

lations of the natural philosopher, however remote they may for a time lead him from beaten tracks and everyday uses, being grounded in the realities of nature, have all, of necessity, a practical application,—nay, more, such applications form the very criterions of their truth, they afford the readiest and completest verifications of his theories;—verifications which he will no more neglect to test them by, than an arithmetician would omit to *prove* his sums, or a cautious geometer to try his general theorems by particular cases.*

(9.) After all, however, it must be confessed, that, to minds unacquainted with science, and unused to consider the mutual dependencies of its various branches, there is something neither unnatural nor altogether blamable in the ready occurrence of this question of direct advantage. It requires some habit of abstraction, some penetration of the mind with a tincture of scientific inquiry, some conviction of the value of those estimable and treasured principles which lie concealed in the most common and homely facts,—some experience, in fine, of success in developing and placing them in evidence, announcing them in precise terms, and applying them to the explanation of other facts of a less familiar character, or to the accomplishment of some obviously useful purpose,—to cure the mind of this tendency to rush at once upon its object, to undervalue the means in over-estimation of the end, and, while gazing too intently at the goal which alone it has been accustomed to

* On this subject, we cannot forbear citing a passage from one of the most profound, but at the same time popular writers of our time, on a subject unconnected, it is true, with our own, but bearing strongly on the point before us. “But, if science be manifestly incomplete, and yet of the highest importance, it would surely be most unwise to restrain inquiry conducted on just principles, even where the immediate practical utility of it was not visible. In mathematics, chemistry, and every branch of natural philosophy, how many are the inquiries necessary for their improvement and completion, which, taken separately, do not appear to lead to any specifically advantageous purpose! How many useful inventions, and how much valuable and improving knowledge, would have been lost, if a rational curiosity, and a mere love of information, had not generally been allowed to be a sufficient motive for the search after truth!”—Malthus’s *Principles of Political Economy*. p. 16.