

certain authorities, has been that scientific facts have been taught in advance of any adequate comprehension of scientific methods. Facts so imparted have but a feeble hold upon the mind, and do not really afford it any useful discipline or training. The proper way, it is urged, to begin, is to practice the young in observation and measurement. They should be taught in the first place to see, and in the second to make the most exact quantitative determinations. In the third place only should come the investigation of causes. A pupil who is conducted carefully and patiently through the first two stages will find himself prepared to enter on the third and attack its problems with a distinct sense of power; whereas, one who has not had the advantage of such preliminary training will in many ways be at a loss in the doing of theoretical work. Clever pupils are apt to fret and chafe under the practice which a careful teacher will give them in various operations of, as it seems to them, an almost mechanical character, but if they were wise as well as clever they would feel that hardly any amount of practice in the observation, handling and measurement, or weighing, of things could be excessive. Here, indeed, is where the best discipline of science comes in. Not every one is adapted to be a brilliant theorist, but every one might, one should suppose, learn to be careful in observation and accurate in statement. How few persons, in point of fact, we meet upon whose powers of observation we can wholly depend? How few again who can report a thing exactly as it happened, without any variation or inconsistency of statement! How many on the other hand are prepared to frame theories before they have any accurate or duly corrected knowledge of facts! Man is an impatient animal; women, perhaps, a still more impatient one; both want to do the higher work of shaping conclusions before they have done the humbler work of securing data for their conclusions. Now if scientific method were properly taught in the schools, and if the truth were constantly inculcated that the scientific method is of *universal* application, we should soon find a decided improvement in the intellectual habits of the community." It may be as well to state here that in some of the more elementary school examinations in England and elsewhere, there is a paper called the "General Knowledge" paper, used as a test of the above kind of teaching, and the writer remembers well the paper of this sort in connection with the examination of teachers in the Old Country and the dread in which it was held by the candidates. Were such a paper to be proposed by the school authorities of Quebec, the man who