

round, and made her bend to his system: so that in this way he is even more wrong than his modern followers, the Schoolmen, who have deserted experience altogether."

We may note also what Bacon says of the term *Sophist*. (Aph. lxxi.) "The wisdom of the Greeks was professorial, and prone to run into disputations: which kind is very adverse to the discovery of Truth. And the name of *Sophists*, which was cast in the way of contempt, by those who wished to be reckoned philosophers, upon the old professors of rhetoric, Gorgias, Protagoras, Hippias, Polus, does, in fact, fit the whole race of them, Plato,² Aristotle, Zeno, Epicurus, Theophrastus; and their successors, Chrysippus, Carneades, and the rest."

That these two classes of teachers, as moralists, were not different in their kind, has been urged by Mr. Grote in a very striking and amusing manner. But Bacon speaks of them here as physical philosophers; in which character he holds that all of them were *sophists*, that is, illusory reasoners.

Aristotle's Account of the Rainbow.

To exemplify the state of physical knowledge among the Greeks, we may notice briefly Aristotle's account of the *Rainbow*; a phenomenon so striking and definite, and so completely explained by the optical science of later times. We shall see that not only the explanations there offered were of no value, but that even the observation of facts, so common and so palpable, was inexact. In his *Meteorologics* (lib. iii. c. 2) he says, "The Rainbow is never more than a semicircle. And at sunset and sunrise, the circle is least, but the arch is greatest; when the sun is high, the circle is larger, but the arch is less." This is erroneous, for the diameter of the circle of which the arch of the rainbow forms a part, is always the same, namely 82° . "After the autumnal equinox," he adds, "it appears at every hour of the day; but in the summer season, it does not appear about noon." It is curious that he did not see the reason of this. The centre of the circle of which the rainbow is part, is always opposite to the sun. And therefore if the sun be more than 41° above the horizon, the centre of the rainbow will be so much below the horizon, that the place of the rainbow will

² It is curious that the attempt to show that Plato's opponents were not commonly illusive and immoral reasoners, has been represented as an attempt to obliterate the distinction of "Sophist" and "Philosopher."—See A. Butler's *Lectures*, i. 857. Note.