which declares that the differences of the sensations of light and colour, of sound, of touch, &c., do not depend upon the mode of irritation, nor even upon the different structure of the specific nerves, but upon the nature of the central sense organ. In the school of Müller the phenomena of voltaic electricity, which had been so seductive and misleading to an earlier school of physiologists not experienced in the methods of exact research, were again subjected to scientific investigation, and led to the brilliant researches with which the name of Du Bois-Reymond is so intimately connected. He is as ready as Helmholtz, who in his two great works on physiological optics and musical acoustics has founded new branches of science,[1] to acknowledge the leadership of Johannes

[1] Helmholtz (1821-95), equally celebrated as physiologist and mathematical philosopher, was educated under the influence of Johannes Müller on the one side, of Jacobi and the Königsberg school of mathematicians (Bessel and Neumann) on the other. If we add to this that he also made a profound study of those far-reaching speculations which originated in the philosophy of Kant, we realise how rare is the combination of ability and knowledge which he has brought to bear on the discussion of the most advanced problems in physics, biology, and psychology. In the sequel I shall have to refer so frequently to his writings that I confine myself here to giving the date of his principal, his epoch-making publications: 1847. 'Ueber die Erhaltung der Kraft'; 1858. 'Ueber die Integrale der hydrodynamischen Gleichungen, welche der Wirbelbewegung entsprechen' — both reprinted in 'Wissenschaftliche Abhandlungen,' Leipzig, 1882 and 1883, 2 vols. These two Memoirs may be considered as corner-stones of two of the most important modern theories in physical science, the "conservation of energy" and the "theory of vortex motion." In both, the name of Helmholtz is intimately allied with that of William Thomson (Lord Kelvin). Equally important and more comprehensive have been his researches in the physiology and psychology of sense-perceptions in his 'Physiologische Optik,' Leipzig, 1867; 'Lehre von den Tonempfindungen,' Braunschweig, 1863.

Helmholtz has also contributed largely to the discussion of two very important branches of modern speculation—first, the theoretical views on the nature of electrical phenomena expressed by the opposite conceptions of Wilhelm Weber in Germany and Faraday in England; second, the origin of geometrical axioms, especially the axiom referring to parallel lines. A great interest in this subject had been