

tions have emanated. What, for instance, could be apparently more unprofitable than the dry speculations of the ancient geometers on the properties of the conic sections, or than the dreams of Kepler (as they would naturally appear to his contemporaries) about the numerical harmonies of the universe? Yet these are the steps by which we have risen to a knowledge of the elliptic motions of the planets and the law of gravitation, with all its splendid theoretical consequences, and its inestimable practical results. The ridicule attached to "*Swing-swangs*" in Hooke's time* did not prevent him from reviving the proposal of the *pendulum* as a standard of measure, since so admirably wrought into practice by the genius and perseverance of captain Kater;—nor did that which Boyle encountered in his researches on the elasticity and pressure of the air, act as any obstacle to the train of discovery which terminated in the steam-engine. The dreams of the alchemists led them on in the path of experiment, and drew attention to the wonders of chemistry, while they brought their advocates (it must be admitted) to merited contempt and ruin. But in this case it was moral dereliction which gave to ridicule a weight and power not necessarily or naturally belonging to it; but among the alchemists were men of superior minds, who reasoned while they worked, and who, not content to grope always in the dark, and blunder on their object, sought carefully, in the observed nature of their agents, for guides in their pursuits;—to these we owe the creation of experimental philosophy.

(8.) Not that it is meant, by any thing above said, to assert that there is no such thing as a great or a little in speculative philosophy, or to place the solution of an enigma on a level with the developement of a law of nature; still less to adopt the homely definition of Smith,† that a philosopher is a person whose trade it is to do nothing and speculate on every thing. The specu-

* Hooke's Posthumous Works. Lond. 1705. p. 472. and p. 458.

† Wealth of Nations, book i. chap. i. p. 15.