

effect of their remoteness, while among those very stars are some whose actual splendor exceeds by many hundred times that of the sun itself, although we may not deny the truth of the assertion, we cannot but feel the keenest curiosity to know *how* such things were ever made out.

(18.) The foregoing are among those results of scientific research, which, by their magnitude, seem to transcend our powers of conception. There are others, again, which, from their minuteness, would appear to elude the grasp of thought, much more of distinct and accurate measurement. Who would not ask for demonstration, when told that a gnat's wing, in its ordinary flight, beats many hundred times in a second? or that there exist animated and regularly organized beings, many thousands of whose bodies, laid close together, would not extend an inch? But what are these to the astonishing truths which modern optical inquiries have disclosed, which teach us that every point of a medium through which a ray of light passes is affected with a succession of periodical movements, regularly recurring at equal intervals, no less than five hundred millions of millions of times in a single second! that it is by such movements, communicated to the nerves of our eyes, that we see—nay, more, that it is the *difference* in the frequency of their recurrence which affects us with the sense of the diversity of color; that, for instance, in acquiring the sensation of redness, our eyes are affected four hundred and eighty-two millions of millions of times; of yellowness, five hundred and forty-two millions of millions of times; and of violet, seven hundred and seven millions of millions of times per second!* Do not such things sound more like the ravings of madmen than the sober conclusions of people in their waking senses?

(19.) They are, nevertheless, conclusions to which any one may most certainly arrive, who will only be at

* Young. Lectures on Nat. Phil. ii. 627. See also Phil. Trans 1801-2.