

In many groups, notably the *Pteridophyta*, *Gramineae* (as *Poaceae*), *Cyperaceae*, *Salix*, *Viola*, etc., the treatment of species is comparatively conservative and largely in accord with the conclusions of those who have more thoroughly studied the groups. In many others Rydberg's once very insistent attitude reappears, of treating as species minor variations which show little if any morphological differentiation. Thus, following some others, he maintains as species, with differences in texture of leaves and length of petioles, *Boehmeria Drummondiana* and *B. cylindrica*. Many others, who have looked into them, have found every conceivable transition in texture and harshness of leaves and length of petiole. Again, *Stellaria laeta* and *S. stricta* (at any rate as *Stellaria*, not as *Alsine*) are kept apart from *S. longipes* as if they are species on a par with *S. media*, *crassifolia* and *borealis*. However, many botanists who have had years of field-experience with the group long ago gave up trying to recognize them, even as varieties. In the key *S. laeta* is separated by "Stem 3–15 cm. high, usually 1–3-flowered, rarely 4–6-flowered," the others (*S. stricta* and *longipes*) coming under "Stem 2–3 dm. high, many-flowered" but in a further subdivision of the key defined as "few-flowered"; while in the descriptions *S. longipes* is said to have the stem "1–3 dm. high; . . . calyx 4–5 mm. long; . . . petals slightly exceeding the sepals," the stem of *S. laeta* being up to "20 cm. long" and its "petals about 5 mm. long." Let those who gain satisfaction thereby try to distinguish the "species."

The book, then, like much of the earlier work of its author, is highly variable, in some features conservative, clear and accurate, in others radical, vague and inaccurate. Unfortunately, the user has no way to differentiate. Keen sympathy has been felt by all for a coworker whose later years were handicapped by weakness and ill-health. In part, these regrettable conditions may explain the striking irregularity of the work. If the book stimulates botanical activity in the area it ostensibly covers we shall all be grateful. If the activity is keen enough a few of the hundreds of extralimital species which now appear may sometime justify their inclusion in the pages.—M. L. F.

BETTER HERBARIUM SPECIMENS

J. FRANKLIN COLLINS

DURING 1931 and 1932 the writer has been using sheets of sponge rubber as cushions in his plant press. He began using them on the theory that they might improve the quality of the herbarium specimens, particularly when portions of a specimen were thick or bulky and other portions thin and delicate. Actual results have far surpassed theoretical expectations, and this article is written with the idea that other collectors might like to learn of some of the possibilities and limitations of such sponge rubber cushions. It has been possible with these cushions in the press to get unusually smooth and well-pressed leaves of oak closely adjoining half-grown acorns on the

same branch, or well-pressed flowers of Redbud close to the thick branch from which they often grow; and, moreover, practically all parts of specimens are smooth and free from wrinkles. The rubber cushions also improve the quality of specimens that are not particularly bulky.

Several years ago the writer attempted to get some sheet sponge rubber for experimental purposes along the lines mentioned, but the only available material located at that time was the regulation sponge rubber sold in rubber-goods stores. It was learned that one sheet three-quarters of an inch thick, and large enough to cover a standard sized drier, would cost approximately \$7.00. This price discouraged any experimentation at that time. Within the last two years, however, there has appeared on the market, in at least two well known "Five and Ten Cent" stores, a sponge rubber "Kneeling Pad" or "Comfort Seat" which measures 15 x 9 x $\frac{3}{4}$ inches, with straight sides and rounded corners, which costs 20 cents. By trimming off an inch and a half from each end of this "Kneeling Pad"¹ the rounded corners are removed and a sheet rubber cushion is obtained that is exactly half the size of a standard drier (viz., 12 x 9 inches). Two of these placed side by side will just cover a standard sized drier (12 x 18 inches). This makes a full-sized cushion, in two pieces, cost 40 cents. The joint between the two halves is tightly closed when pressure is applied to the press, due to the spreading of the rubber under pressure. This type of rubber cushion is what the writer is using at the present time (August, 1932).

These pads have been used in various ways. The method now most generally used by the writer is to put one of the cushions on the top and another on the bottom of the press, between the driers and the frame or lattice-work in the built-up press, and others as needed *between driers* adjoining particularly bulky or irregularly thickened specimens elsewhere in the press. With these cushions it is possible, and advisable, to use a much greater pressure than with the ordinary press. There is little danger of crushing overlapping or crossed thick stems, fruits, flower-clusters, etc.; the cushions also tend to equalize the pressure throughout an unevenly built-up press. Of course, these pads prevent evaporation from the sides of the press, and make it more bulky; moreover, driers adjoining bulky specimens commonly show temporary deep impressions of the thicker portions.

¹ This can be done with an ordinary large pair of shears, following pencil lines made on the rubber at the proper places.

Ordinary corrugated ventilators have been tried in the press, but the writer has been able to get his best specimens by using the ventilators only after two or three days, when the thin parts of the specimens are dry and less pressure is needed. Ventilators are constantly used, however, to dry moist driers by building up a press (without specimens or specimen sheets) of damp driers alternating with ventilators, and the whole press loosely tied with cords or straps and placed edgewise over artificial heat until dry and warm, in which condition they are used to replace moist driers in the press containing specimens. This change to warm driers is usually made once or twice a day, as seems necessary, for the first two or three days.

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