

ESSENTIALS OF SUPPLEMENTAL EDUCATION WITH
REFERENCE TO SCIENCE TEACHING.*

BY WALTER M. WOOD,

*Superintendent of Education, the Young Men's Christian
Association of Chicago.*

The whole field of education may be divided into three divisions as follows:

First—Fundamental Education—preparing one by general or professional training for entrance upon his life work. This service is the peculiar work of the schools proper, and is intended to serve those who are of the professionally student class.

Second—Incidental Education, or that which one acquires as he meets the problems and performs the duties of his daily life and work.

Third—Supplemental Education, or that which gives one in the midst of his life of activities that which he has failed to get in the schools, and is now failing to get in active life. This supplemental education is the peculiar work of educational movements other than the schools proper and serves most largely those who are engaged more in other things than in study. Supplemental education is not an imitation of fundamental, nor a substitute for incidental education, but is a means of educational help to those who are under the stress of age and working conditions unfavorable to the most efficient intellectual life. Its motto might be said to be, Give this man what he needs most, next.

Supplemental educational effort finds expression in varied agencies, such as the following: Reading Rooms, Museum Exhibits, Libraries, Reading Courses, Instruction by Correspondence, Directed Conversations or Practical Talks, Educational Lectures, Educational Clubs, Tutoring and Educational Classes, the variety being necessitated by the different needs and educational inclinations of the individuals served. Such work is intended to cover educational delinquencies, to arouse dormant minds, to cultivate sound mental habits, and to keep awake and put to use trained intellects. The key principle underlying it all, in the choice of subject matter, in the method of instruction and in the conditions under which the instruction is given, is *adaptation*

* Some notes from an address before the Chicago Local Section of the Central Association of Science and Mathematics Teachers.

to the individual case in hand rather than attempted imitation, or rigid requirement of traditional forms and methods sometimes mis-called standard.

Certain educational characteristics of such work are of interest. It deals with two distinct classes of students: (a) Students proper, constituting the small minority who seek with definite student purpose a general education. (b) Non-students, constituting the great majority, who seek by adapted instruction educational help in the solution of some present problem or in fitting for some special service. The work is elective to a maximum degree and is adapted to meet individual and special needs without unnecessarily breaking from recognized educational standards and methods. It is conducted in small and varied units so scheduled that sequential arrangement in courses is possible when desired. It is made to glow with the recreative element in both subject matter and treatment. It aims in its more elementary forms at suggestion and inspiration rather than thorough training. It seeks to increase the life-living capacity rather than the scholastic ability of the student.

Such work is of interest to teachers of science because of the nature of instruction and leadership required in behalf of evening class students, irregular students in the day schools, those of student habit who are not attached to any school, and those who have never acquired, or have forsaken, the habit of consecutive reading and study. The teaching of science to individuals comprised in the groups named, in the major part is with a view to making science study *a means of popular recreation and culture*, rather than exclusively a preparation for advanced scientific or engineering work, as is the too common custom in the schools proper. There is need that high grade teachers of science shall give thought to the extension of science study on a supplemental basis in order to insure a true scientific, rather than a "fake," leadership of such popular studies. There is also a great need and a very large demand for lectures and text books that convey accurate information and are true to scientific methods, but which are adapted to meet the demand of the untrained and non-professional student, yielding to him a greater intelligence and enlarged interest and appreciation, rather than requiring of him an engineering training. The preparation of such lectures and text books should, as largely as possible, be in the hands of those who

are recognized as high grade teachers and practical workers along scientific lines, and should not be left to those who for the sake of mercenary profit are willing to give information and produce literature of indifferent or questionable value under the guise of scientific instruction.

WOODEN MODEL OF A STEAM ENGINE.

BY FRED A. HOLTZ,

State Normal School, Mankato, Minn.

The accompanying photographs show a wooden model of a steam engine. It is always of interest to the students and a great help to them in understanding the construction and operation of an engine.

