

him to be decisive in favor of that theory which makes light to consist in the vibrations of an elastic medium.

(219.) Theories are best arrived at by the consideration of general laws; but most securely verified by comparing them with particular facts, because this serves as a verification of the whole train of induction, from the lowest term to the highest. But, then, the comparison must be made with facts purposely selected, so as to include every variety of case, not omitting extreme ones, and in sufficient number to afford every reasonable probability of detecting error. A single numerical coincidence in a final conclusion, however striking the coincidence or important the subject, is not sufficient. Newton's theory of sound, for example, leads to a numerical expression for the actual velocity of sound, differing but little from that afforded by the correct theory afterwards explained by La Grange, and (when certain considerations not contemplated by him are allowed for) agreeing with fact; yet this coincidence is no verification of Newton's view of the general subject of sound, which is defective in an essential point, as the great geometer last named has very satisfactorily shown. This example is sufficient to inspire caution in resting the verification of theories upon any thing but a very extensive comparison with a great mass of observed facts.

(220.) But, on the other hand, when a theory will bear the test of such extensive comparison, it matters little how it has been originally framed. However strange, and, at first sight, inadmissible, its postulates may appear, or however singular it may seem that such postulates should have been fixed upon,—if they only lead us, by legitimate reasonings, to conclusions in exact accordance with numerous observations purposely made, under such a variety of circumstances as fairly to embrace the whole range of the phenomena which the theory is intended to account for,—we cannot refuse to admit them; or if we still hesitate to regard them as demonstrated truths, we cannot, at least, object to