

phenomena, such as correlation, heredity, regression and panmixia, and he has shown how to analyse these graphical tracings so as to indicate the several possible elements out of which they are compounded, representing separate agencies which are at work in nature. The mathematical inventions of Fourier had similarly enabled physicists to analyse the complicated periodicity of tidal curves into their elements, and, under the hands of Ohm and Helmholtz, to resolve the harmonies of music.

We have here arrived at the last stage of the development of the statistical view of nature. It has been variously judged by biologists according to the special views they take of their problems, and also according

ity of variation" (p. 568). Mr Bateson expects great assistance from the statistical methods. "There is," he says, "no common shell or butterfly of whose variations something would not be learnt, were some hundreds of the same species collected from a few places and statistically examined in respect of some varying character. Any one can take part in this class of work, though few do" (p. 574). Notwithstanding the general resemblance noted above between the ideas of Mr Bateson and of Prof. Pearson, they differ so much in detail as to be led to confess that they do not understand one another's languages. Cf. W. Bateson, "Heredity, Differentiation, and other Conceptions of Biology," 'Roy. Soc. Proc.,' vol. lxix. pp. 193-205; K. Pearson, "On the Fundamental Conceptions of Biology," 'Biometrika,' vol. i. pp. 320-344. Prof. Pearson's view is that, for the working out of the theory of evolution, "biological conceptions can be accurately defined, and so defined measured with quantita-

tative exactness" (*loc. cit.*, p. 324). Mr Bateson, on the other hand, regards them as to some extent out of the reach of mathematical definition and measurement. "Discontinuous variation" in Mr Bateson's special sense—by which we may perhaps understand great as distinguished from small but numerous deviations from the average—Prof. Pearson regards as "statistically negligible for the purpose of vital statistics" (pp. 333, 334). He, in fact, holds closer to Darwinism as understood by Darwin, who never looked with much favour on Huxley's view, for example, that "sports," as distinguished from the sum of small differences in individuals, might furnish an appreciable part of the materials for natural selection. Mr Bateson's view found favour with Huxley, as may be observed in the 'Life and Letters.' On the novelty and value of Prof. Pearson's methods, see also the Address by Prof. Weldon to the Zoological Section of the British Association in 1898.