

III. Sub-Committee on Tests.

Report of the Committee on Testing the Achievement of the Teaching Aims in Physics Classes.

From reports made before the Physics Section of the Central Association a year ago, it is evident that the majority of mature teachers of physics regard as the highest aim of their work the development of the pupil's powers. By *power* is undoubtedly meant such qualities as initiative, independence of thought and action, keenness of observation, aggressiveness, etc., qualities whose value in the later life of the individual is never questioned.

In the achievement of this end, the subject matter is an effective tool. However, no one would consider it solely as a tool; but it presents material which is intrinsically of such worth that many teachers would place its mastery as the chief aim. This fact they express when they state as their aim in physics teaching the acquisition of information, knowledge of things, etc. A teacher of physics, or any science teacher for that matter, may well take pride in presenting material which is at once an efficient machine in the development of desirable powers and a compendium of useful information.

The committee appointed a year ago to devise methods for the purpose of enabling teachers to determine to what degree they are attaining the principal aims of physics teaching must beg leave to present a rather discouraging report at this time. They are not satisfied that tests can be devised which will satisfactorily determine the grade of achievement of abstract aims. Although a teacher easily becomes conscious of the effectiveness of his teaching, the committee is not convinced that any set of questions or reports can be put forth which will reveal to the mind of judges an adequate idea of the aim achievement.

A brief of this report was submitted to a group of mature physics teachers who were quite unanimous in regard to the following points by which a teacher estimates the effect of his teaching:

1. By the attention given by individuals in his classes.
2. By the interest in the subject shown in the questions raised in class; by the voluntary reports on articles read or on things which they encounter in their daily experience; the kind of reading they enjoy; by their attitude towards the popular scientific magazines, and so forth.
3. By their care in the use of apparatus and their attitude towards experimentation.
4. By their growth in keenness of observation and their ability to grasp the meaning of experiments.
5. By their ability to generalize rationally from experimental results.
6. By the growth in the power to apply general principles to new and complicated cases.

This same group of teachers was quite as unanimous in criticising adversely the proposal to ascertain these same points by a questionnaire or test. Your committee, however, is not prepared to assert that a profitable set of questions might not be evolved which would approximate the desired end, but with the present light which they have they feel quite incompetent to submit such a test for the consideration of this body.

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Committee.