

But here I must utter a word of warning. It is of the utmost importance to distinguish clearly between *scientific information* and *training in science*, between a mere literary acquaintance with scientific facts such as may be attained by a reader possessed of a somewhat acute mind and a fair share of constructive imagination and that power, those habits of mind, which are only to be gained by the study of facts at first hand. To the majority of pupils, it would not be the information they would gain by a study of science, valuable though this would be, that would be of chief importance, but the scientific habit of mind they would acquire. This habit would be of incalculable benefit to them whatever might be their vocations in after-life, and it would be better attained by a thorough investigation of the facts and principles of one science than by a general acquaintance with what has been spoken or written about many of them.

That this warning against confusing information and training is not wholly unnecessary will be seen by the following extract from the late Professor Todhunter's essay, entitled "The Conflict of Studies :"

"We assert," says the professor, "that, if the resistance of the air be withdrawn, a sovereign and a feather will fall through equal spaces in equal times. Very great credit is due to the person who first imagined the well-known experiment to illustrate this, but it is not obvious what is the special benefit now gained by seeing a lecturer repeat the process. It may be said that a boy takes more interest in the matter by seeing for himself, or by performing for himself, that is, by working the handle of the air-pump ; this we admit, while we continue to doubt the educational value of the transaction. The boy would also take much more interest in foot-ball than in Latin grammar, but the meas-

ure of his interest is not identical with that of the importance of the subjects. It may be said that the fact makes a stronger impression on the boy through the medium of his sight, that he believes it more confidently. I say that this ought not to be the case. If he does not believe the statement of his tutor—probably a clergyman of mature knowledge, recognized ability, and blameless character—his suspicion is irrational, and manifests a want of the power of appreciating evidence, a want fatal to his success in that branch of science which he is supposed to be cultivating."

Professor Todhunter was an eminent teacher of mathematics ; he wrote many text-books on this science, some of which have been translated into nearly every civilized tongue, he even wrote an elementary text-book on physical science, the very science the boy is here assumed to be studying, yet in the above paragraph he presents us with an argument which would be amusing had it come from the pen of a mere literary man, but which it is almost impossible to believe a cultivator of science could advance in sober earnest. What would have been the thoughts and feelings of the professor had one of his pupils, when asked to demonstrate the *pons asinorum*, returned answer :

"Sir, my tutor was the Rev. Mr. Jones, of Westbury ; he is a clergyman of mature knowledge, recognized ability, and blameless character. Now, he assured me that he had examined Euclid's proof of this proposition, and had found it to be correct, and as to doubt his word would be to manifest irrational suspicion, and a want of power to properly appreciate evidence, I accepted his testimony, and I now offer it to you as my proof."

I suspect that that pupil's ideas of proof would have received a clearing up. He would have learned that there are other kinds of evidence be-