

gether of multitudes of cases, each of which is by no means uniform with the others. . . . Much light may be thrown on some of these questions by the consideration of stability and instability. When the state of things is such that an infinitely small variation of the present state will alter only by an infinitely small quantity the state at some future time, the condition of the system, whether at rest or in motion, is said to be stable; but when an infinitely small variation in the present state may bring about a finite difference in the state of the system in a finite time, the condition of the system is said to be unstable. It is manifest that the existence of unstable conditions renders impossible the prediction of future events, if our knowledge of the present state is only approximate and not accurate. It has been well pointed out by Prof. Balfour Stewart that physical stability is the characteristic of those systems from the contemplation of which determinists draw their arguments, and physical instability that of those living bodies, and moral instability<sup>1</sup> that of those developable souls which furnish to consciousness the conviction of free-will."<sup>2</sup>

<sup>1</sup> There is an awkward misprint in the first edition of 'The Life,' which is corrected in the second edition.

<sup>2</sup> Clerk - Maxwell frequently reverts to this subject. In an article on "Molecules," contributed to the ninth edition of the 'Ency. Brit.' (reprinted in 'Scientific Papers,' vol. ii.), he contrasts historical and statistical knowledge as follows (p. 373): "The modern atomists have adopted a method which is, I believe, new in the department of

mathematical physics, though it has long been in use in the section of statistics. When the working members of Section F (of the Brit. Assoc.) get hold of a report of the census, or any other document containing the numerical data of economic and social science, they begin by distributing the whole population into groups according to age, income-tax, education, religious belief, or criminal convictions. The number of individuals is far too great to allow of their tracing the