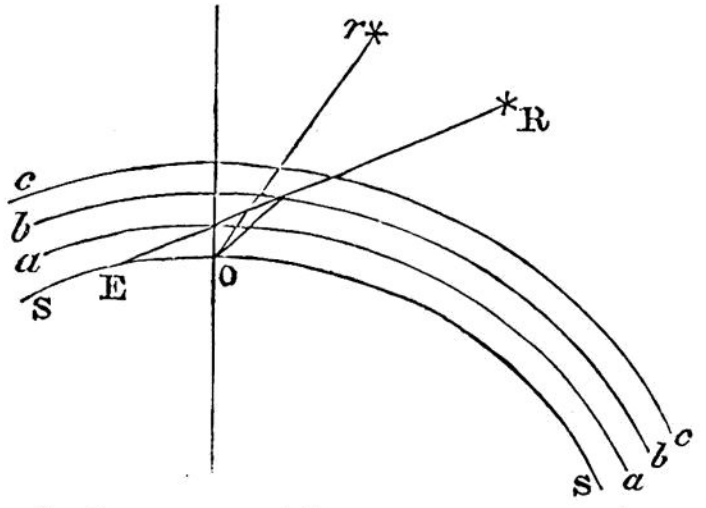
producing the present illuminated condition of the earth's surface. If there were no atmosphere, the solar light could only illuminate that spot on which it actually fell, and all beyond it would be enveloped in impenetrable gloom, for the straying rays reflected by terrestrial substances could only throw an uncertain light around the edge of the spot on which they fell; but by the diversion of the solar rays, in consequence of repeated atmospheric reflection, the light is scattered abroad, the gloom which would have been otherwise produced is dissipated, and we behold Nature in all her most splendid teints.

But as heat is blended with light, so this repeated reflection must tend to raise the temperature of the atmosphere, which in some cases acts as a conductor, and heat is carried from clime to clime on the wings of the wind. The temperature of a mass of air resting upon a spot of the earth's surface is then in some degree regulated by the amount of reflected light which it receives, for calorific rays are blended with the luminous, and are equally capable of reflection.

Many of the phenomena observed around and above us are results of refraction. The earth is surrounded by an ocean of gas, in which it is, as it were, floating; and this body of elastic fluid has a great effect upon light, bending the rays out of their course, and causing all celestial phenomena and bodies to appear in a false situation. This effect would be produced if the atmosphere had uniform density throughout,



but its density increases with its nearness to the surface of the earth, and consequently a ray of light is more and more refracted from the moment it enters the atmosphere until it reaches the earth.