

are two great means by which the aim of the school may be reached ; *i. e.*, the personal influence of the teacher, and the studies. If we have changed our estimate of the condition under which the former can prove most effective, and are now convinced that children must love their teachers in order to receive the greatest influence from them, there are the same reasons for declaring the necessity of deep interest in, or love for, the studies in order that these latter may result in the greatest good.

The fixing of interest as the highest immediate aim of instruction in no sense precludes the exercise of authority over pupils and the development of a spirit of obedience on their part. The desired deep interest in studies

and in moral notions comes only gradually through instruction. Firm control on the part of the teacher is the first external condition under which that interest can grow rapidly and become permanent. Even carefully chosen subject-matter, that is skillfully presented, often fails of itself to preserve order and to hold the attention. Authority should then be vigorously exercised, for, if it is omitted, the children, being controlled by caprice, become unmanageable both morally and mentally. But as right interests and right habits develop, the exercise of authority becomes less necessary and may finally cease. Interest and authority are not, then, mutually opposed, but are supplements of each other.—*Educational Review.*

CORRELATION OF SCIENCE STUDIES IN SECONDARY SCHOOLS.

By J. M. COULTER, LAKE FOREST UNIVERSITY.

IN the discussion of this subject I wish to impose two limitations :

I. ONLY THE LABORATORY SCIENCES ARE REFERRED TO. In most secondary schools a variety of subjects is loosely aggregated under the general name "science." They differ so much among themselves in purpose and method that they should be referred to at least two widely different categories. There are those whose purpose and method are purely informational, subjects about which it is well enough that every intelligent man should be somewhat informed. Physical geography, astronomy, geology, physiology so-called, as mostly taught, all belong to this category, and are not included in the college demand for scientific training. They are necessary and exceedingly help-

ful subjects, but in the very nature of things cannot be handled in secondary schools other than as purely informational subjects. As such they contain no scientific training whatever and such claim should not be made for them. In the category of fundamental laboratory sciences are included chemistry, physics, botany and zoology. The principles derived from these are applied in the informational subjects referred to above. So far as these four fundamental subjects are studied without the laboratory they are transferred to the informational series and have no value in scientific training. I wish at this point to take issue with the too prevalent statement that the purpose of scientific training is to teach the methods of the laboratory. The true purpose seems to have