

little prospect there is that, in our investigation of nature, we shall ever be able to arrive at a knowledge of ultimate causes, and will teach us to limit our views to that of *laws*, and to the analysis of complex phenomena by which they are resolved into simpler ones, which, appearing to us incapable of further analysis, we must consent to regard as causes. Nor let any one complain of this as a limitation of his faculties. We have here "ample room and verge enough" for the full exercise of all the powers we possess; and, besides, it does so happen, that we are actually able to trace up a very large portion of the phenomena of the universe to this one *cause*, viz. the exertion of mechanical *force*; indeed, so large a portion, that it has been made a matter of speculation whether this is not the only one that is capable of acting on material beings.

(79.) What we mean by the analysis of complex phenomena into simpler ones, will best be understood by an instance. Let us, therefore, take the phenomenon of sound, and, by considering the various cases in which sounds of all kinds are produced, we shall find that they all agree in these points:—1st, The excitement of a motion in the sounding body. 2dly, The communication of this motion to the air or other intermedium which is interposed between the sounding body and our ears. 3dly, The propagation of such motion from particle to particle of such intermedium in due succession. 4thly, Its communication, from the particles of the intermedium adjacent to the ear, to the ear itself. 5thly, Its conveyance in the ear, by a certain mechanism, to the auditory nerves. 6thly, The excitement of sensation. Now, in this analysis, we perceive that two principal matters must be understood, before we can have a true and complete knowledge of sound:—1st, The excitement and propagation of motion. 2dly, The production of sensation. These, then, are two other phenomena, of a simpler, or, it would be more correct to say, of a more general or elementary order, into which the complex phenomenon of sound resolves itself. But again, if we consider the communication of motion from body to