

Let us examine it. The statement is true, when interpreted to mean that a full and adequate knowledge of a process results only from an actual performance of the process so many times repeated as to make it familiar. In this case practice is seen to give clearness and distinctness to our theory.

Every process is a double-sided unity,—a knowing and a doing,—a theory and an art. The two are essentially one. Practice is the concrete phase of theory. The knowledge,—the succession of ideas that constitute the process,—is the essence of the process. The concrete, objective expression of those ideas is the objective phase of the subjective essence. It is educationally valuable because by this actual “doing” the knowing is more perfect. If the process is a physical one practice of it accustoms the muscles and nerves to a form of action corresponding to the ideas which direct the activity. A habit is formed; a memory is established in the physical organs, which results in skill in execution. A clear apprehension of the ideas involved in any process is knowledge of the process. In so far as the actual, objective execution of the process aids to make these ideas clear,—in other words, gives a clear knowledge of the theory,—thus far it is true that “we learn to do by doing.”

But the statement is false when it is interpreted to mean that by merely doing we gain an adequate knowledge of the ideas involved in the process. What is learned by the doing merely, is a series of physical movements. These may or may not have an idea behind them. The real significance of these separate movements may or may not be seen. He who learns to do by doing remains ever the artisan. He is the bond slave of precedent. He can perform the particular process which he has learned, but he is without freedom in that performance. His process is the expression of a theory, but it is the theory of some one else, not his own. He can not interpret his own work. There are those who make frequent use of the injunction, “Learn to do by doing,” who do not put any other meaning into it. Such persons can never really *learn to do by doing*.

But there is another class who put still another meaning into the phrase. They believe that the real thing to learn is the *theory* of the doing, and that the road by which this must be learned is by *practice* in the doing. So they set themselves, or if they happen to be teachers, they set their students to work to discover the theory by the way of the art. This is the method of nature they say; the method by which the race has discovered science.

I was reading recently a report of an intelligent visitor of a western normal school, which school is held by many to be the modern Mecca of all devout pedagogues. I judged from this report that in this school the students were “to learn to teach by teaching.” So they are set to teaching for a certain length of time each day. At the end of that time they pass to another room and submit to criticism by that portion of the class who did not teach, but were watchful observers of the teaching done by the others. This criticism seemed for the most part pointless and of small significance. It could not well be otherwise, for want of a basis. An older member of the class who has seen some years’ service as a teacher, criticised the critics for these aimless and baseless criticisms, which were made without any recognition of principles which should control the development of the lesson and form a standard by which to judge of it. To this the principal of the school promptly replied, “A good point and well taken, but my object is to have you learn these laws and principles by yourselves.”—“You are to learn to do by doing,” he said in another connection.

They are to learn the theory of teaching by groping in the dark for the ideas which compose it, unaided, except by the scintillations

of light that may be thrown upon the chaos by experience and the example of others.

This interpretation of the phrase, “learn to do by doing,” is at present a popular one. It is “following the order of nature”;—it is the “method of science”;—it is the “inductive method.” Now any one of these catch phrases is potent above all argument. The method of science is the method *par excellence*, and to question its universal application is to stand athwart the path of progress and write one’s self down a fogey.

But the earnest fogey believes that the truth must be told if the heavens fall. He dares to stand athwart the “path of progress,” which is often but another name for the path of the hobby-rider, and call upon this rider to dismount and look and see how things appear when standing upon solid earth. The point of view greatly affects the appearance of a thing.

The “Scientific Method” is just now a hobby, and the number who are riding it or trying to mount it, inside and outside the schools, is legion. This method, as it is interpreted by these “reformers,” is that every learner of any art or science must follow the method which the human race has followed in the construction of that art of science. The race groped for generations constructing first the art, and after a much longer period the science or true interpretation of the art. It is held that each individual must in like manner grope for a corresponding number of years of his natural life in a similar way in order to come by a knowledge of what the human mind has thus constructed. It is claimed that this groping is a strengthening process, developing the power of independent thought and preparing the way for independent action.

But it would be a sad reflection to conclude that the experience of the race is to be of no help to me; that this great inheritance of knowledge which I have thought to be my birth-right is really of no value to me. That for any purposes of culture, I might as well have lived in pre-historic times as now. There is no ground for the assumption that I must follow the same process in learning that the race pursued in constructing. If so I must needs come through Alchemy to Chemistry, and Astrology to Astronomy, and Paganism to Christianity. It is a principle of growth that all organisms grow by exercise, and the assimilation of nutriment. But is it not probable that there has been improvement in the nutriment and exercise of the spiritual powers, as well as in the exercise and nutriment of the physical organism? We do not learn what to eat by going through the experience of the race in the preparation of food. There is no valid reason why I must learn what the race has found out in the realm of thought, by following the process by which they found it out. The chief requisite is that the two prime conditions of growth be realized, viz., exercise and proper nutriment. The application of this plain truth to the education of teachers requires that the laws and principles which form the science of teaching, in so far as they have been discovered, be used as a basis of criticism from the start. This is the intellectual inheritance of every teacher, into the possession of which he should be allowed to enter at once. His first business is to learn what others before him have discovered. This he can do most rapidly and truly by a practical and conscientious application of these principles for its basis;—and by observation and criticism of the work by others. In this practice we shall find both the needed exercise and nutriment for a satisfactory growth in knowledge, and a great saving of energy which otherwise runs to waste in vain processes and needless emotional excitation. The critic of the critics was right. It is at too great a cost that the pupil-teacher “learns the principles of teaching himself.” He has a right to be helped to these, and thus be helped to form a standard of criticism for his and others’ work. There is an inexhaustible field for original activity in