are not the invention of philoſophers ; and we muſt not expect preciſion, even in the ſimpleſt caſes. Our me­thods of expreſſing the information given us by our different ſenses are not ſimilar, as a philoſopher, cautiouſly contriving language, would make them. We have no word to expreſs the primary or generic object of our ſenſe of seeing ; for we believe, that even the vulgar conſider light as the medium, but not the object. This is certainly the caſe (how juſtly we do not ſay) with the philoſopher. On the other hand, the words ſmell, ſound, and perhaps taſte, are conceived by moſt perſons as expreſſing the immediate objects of the ſenfes of ſmelling, hearing, and taſting. Smell and ſound are haſtily conceived as ſeparate exiſtences, and as mediums of information and of intercourſe with the odoriferous and sounding bodies; and it is only the very cautious philoſopher who diſtinguiſhes between the ſmell which he feels and the perfume which fills the room. Thoſe of the ancients, therefore, who taught that sounds were beings waited through the air, and felt by our ears, ſhould not, even at this day, be conſidered as aukward obſervers of nature. It has required the long, patient, and ſagacious conſideration of the moſt penetrating geniuſes, from Zeno the stoic to Sir Iſaac Newton, to diſcover that what we call ſound, the *immediate* external object of the lense of hearing, is nothing but a particu­lar agitation of the parts of ſurrounding bodies, acting by mechanical impulſe on our organs; and that it is not any ſeparate being, nor even a ſpecific quality inherent in any particular thing, by which it can affect the or­gan, as we ſuppoſe with reſpect to a perfume, but merely a mode oſ exiſtence competent to every atom of matter. And thus the deſcription which we propoſed to give of ſound muſt be a deſcription of that ſtate of external contiguous matter which is the *cause* of ſound. It is not therefore prefatory to any theory or ſet of doctrines on this ſubject ; but, on the contrary, is the ſum or reſult of them all.

To diſcover this ſtate of external body by which, without any farther intermedium of subſtance or of ope­ration, it affects our ſenſitive faculties, muſt be consi­dered as a great ſtep in ſcience. It will ſhow us at leaſt one way by which mind and body may be con­nected It is ſuppoſed that we have attained this know­ledge with reſpect to ſound. Our ſucceſs, therefore, is a very pleaſing gratification to the philoſophic mind. It is ſtill more important in another view : it has encou­raged us to make ſimilar attempts in other caſes, and has ſupplied us with a fact to which an ingenious mind can eaſily fancy ſomething analogous in many abſtruſe operations of nature, and thus it enables us to give ſome fort of explanation of them. Accordingly this uſe has been moſt liberally made of the mechanical theory of ſound ; and there is now ſcarcely any phenomenon, ei­ther of matter or mind, that has not been explained in a manner ſomewhat ſimilar. But we are ſorry to ſay that theſe explanations have done no credit to philoſo­phy. They are, for the moſt part, ſtrongly marked with that precipitate and ſelf-conceited impatience which has always characteriſed the inveſtigations con­ducted ſolely by ingenious fancy. The conſequences of this procedure have been no less fatal to the progreſs of true knowledge in modern times than in the ſchools of ancient Greece ; and the ethereal philoſophers of this age, like the followers of Ariſtotle of old, have filled

ponderous volumes with nonlenſe and **error. It is** ſtrange, however, that this ſhould be the effect of a great and a ſucceſsful ſtep in philoſophy; But the fault is in the philoſophers, not in the ſcience. Nothing can be more certain than the account which Newton has given of the propagation of a certain claſs of undula­tions in an elaſtic fluid. But this procedure of nature cannot be ſeen with diſtinctneſs and preciſion by any but well-informed mathematicians. They alone can reſt with unſhaken confidence on the concluſions legiti­mately deduced from the Newtonian theorems ; and even they can inſure ſucceſs only by treading with the moſt ſcrupulous caution the ſteps of this patient philo­ſopher. But few have done this ; and we may venture to ſay, that not one in ten of thoſe who employ the Newtonian doctrines of elaſtic undulations for the explanation of other phenomena have taken the trouble, or indeed were able, to go through the ſteps of the fun­damental proposition (Prin. II. 50, &c.) But the *ge­neral* reſults are ſo plain, and admit of ſuch impreſſive illuſtration, that they draw the aſſent of the moſt careleſs reader ; and all imagine that they underſtand the explanation, and perceive the whole procedure of na­ture. Emboldened therefore by this ſucceſsful ſtep in philoſophy, they, without heſitation, *fancy* ſimilar inter­mediums in other caſes; and as air has been found to be a vehicle for ſound, they have ſuppoſed that ſome­thing which they call ether, ſomehow reſembling air, is the vehicle of viſion. Others have proceeded farther, and have held that ether, or another ſomething like air, is the vehicle of ſenfation in general, from the organ to the brain : nay, we have got a great volume called **A** Theory of Man, where all our ſenſations, emotions, affections, thoughts, and purpoſes or volitions, are said to be ſo many vibrations of another ſomething equally unſeen, gratuitous, and incompetent ; and, to crown all, this exalted doctrine, when logically proſecuted, muſt terminate in the discovery of thoſe vibrations which pervade all others, and which conſtitute what we have been accuſtomed to venerate by the name Deity. Such *must* be the termination of this philoſophy ; and a truly philoſophical diſſertation on the attributes of the Divine Being c*an be nothing else* than an accurate deſcription of theſe vibrations !

This is not a needleſs and declamatory rhapsody. If the explanation of ſound can be legitimately transferred to thoſe other claſſes of phenomena, theſe are certain reſults; and if ſo, all the diſcoveries made by Newton are but the glimmerings of the morning, when compa­red with this meridian ſplendor. But if, on the other hand, sound logic forbids us to make this transference of explanation, we muſt continue to believe, for a little while longer, that mind is ſomething different from vi­brating matter, and that no kind of oſcillations will conſtitute infinite wiſdom.

It is of immenſe importance therefore to underſtand thoroughly this doctrine of ſound, that we may ſee clearly and preciſely in what it conſiſts, what are the phenomena of sound that are fully explained, what are the data and the aſſumptions on which the explanations proceed, and what is the *precise mechanical fact* in which it terminates. For this, or a fact perfectly ſimilar, muſt terminate every explanation which we derive from this by analogy, however perfect the analogy may be. This *previous* knowledge muſt be **completely poſſeſſed by** eve-