GEOMETRICAL OPTICS: AN ELEMENTARY TREATISE UPON THE THEORY, AND ITS PRACTICAL APPLICATION TO THE MORE EXACT MEASUREMENT OF OPTICAL PROPERTIES

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ELEMENTARY
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AN ELEMENTARY TREATISE UPON THE THEORY, AND ITS PRACTICAL APPLICATION TO THE MORE EXACT MEASUREMENT OF OPTICAL PROPERTIES

BY

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This defect has permeated optical literature, and reappears in its effects in every place where optics are taught or practised.

The Colleges of the Technical Institute and the Royal Naval College are pervaded with it. The testing of optical apparatus, as instituted by the Royal Society at Kew, would be greatly improved by recognizing it, and the marked defects in the scales of our Ordnance Maps, in the production of which photographic processes are employed, are due to it.

Dr. R. T. Glazebrook, F.R.S., Director of the National Laboratory at Bushey, and Mr. W. N. Shaw, F.R.S., of the Meteorological Office, in their work upon Practical Physics, give an imperfect method of finding the magnifying power of a telescope, the defect in which may be easily traced to the same source.

It would be hopeless to attempt to mention the erroneous statements made in books upon Photography.

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GEOMETRICAL OPTICS

CHAPTER I

INTRODUCTORY

LIGHT is the agency by means of which the eye enables us to perceive and appreciate the existence and some of the qualities of bodies at a distance from the eye.

The physical theories of light have been various, but a work upon geometrical optics has only to deal with those geometrical matters connected with light which are true under any of these theories.

Any substance through which light can be exercised is called a transparent medium. Air, glass, and water are well-known cases of such media. Substances which do not transmit light through them are called opaque. Some bodies shed light independently of others. This property can be tested in many cases by bringing the bodies into a dark room, when they will remain visible.

Red-hot bodies, lamps, flames, glowworms, and the tips of phosphorous matches, also certain minute bodies in disturbed sea-water, are of this class. So too are a very large number of organic substances, which at an extremely low temperature have been exposed to light for a short time.

Such bodies are called sources of light. In opposition to this class of bodies is that of those which are visible only when light falls upon them from elsewhere. Such bodies