

posed reflections of similar forms on the moon's disk),\* should not have relinquished the myth of the unknown south land connecting Cape Prasum with Cattigara and Thinae (*Sinarum Metropolis*), joining, therefore, Eastern Africa with the land of Tsin (China). This myth, which supposes the Indian Ocean to be an inland sea, was based upon views which may be traced from Marinus of Tyre to Hipparchus, Seleucus the Babylonian, and even to Aristotle.† We must limit ourselves, in these cosmical descriptions of the progress made in the contemplation of the universe, to a few examples illustrative of the fluctuations of knowledge, by which imperfectly-recognized facts were so often rendered still more obscure. The more the extension of navigation and of inland trade led to a hope that the whole of the earth's surface might become known, the more earnestly did the ever-wakeful imagination of the Greeks, especially in the Alexandrian age under the Ptolemies and under the Roman empire, strive by ingenious combinations to fuse ancient conjectures with newly-acquired knowledge, and thus speedily to complete the scarcely sketched map of the earth. We have already briefly noticed that Claudius Ptolemæus, by his optical inquiries, which have been in part preserved to us by the Arabians, became the founder of one branch of mathematical physics, which, according to Theon of Alexandria, had already been noticed, with reference to the refraction of rays of light, in the *Catoptrica* of Archimedes.‡ We may esteem it as an important advance when physical phenomena, instead of being simply observed and compared together (of which we have memorable examples in Greek antiquity, in the comprehensive pseudo-Aristotelian problems, and in Roman antiquity in the works of Seneca), are intentionally evoked under altered conditions, and are then measured.§

\* Plutarch, *De Facie in Orbe Luna*, p. 921, 19 (compare my *Examen Crit.*, t. i., p. 145-191). I have myself met, among highly-informed Persians, with a repetition of the hypothesis of Agesianax, according to which, the marks on the moon's disk, in which Plutarch (p. 935, 4) thought he saw "a peculiar kind of shining mountains" (volcanoes?), were merely the reflected images of terrestrial lands, seas, and isthmuses. These Persians would say, for instance, "What we see through telescopes on the surface of the moon are the reflected images of our own country."

† Ptolem., lib. iv., cap. 9; lib. vii., cap. 3 and 5. Compare Letronne, in the *Journal des Savans*, 1831, p. 476-480, and 545-555; Humboldt, *Examen Crit.*, t. i., p. 144, 161, and 329; t. ii., p. 370-373.

‡ Delambre, *Hist. de l'Astronomie Ancienne*, t. i., p. liv.; t. ii., p. 551. Theon never makes any mention of Ptolemy's *Optics*, although he lived fully two centuries after him.

§ It is often difficult, in reading ancient works on physics, to decide