

self made a very important application of it, by bringing it into connection with Young's colour theory. But before I refer to this, it will be well to note the different lines of research which were opened out by Müller's formula, and how they have led in many ways to very fruitful expansion of natural knowledge. In this respect it is indeed permissible to compare Müller's formula with that of gravitation, which, as we saw above, through the different ideas which it introduced, helped to guide research for fully a century. Müller in the original statement of his views had made use of the term "specific energy," and had applied this term to the process or sense of sight: he spoke of the seeing substance or apparatus of sight. Now this apparatus is a complicated one, consisting mainly of three parts—the external or

edition of his great work on Physiological Psychology in 1872. See the note on p. 332, vol. i., of the 4th German edition (1893). Wundt says (p. 331): "Historically, the doctrine . . . is to be traced to the fact that the philosophical foundation of modern science, and especially of the science of sensation, rests on Kant. In fact, that doctrine is nothing else than a physiological reflexion of Kant's attempt to find the conditions of knowledge which are given *a priori*, or, what was mostly considered to be the same, subjectively. This is very evident in the case of a foremost representative of that doctrine—viz., Johannes Müller." In opposition to Müller and his school, Lewes and Wundt put forward a view which has been termed the doctrine of indifference of the function of the nervous elements. The difference between the two views is very clearly stated in an excellent paper by E.

Montgomery in the fifth volume of 'Mind' (1880): "According to the doctrine of functional indifference, the various qualities—*i.e.*, our well-known sensations—are merely due to differences in the stimulating rhythm, to differences, therefore, of motion communicated from outside to the chemically uniform nerve-substance, and the whole complex make-up of our consciousness is, consequently, thought to result from the coexistence and subsequent combination of such stimulated motions. According to the doctrine of specific energies, the varieties of sensation are due to pre-existing differences in the substratum in which they respectively arise, and all their manifold combinations to higher products are believed to be realised in materially higher—*i.e.*, specifically pre-endowed—ranges of nervous substratum" (p. 4).