Imagine that we stand on any ordinary seaside pier, and watch the waves rolling in and striking against the colums of the pier. Large blue waves pay little attension to those columns - they divide right and left and unite after passing each column, much as a army of soldiers would if a tree stood in their path: it is almost as though the columns had not been there. But the short waves and ripples find the columns of the pier a much more formidable obstacle. When the short waves impinge on the columns, they are sent back and spread as new ripples in all directions. The obstical provided by the iron columns hardly affects the long waves at all, but scatters the short ripples.

We have been watching a sort of working model of the way in which sunlight struggles through the earth's atmosphere. Between us on earth and outer space the atmosphere interposes innumerable obstacles in the form of molecules of air, tiny droplets of water, and small particles of dust. These are represented by the columns of the pier.

The waves of the sea represent the sunlight. We know that the sunlight is a blend of lights of many colors - as we can prove for ourselves by passing it through a prism, or even through a jug of water, or as Nature demonstrates to us when she passes it through the raindrops of a summer shower and produces a rainbow. We also know that light consists of waves, and that the different colors of light are produced by waves of different lengths, red light by long waves and blue light by short waves. The mixture of waves which constitutes sunlight has to struggle through the obstacles it meets in the atmosphere, just as the mizture of waves at the seaside has to struggle past the columns of the pier. And these obstacles treat the light-waves much as the columns of the pier treat the waves. The long waves which constitute red light are hardly affected, but the short waves which constitute blue light are scattered in all directions.