

an instrument for advancing scientific discovery. The German universities are proud of the number of young specialists whom they turn out every year—not necessarily men of any original force of intellect, but men so trained to research that when their professor gives them an historical or philological thesis to prepare, or a bit of laboratory work to do, with a general indication as to the best method, they can go off by themselves and use apparatus and consult sources in such a way as to grind out in the requisite number of months some little peppercorn of new truth worthy of being added to the store of extant human information on that subject. Little else is recognized in Germany as a man's title to academic advancement than his ability thus to show himself an efficient instrument of research.

In England, it might seem at first sight as if what the higher education of the universities aimed at were the production of certain static types of character, rather than the development of what one may call this dynamic scientific efficiency. Prof. Jowett, when asked what Oxford could do for its students, is said to have replied, "Oxford can teach an English gentleman how to be an English gentleman." But if you ask what it means "to be an English gentleman," the only reply is in terms of conduct and behavior. An English gentleman is a bundle of specifically qualified reactions, a creature who for all the emergencies of life has his line of behavior distinctly marked out for him in advance. Here, as elsewhere, "England expects every man to do his duty."

THE NECESSITY OF REACTIONS.

If all this be true, then immediately one general aphorism emerges which ought by logical right to dominate the entire conduct of the teacher in the class-room. *No reception without reaction, no impression without correlative*

expression—this is the great maxim which the teacher ought never to forget. An impression which simply flows in at the pupil's eyes or ears, and in no way modifies the active life, is an impression gone to waste. It is physiologically incomplete. It leaves no fruits behind it in the way of capacity acquired. Even as mere impression it fails to produce its proper effect upon the memory; for, to remain fully amongst the acquisitions of this latter faculty, it must be wrought into the whole cycle of our operations. Its motor consequences are what *clinch* it. Some effect, due to it in the way of an activity, must return to the mind in the form of the sensation of having acted, and connect itself with the impression. The most durable impressions, in fact, are those on account of which we speak or act, or else are inwardly convulsed.

The older pedagogic method of learning things by rote, and reciting them parrot-like in the school-room, rested on the truth that a thing merely read or heard, and never verbally reproduced, contracts the weakest possible adhesion in the mind. Verbal recitation or reproduction is thus a highly important kind of reactive behavior on our impressions, and it is to be feared that, in the reaction against the old parrot recitations as the beginning and end of instruction, the extreme value of verbal recitation as an element of complete training may nowadays be too much forgotten.

When we turn to modern pedagogics, we see how enormously the field of reactive conduct has been extended by the introduction of all those methods of concrete object teaching which are the glory of our contemporary schools. Verbal reactions, useful as they are, are insufficient. The pupil's words may be right, but the conceptions corresponding to them are often direfully wrong. In a modern school, therefore, they form