an amateur," and is modestly keeping silent, apply this writing to himself, and know that what he can say finds as large an audience as does the technical paper of his professional brother.

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## OPEN LETTERS.

### On some mistaken estimates made by amateurs.

I do not wish to be understood as criticising adversely the literature of the laboratory when I say that its influence has led to mistaken estimates on the part of amateurs and school-teachers. The literature itself embodies the results of a vast amount of painstaking research on the part of students who have been able to give the labor of years to their favorite pursuit. The amateur can give to botany but the few hours of an occasional holiday. The student, with commendable zeal, puts devotion to science first and the good of the individual second. We admire the scorn with which he rejects the thought of "an indolent self-culture." With the amateur the good of the individual should, just as clearly, come first and botany second—very important, no doubt, but still second. It should be valued directly in proportion as it ministers to his intellectual needs. Does it help to a better style of life? Does it help in the achievement of a higher manhood or womanhood? Well, if not, *drop it!* Here is a fundamental distinction, so deep and far-reaching that I do not hesitate to say, in all seriousness, that I consider the dead-in earnest laboratory-worker the last person qualified to pronounce an *unbiased* opinion on the question, what work had best be undertaken by amateurs in America.

The first, and least harmful, mistake made under the influence to which I have alluded is an extravagant overestimate of the *educational* value of laboratory work. Both in the high school and college, so far as I have seen, it begets a spirit of inquiry into facts curious and interesting enough in themselves, but of the relative significance of which no cognizance is taken. The student does not "digest what he learns into learning." An elaborate thesis results, for instance, in comparing the cell-structure of the leaves of this order of plants with the cell-structure of the leaves of this other order of plants, the whole abundantly illustrated by an elaborately prepared series of slides—and there it ends! No generalization of agreements or differences, no correlation of certain peculiarities of cell-structure with recognized natural affinities, not so much even as the recognition of an *a priori* probability that a general similarity or dissimilarity might obtain, which an examination of the facts showed was not the case—nothing! Observation without judgment! Only this and nothing more. Were a student, using a common pair of eyes, to do the same thing, comparing in this thoughtless way, for instance, the gross-anatomy of the leaves in question, his teacher would tell him—and be right in telling him—that his work was simply silly. I fail to perceive how the intervention of a compound microscope is going to stay the verdict. Furthermore, it may be seriously questioned if the power of observation, *per se*, is in any considerable degree capable of cultivation. Good observers are born, not made.

The second and by far the most pernicious mistake has been on the part of many to ignore the one high use which the study of botany, above

all other things, can be made to subserve, viz.: training the mind to grasp abstract ideas and to bring the various parts of an extensive subject into mental co-ordination. This *is* education, the very essence of intellectual power. Mind you, I am not discussing the advance of science; I am discussing the advance of man!

When George Eliot, one of the foremost philosophic minds of the age, was finding pleasure in learning the names of the plants of Ilfracombe as "part of the tendency that is now constantly growing in me to escape from all vagueness and inaccuracy into the daylight of distinct, vivid ideas;" when John Stuart Mill was botanizing over the moors of England and turning aside at Avignon to tramp up the bed of the Durance collecting—of all things—willows! are we to suppose for a moment that these two eminently clear-headed persons did not know whether they were wasting their time or not? Nay, so far as Mill is concerned, we know that he made a very considerable herbarium, doing the work with his own hands, and we may safely infer his motive from what he says in the *Logic:* "The proper arrangement of a code of laws depends upon the same scientific conditions as the classifications in natural history; nor could there be a better preparatory discipline for that important function than a study of the principles of a natural arrangement, *not only in the abstract, but in their actual application to the class of phenomena for which they were first elaborated, and which are still the best school for learning their use.*" If popular interest in systematic botany has "declined" in this country, the causes are not far to seek, and it were an ungracious task to recount them here. The indications are that they have already spent their force.

*Rockford, Ill.* M. S. BEBB.

### The death of Dr. DeBary.

EDITORS OF BOTANICAL GAZETTE: I promised to write you a few lines in December, from the laboratory in Germany in which I might be at work, but knowing that I decided to enter Professor DeBary's laboratory for the winter semester, you can readily understand how I deferred writing from week to week, hoping that I might send some cheering and hopeful word in regard to its distinguished and beloved chief. Unhappily, my first word to you is to chronicle his death, which occurred at half-past two on the afternoon of January 19. Of this event you will have heard before my letter reaches you, and others of our own country, who knew DeBary and his work infinitely better than I, will, no doubt, furnish your readers with such biographical and critical notices as you may desire; but possibly a few words in regard to his illness and death by one near at hand may not be uninteresting.

Professor DeBary was much annoyed toward the close of the summer semester by pains in his face, supposed to be neuralgic or else arising from the teeth. He made a voyage to England, to attend the meeting of the British Association, I think. This and the return voyage seemed to aggravate his trouble. On account of the inflammation and alarming character of the disease upon his face, a surgical operation became necessary about October 1. He was completely prostrated from the disease and loss of blood, remaining in the care of nurses for several weeks at the Bürger Spital in Strassburg, where the operation was performed. His return to his residence, which, according to an arrangement not infrequent with other prominent German professors, is in the Botanical Institute—*i. e.*, the building devoted to botanical work—was looked for ward to with much silent interest by the little corps of special student

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