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LIGHT.

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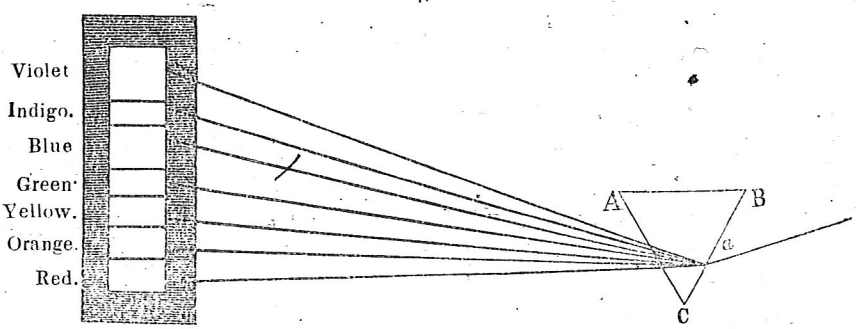
It has been well observed, by an able writer, that it is impossible to trace the path of a sunbeam through our atmosphere without feeling a desire to know its nature, by what power it traverses the immensity of space, and the various modifications it undergoes at the surfaces and in the interior of Terrestrial substances.

To Sir I. Newton is the world indebted for proving the compound nature of a ray of white light emitted from the sun. experiment may be repeated by any server. If, in a dark room, a beam of l be admitted through a small hole in shutter, it will form a white round spo the place on which it falls: if a triang prism of glass be placed on the inside of shutter, so that the beam must pass thro it, on leaving the glass it has no longer same direction, nor does it form a r spot, but an oblong painted image of s colors, red, orange, yellow, green, blue digo, and violet. This is called the spectrum.



[A, B, C, represents the prism: *a* the ray of light entering the prism; the bending or refraction place as it passes through, and the shaded parallelogram represents the spectrum with the colored of various breadth.]

Newton supposed these rays to be exceedingly minute particles of matter thrown off from the sun in all directions and with immense velocity, which, by touching the optic nerves, produced light: many of the phenomena of light may be explained by this view; but there are some which cannot, and this, in modern times, has led to the adoption preferably of a theory broached by Huygheus, termed the *Undulatory* theory. To understand this fully, it must be assumed that a subtle ether, very rare and elastic, pervades the whole universe, being present in the heavenly spheres, the atmosphere, and within the pores of the densest body in nature. The sun and other luminous bodies, owing to peculiar vibratory movements within their substance, throw the ether around them into corresponding vibrations, which are thence conveyed along from one particle of ether to another, and excite the sensation of light by vibrating on the retina, just as hearing is caused by pulses of the air beating against the of the ear.

In the traveling of light, the indiv particles of ether or air have a very li range of motion; the office of each pa is to impart to its neighbor the im which it has received, and it is the im and not the particle which travels. impulses do not excite the sensation of unless they recur with a certain frequ and on that frequency may depend th rious *colors*. Thus, violet is due t most frequently recurring impulses, th to the least frequent, and the other t the spectrum in proportion. When a ber of ethereal impulses of different fre cy touch the same point of the retina same time, white light is produced. T impulses may be called waves, and res waves in water; they increase in len proportion as the time increases