Directions for Collecting & Preserving Plants in Foreign Countries for a Herbarium

This is a much simpler process than is generally imagined by those unpracticed in it; and travellers have been often deterred from collecting specimens by the time and trouble required for preparing them in the way that has by many been recommended.

The chief circumstances to be attended to are, to preserve specimens of plants in such a manner that the moisture may be quickly absorbed, the colours as much as possible preserved, and such a degree of pressure given them as that they may not curl up in the act of drying.

For this purpose let a quantity of separate sheets of paper be obtained of a folio size. Common brown paper is upon the whole the best, except for the very delicate kinds, which require paper of a smoother and somewhat more absorbent texture. Blotting paper, however, especially...
In warmer climates, it absorbs the moisture too rapidly, and by repeated dampening & drying it soon becomes rendered useless.

Two boards shall be provided, one for the top, & the other for the bottom of the mass of papers.

For pressure at home or when stationary, for any length of time in a given spot, nothing seems better than a weight of any kind (a folio book, a large stone, &c.) put upon the topmost board, and the great advantage of this is, that the weight follows the shrinking of the plants beneath.

Whilst travelling, three leather straps, with buckles shall be procured; two to bind the boards transversely, and one longitudinally. It will be further advisable to have a number of pieces of pastedboard of the same size as the paper, to separate different portions of the collection, either such as are in different states of dryness, or such as by their hard woody nature might otherwise expose prep. upon and injure.
injure the more delicate kinds.

Thus provided gather your specimens, if the plants be small, root and stem, if large, cut off branches a foot or a foot and a half long, selecting always such as are in flower, and others in a more or less advanced state of fruit.

Place them side by side, but never one upon another on the same sheet, and lay upon them, one, two, or three sheets, according to the thickness of the plants, or their more or less succulent nature; and so on, layer above layer of paper and specimens, subjecting them then to the pressure.

As soon as you find the paper has absorbed a considerable portion of the moisture (it will be according to the more or less succulent nature of the plants, and the heat or dryness of the season or climate), remove the plants into fresh papers and let the old papers be dried for use again, either in the open air or sun, or in a heated room, or before the fire.

As to the spreading out of the leaves and
flowers with small weights, penney pieces, &c., it is quite needless. The leaves and flowers are best displayed by nature in the state in which you gather them, and they require little or no assistance with the hand, when laid out upon papers, to appear to the best advantage, especially if put in carefully on being fresh gathered. 

If the specimens cannot be laid down immediately on being gathered, they will be best preserved in a tinfoil, or placed in that in a rush basket, where they will keep fresh for a day or two, if the atmosphere be not very musty.

Some very succulent plants, such as Cacti, Selaginella, Seda, Orchideaeous plants, we grow in trees, &c., require to have the specimen, plunged in boiling water for a few seconds before they are pressed, to destroy life and thus accelerate the process of drying.

Plants with very fine but fragrant leaves, as the Fox tribe and the Heathias, and some with compound winged leaves, to prevent their leaves falling off, or their parts separating may
may either be treated in the same manner, or dried on very hot paper, or with a hot iron.

In many cases, especially in warmer climates, the traveller will find the process accelerated by exposing the parcel (hanging up and properly secured) to the open air, when the weather is favourable, and the circulation of air through it will be promoted if the sheets on which the specimens are laid be placed alternately back and edge.

In tropical climates he will find it necessary to shift his specimens at least once a day, and by changing them into hot paper, and crowding such specimens as are dry, he will be enabled to form a considerable collection in small compass and in a very short time. Four or five shifting will generally be sufficient to complete the process, which is ascertained by the stiffness of the stems and leaves, and by the specimens not shrinking when removed. They should then be placed between dry papers and formed into parcels of moderate thickness, and either packed...
packed in boxes, or well secured as parcels covered with oil cloth.

Plants having their flower-plants and leaves very large, can hardly be subjected to pressure; a few flowers shall be pressed, and the whole cluster of flowers and fruit, as well as a leaf, may be simply dried in the air and afterwards packed in boxes for transportation.

The greater number of cryptogamic plants may be dried in the common way, such mosses as grow in tufts being separated by the hand. But both mosses and lichens, as they can at any future time be expanded by stamping, may be dried by the travel without pressure and put up, either each species separately or several together, in small paper bags or canvas bags, carefully marking the place of growth and the date when gathered.

If the fruits of plants are of a small size so as to be preserved in a herbarium, they shall be gathered with the leaves & branches.
are the flowers; if of a large size they shall be kept separate.

Dry fruits demand no care, except that those that split into valves shall be tied round with a little piece of thread.

Pulpy fruits are only to be preserved in spirits or pyrogallic acid diluted in the proportion of eight parts of water to one of the concentrated acid. In all cases the separate fruits, whether dry or preserved in a fluid, shall have a number attached to them, referring to the flowering time of the plant. Seeds, whether for examination or intended to be saved, shall be gathered when justly ripe, put up in brown paper bags, and kept dry in a box.

With the species, fruits or seeds, there shall be slips of paper, on which are to be written the uses, native names, and general appearance of the plant, whether herbaceous, shrub, or tree, its sensible qualities, and the colour and form of the flowers; its situation, if dry or damp, the nature of the soil, etc.
the elevation above sea level, and the date when gathered.

As soon as a sufficient number of spec. are collected, no time shall be lost in transporting them to their place of destination, since, in warm climates especially, they are liable to the attacks of insects. These attacks, which are often completely destructive to the spec., may in many cases be prevented by pitching the boxes, and by putting in them, or in each parcel, cotton dipped in petroleum, spirits of turpentine, or small pieces of camphor, and the captains of vessel shall be particularly requested to keep them in a dry or airy part of the ship.

Specimens of the woods of from six to eight inches in length of the entire round of the trunk, or branch of small, and segments from centre to circumference of the larger kinds, in both cases with the bark, shall also be preserved — not only of the more remarkable trees, but also of the woody
woody climbers, which exhibit peculiarities of structure highly interesting to the botanist. When species of woods are preserved, they should be marked with numbers corresponding with the flowering branches of the tree in the collection of species; and when flowers cannot be obtained, a small branch with leaves or fruits should always be taken.

Gums, resins, and other remarkable products should also be collected, their uses if known noted, and reference made by numbers to the plants they belong to.

Useful and ornamental plants not only form the most important parts of such collections, but even the weeds of foreign and little known countries, the grasses, ferns, mosses, lichens, and sea weeds, will prove extremely valuable to the scientific botanist.