THEORIES OF LIGHT.

IN physical nature and its multitude of varied phenomena, the author of all things has furnished for man's most careful study and profound comtemplation, an inexhaustible subject. So true is this, and so well has it been realized, especially in modern times, that many of our greatest minds and deepest philosophers have given their exclusive attention to that part of philosophy. Now experience shows that by a great number of men, the actual or physical causes of many phenomena are almost totally ignored. In fact, so familiar do we become with ordinary occurrences, that we take them as a matter of course, and facts which have given great difficulties to men of science, are daily observed by us with indifference. At the present time scientific research has penetrated so far beneath the surface of things, that essays of a scientific character must deal with the latest developments in the intricate subdivisions of the science. In these works there are generally so many technicalities involved and so much previous knowledge of the subject supposed, that they are practically unintelligble, except to the few who have made a special study of that particular branch. It is not our object here, to explain or enumerate any of these recent discoveries, so that whatever is said shall be historical, rather than scientific.

At the very outset a curious fact concerning what history teachs us of light is to be noted. Going back to antiquity we find that while other branches of science had made fair progress, and when many arts had almost reached the zenith of perfection, the knowledge of this phenomenon was very limited. Indeed its early history is buried in such obscurity that it is difficult to imagine what idea learned men had of light. From whatever knowledge can be gleaned on the subject, it is thought that the ancients universally conceived light as something purely subjective. They supposed that bodies became visible through the action of certain small luminous particles continually projected from the eye itself. It was not until about the year 350 B.C. that the question was asked, most probably by that great genius of antiquity, Aristotle; "why can we not see in the dark?" Or in other words, "what is darkness?" This question had the effect of inciting scientists to a deeper study of the subject.

The ancients were certainly acquainted with the phenomena of reflection and refraction, for these must have been daily observed in the waters of their limpid streams, nature's first mirrors. Whether they endeavored to give an explanation of them or not, is beyond our power of ascertaining. As far as we know, Cleonedes, who lived in the first century of our era, was the first to give us any data truly scientific. He showed in an experiment so often repeated after him, that a coin placed in an empty bowl so as to be put beyond the line of vision over the edge of the vessel, could be brought into view by pouring in water. This, he properly accounts