

notions whereby our knowledge might be enlarged, proved, under this supposition, abortive. Let us, then, try for once whether we do not succeed better with the problems of metaphysics, by assuming that the objects must regulate themselves according to our knowledge, a mode of viewing the subject which accords so much better with the desired possibility of a knowledge of them *à priori*, which must decide something concerning objects before they are given us." In practical matters this process of reversals is often exemplified; the inventor of the sewing-machine finds that his needle will not work with the eye at one end, and accordingly reverses its position and is successful. 3. The third class comprises those who may be said to think in directions at right angles to their previous method of thinking, and there may be minds which possess what is analogous to the fourth dimension in space—an ability to think in all azimuths. It is strange that there are so few psychological impostors in the world; for the first class of minds, those who only think from A to B, when a new class of facts are presented to them, is very large. An ingenious man can make a small magnetic motor which apparently runs with only the assistance of permanent magnets, and by means of extremely small clockwork, maintain the motion beyond the period which a mind of class 1 is willing to give to an observation. It would naturally occur to such a mind to take the motor to pieces and examine the casings or box. If it finds nothing, and perceives that, when the apparatus is put together and is placed by the inventor on his table, it still runs, the investigation ceases, and another story confirms the previous rumour of a new marvel. A mind of class 2 goes over the same process of reasoning, and moves the instrument to different points for fear of concealed mechanism under the table or in the

wall. A skilful manipulator, however, can still edge the motor to a third or fourth position, where other concealed clockwork can be taken advantage of, and in this way exhaust the number of what may be termed linear combinations of the investigator. The success of impostors in spiritualism and of the fabricators of new motors which are built to delude people resides in this, that they restrict the liberty of this system of reversals, or the spirit of investigation.

Any plan of education which prevents a man or woman from becoming the dupe of those who pretend to use natural or supernatural forces is to be commended. One of the quickest ways of training the mind in the logical process which I have indicated is to undertake some simple investigation in physics. Here mere observation is combined with a careful study of the interaction of various forces, and the mind must assign a logical weight to different observations. One truth, moreover, is forcibly brought forward—that, generally speaking, a number of observations under varying conditions, must be made to prove the correctness of any result. The man who has been through the process will not be found among those who are convinced by a single manifestation of clairvoyance or of spiritualism. He will not spread the stories of a wonderful new motor until he has put it to an exhaustive test.

It would be well if our common schools made some provision for a certain amount of experimental work in physics to illustrate this method of studying. A great deal of education is comprised in the knowledge of how to change the conditions of an experiment in the process of which I have termed a reversal, and also in the process of depending only upon a number of observations taken under different conditions. It would certainly be a great boon to the world if