http://geology.19thcenturyscience.org/books/1906-Merz-HistEurThot/README.htm

biological research.[1] He has thus put into the hands of naturalists an instrument wherewith to describe graphically the observed facts of variation and other allied

[1] A considerable literature has already accumulated in this novel branch of exact inquiry. The complete list of it is given in a pamphlet by Georg Duncker, entitled 'Die Methode der Variationsstatistik' (Leipzig, 1899). From this list (p. 60) it will be seen that one of the earliest workers in the field of biological statistics was the botanist F. Ludwig, whose 'Abschnitte der Mathematischen Botanik' have appeared in various periodicals abroad since the year 1883. The philosopher, however, to whom we are most indebted for the mathematical foundations of the whole theory, is, as noted above, Prof. Karl Pearson, whose "Contributions to the Mathematical Theory of Evolution" have been appearing since the year 1893 in the Trans. of the Royal Society. Very helpful abstracts of these contributions, covering a large field of mathematical theory, and containing elaborate discussions of many of the terms recently introduced into biological science, such as regression, reversion, inheritance, panmixia, selection, &c., will be found in the Proceedings of the Royal Society (1893, onwards). Also in his collected essays, 'The Chances of Death and other Studies in Evolution' (2 vols., 1897); and, lastly, in the later chapters of the second edition of his 'Grammar of Science' (1890). From the latter it will be seen what far-reaching inferences may eventually be drawn from the quantitative treatment and mathematical discussion of biological data; notably the results so far gained "lead us to consider variation as a permanent attribute of living forms, which can hardly have been substantially modified since the beginnings of life. In the same manner we find heredity intimately associated with variation in the individual, and not differing very substantially as we pass from one character to a second, or from one to another form of life. We conclude that variation and inheritance rather precede than follow evolution; they are, at present, *one* fundamental mystery of the vital unit" (p. 502). Prof. Pearson, whose training was that of a mathematician and a lawyer, approached the problems of biology from the exact point of view, and it is interesting to see how, in many ways, he comes to results similar to those arrived at by one of the other great representatives of modern biological research, Mr Wm. Bateson. See his 'Materials for the Study of Variation, treated with especial regard to the discontinuity in the Origin of Species' (1894). If I understand him rightly, his researches have led him to the conclusion that variation cannot be the work of natural selection, since he has given "such evidence as to certain selected forms of variations" as to afford "a presumption that the discontinuity of which species is an expression has its origin, not in the environment, nor in any phenomenon of adaptation, but in the intrinsic nature of organisms themselves, manifested in the original discontinuity of variations" (p. 567). This "disposes, once and for all, of the attempt to interpret all perfection and definiteness of form as the work of selection. . . . It suggests, in brief, that the discontinuity of species results from the discontinu-