

OPEN LETTERS.

An appeal to botanists.

For many years I have published a general analytical herbarium of useful plants. This publication, chiefly for teaching purposes, furnishes indispensable material for colleges, universities, etc., and was very favorably spoken of by: *Zeitschrift der Deutschen Botanischen Gesellschaft* (Nov. 27, 1885); *La Belgique Horticole* (p. 247, 1885); *The Journal of Botany* (March, 1886); *Botanische Zeitung* (p. 158, 1887); *Oesterr.-Botanische Zeitschrift* (p. 299, 1887); *Revue Horticole* (p. 179, 1888); *American Garden* (p. 207, 1888); *THE BOTANICAL GAZETTE* (December, 1888). In addition, very favorable opinions have been received from Prof. Engler (Director of Bot. Garden at Berlin), the Linnean Society (London), Prof. Willkomm (Smichow), Prof. Henriques (Coimbra, Portugal), Prof. Oudemans (Amsterdam), Prof. Rauwenhoff (Utrecht), Prof. Suringar (Leyden), Prof. Tschirch (Berlin), Prof. Carruthers (British Museum), etc. The plants of my publication I mostly cultivate myself, with the exception of the tropical trees and palms, which I get from my Indian correspondents. Now, however, my garden has become much too small, and I am obliged to look out for a larger one or give up my publication. I, therefore, want assistance from every one interested in botany and teaching. The proposed garden I will lay out in Holland in a district best suited to the purpose, and with the assistance of professors of botany. It must contain all species of hardy, useful plants, and some hot-houses for small tropical ones. The garden should be as extensive as possible and suited to the purpose. The space to be occupied by it depends upon the contributions I get, and for this purpose I want \$15,000. Daily I receive letters promising assistance. The usefulness of my publication is already proved by the favorable opinions of so many botanical authorities, and because there has never before been published a herbarium of this kind (with dissections). I have got many subscribers among botanists in Europe and America, from universities, colleges, high schools, etc. It would be an assistance to botanical knowledge to contribute to the botanical garden I propose to lay out, and I hope my appeal will not be in vain. The Linnean Society, at London, will give the necessary information about my specimens, and Prof. Coulter, editor of this journal, has consented to receive American contributions.

Middleburg, Holland

M. BUYSMAN.

Study of buds.

I am always very grateful for hints, from any source, which may serve the teacher in making his lessons in botany clearer, more interesting and more philosophical. I take it for granted that other teachers are of the same mind, and I therefore venture to send you such a hint, or may I call it *trick*, which has served me well in lessons upon buds. This part of botany is taught early in winter, but twigs of hickory, lilac, tulip tree, horsechestnut, beech, etc., may always be had for the trouble of a short walk to get them. I aim to make the pupils get such twigs for themselves. From these specimens they learn all they can and in as orderly a manner as possible, by observation, comparison and drawing.

The position of the buds on the stems, the relative sizes, the scales, the scale rings of previous years, the leaf scars, etc., are made out by the pupils, my own remarks during this work being only suggestive as to mode of proceeding and including, where perfectly clear openings occur, such facts of physiology as their own experience can confirm. Then comes the examination of the bud structure. To study this I make use of the large terminal buds of the lilac. One of these is drawn entire. Then the scales are removed with appropriate instruments, some preferring needles, others forceps. The scales are laid out in four rows and numbered. (Flower buds are discarded for the present.) These rows of scales and evident inner leaves illustrate readily the relative position of these parts and the imperceptible transition from one to the other. What are the inner ones? Plainly leaves. When do they cease to be leaves? There is no boundary line, they must all be leaves. What is left of the bud? Only a little greenish pyramid. What is it? It must be a little short stem. What is seen on it with the lens? The places from which the leaves were taken—the leaf scars. On the old stem what name is given to the part bearing the scars or leaves? The joints, say some. Then what shall we call the part of the stem between such places? That's the joint, say others. We will call the former of these parts, nodes, and the latter internodes. This decision is approved because the terms are easy and the possible confusion is seen to be overcome.

Now, to each pupil is given a branch of a soft-stemmed fresh Eupatorium, taken from the green-house (Coleus is easily obtained and will answer the purpose.) The opposite decussate leaves are noted. With a sharp knife the internodes are cut away and the nodes, each with its pair of leaves attached, are laid on the table. The bud is now to be rebuilt. One of the dissecting needles, or very often a hat pin, is used, and the nodes with their attached leaves are spitted on to this. The leaves are then folded up carefully, beginning of course with the inner or uppermost pair; a light thread tied about them and the bud is reconstructed. Comparisons follow with pleasant and often very interesting comments, and a general feeling of good understanding prevails, which I believe even the myopic and mischievous correspondent to a late number of *St. Nicholas* might acknowledge to be of some worth. B. W. BARTON.

Baltimore.

Pressing plants.

The old-fashioned press has always seemed to me too slow in action and too bulky to give the best results or to be convenient. The "Acme" is nearer the true press for botanical work, but before I ever saw it I had made one upon the same plan, and have had most excellent results. My presses are made of slabs of hard wood ($\frac{1}{2}$ in. thick by 1 in. wide) tacked together so as to leave spaces a little over an inch square. Instead of straps I use four iron clamps with $2\frac{1}{2}$ in. openings. I can press as many as 150 specimens of medium size in one of these presses, and under favorable conditions of wind and sun have the greater number of them dry and ready to take out in twenty-four hours, with the colors remarkably well preserved. I find the drying greatly hastened by the use of a piece of black cardboard or paper for the outside sheet. I always set my presses out in the hottest sunshine I can find, and turn them up so that the sun's rays will strike them at right angles. I have also found it better to multiply presses than to overcrowd one press.

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