 'Reden' (vol. ii. p. 216), also Ludwig's *Éloge* of Weber (Leipzig, 1878, p. 10). Weber represents in the purest form the influence which physics, based upon experiment and measurement, had upon the development of the study of organic form and function, as Liebig represents in the purest form the influence of chemical research and reasoning. In this respect Liebig was more nearly related to the Paris school, Weber to the Berlin school, which he greatly influenced.