In the study of structure for esthetic ends it is obvious that little can be done without the use of the microscope. Philosophers recognize wonder and admiration as the foundation of all human development whatsoever, and any means therefore of arousing these feelings must be regarded as of great value for educational purposes. The beauties and wonders in plant structure which are revealed by a simple lens appeal to even the dullest and lowest minds. And what a revelation of a new world—a new heaven no less than a new earth—is opened up to a pupil when he first looks through a compound instrument at a mere jagged splinter of firewood, or a fragment of onion or potato, or a leaf of the wayside weed, he has so often trodden on and despised.

A perception of the adaptation or fitness of parts increases very much our appreciation of the appearance of plants. This is not much dwelt on in our classes, and yet in the case of many plants we have little but the dry bones of the study left if we neglect to take up the exquisite interrelations of color and form on the one hand with function on the other. Moreover, nothing else is capable of arousing so deep an interest in botany as a study of the modifications that have taken place and are taking place both in form and color and in function, and of the influence of heredity and environment in perpetuating a variation when once entered upon. The introduction of the theory of evolution into high school botany classes has the same enlivening and energizing effects as it had in the scientific world outside.

Some may consider that the features of plant study so far advocated, are outside of the practical applications of the study of botany as advocated at the beginning of this paper. But it is not so. The results here to be sought are most practical. For beauty is a use and one of the highest of uses, and the satisfactions obtained therefrom are among the most practical values in life, if not always the highest on the market.

In the second place it is obvious that great advantages would result from making our teaching of botany more practical in the ordinary sense of the word; that is, from making our class-work bear more directly upon the orchard, the garden and the farm, and the processes and results of the culture carried on there. And if we make our study not one of observation merely, but one of wide and varied experiment also, so much the better.

Opportunities for giving the teaching of botany a practical turn come frequently if one is on the look-out for them. Let me illustrate from personal experience. In my district the ash-man is a common sight. We learn that the ashes he gathers are shipped to dealers in the United States, and we see them extensively advertised in American agricultural journals as "Canada Unleached Hardwood Ashes." In seedsmen's catalogues they are quoted at $20 a ton, and are recommended as the best of fertilizers for certain crops, as fruits, potatoes and corn. We now learn that these ashes contain plant food which the original trees obtained from the earth. We also learn that the most valuable elements of plant food present in ashes are potash to the extent of about 6% and phosphorus about 2% of the whole quantity of ashes. Now, it does not take a very sharp boy to see that if it pays the Americans to give a dollar a hundred for our ashes to fertilize their crops, it certainly is folly for us to sell them at ten cents a hundred, so long as we have anything that needs fertilizing.

Again we have been selling an immense quantity of hay for the English market during the past year. Prices