INTRODUCTION.

student himself, imperfect though it be, is of more value to him than a perfect definition learned from a book, which often appeals to mere memory. Definitions made in the way these pages require are good so far as they go: they should be corrected and supplemented by the instructor. It develops a boy more to earn a dime than to receive a dollar as a gift.

If the main object of this study is the mere acquisition of facts, full descriptions of most animals can be elsewhere obtained; but if the more important part in education is to lead the pupil to see and think for himself, then some such method as this should be used.

The underlying object in all our teaching is to make seeing, thinking, self-reliant, honest men and women. All branches of natural 'science, rightly pursued, are powerful means to this end.

"The feeling is becoming general that practice must be united with theory, in the education of young men, or the best results of education are lost. The powers and faculties, instead of being educated — drawn out and developed are crushed under a mass of merely memorized facts and theory, and at the end of his educational course the young man finds himself unfitted for the work of the actual world, and has to unlearn, and learn again, before he can find the path to success.

"This feeling has resulted, in Germany, in the objectteaching of Frœbel; in Russia, in that celebrated system wherein practical work is united with the theoretical teaching, which already shows such important results; and in the United States, in the building of workshops and laboratories for the use of students in our higher schools and colleges."

vi