

IV. CONDITA;

Or, Parts of Vegetables and Animals preserved for Use, and arranged according to the Mode adopted for their Preservation.

DRIED ROOTS. They should be rubbed in water to get rid of the dirt, and also some of the mucous substance that would otherwise render them mouldy. The larger are then to be cut, split, or peeled: but in most aromatic roots, as those of the umbelliferous plants, the odour residing in the bark, they must not be peeled. They are then to be spread on sieves or hurdles, and dried in a heat of about 120 deg. Fahr. either on the top of an oven, in a stove, or a steam closet, taking care to shake them occasionally to change the surfaces exposed to the air. Thick and juicy roots, as those of rhubarb, briony, piony, water lily, &c. are cut in slices, strung upon a thread, and hung in garlands, in a heat of about 90 to 100 deg. Fahr. Squills are scaled, threaded, and dried in chaplets round the tube of a German stove, or in a hot closet; but they are very subject to grow soft. Beaume advises that rhubarb should be washed, in order to separate that mucous principle which would otherwise render it black and soft when powdered. Potatoes are first boiled, and then cut in slices and dried, to form a kind of sago. Orchis roots are boiled in water, and then dried to form saloop.

DRIED WOODS require little attention; but the silver grain is liable to the attack of insects. Buffon advised trees intended for timber to be barked a year before they were felled, as in that time the silver grain becomes as hard as the heart of the wood. Timber for ship-building is sometimes soaked in a solution of arsenic, to hinder it from affording a lodgment to marine worms. By floating timber for some time in water, it loses part of its extractive and saccharine

juices, and becomes harder, so as to be less liable to be attacked by insects or worms: by soaking in alum water, it is rendered less combustible.

DRIED BARKS, for medical purposes, require the outer skin to be peeled off, as it is usually coarse and inefficacious. The ordinary heat of the atmosphere is in general sufficient.

DRIED PEELS OF FRUITS, as those of pomegranates, oranges, or lemons. In this case, the outer peel should be separated from the greatest part of the white fungous substance, and it should not be squeezed or moistened with the juice of the fruit.

DRIED TOPS, LEAVES, OR WHOLE HERBS. They should be gathered in a dry season, cleansed from discoloured and rotten leaves, screened from earth or dust, placed on hurdles, covered with blotting-paper, and exposed to the sun or the heat of a stove, in a dry airy place. The quicker they are dried the better, as they have less time to ferment or grow mouldy; hence they should be spread thin, and frequently turned: when dried, they should be shaken in a large meshed sieve to get rid of the eggs of any insects that would otherwise be hatched amongst them. Aromatic herbs ought to be dried quickly with a moderate heat, that their odour may not be lost. Almost all plants, after they have been dried so as to become brittle, give a little, and become more odorous, as melilot, red roses, oak of Jerusalem, lesser centaury. Cruciferous plants, or the tetradynamia of Linnæus, should not be dried, as in that case they lose all their antiscorbutic qualities. It is singular that although these plants are so hot to the human taste, they are the most liable of any to the attacks of insects, and are always the first that are destroyed by them, when kept in a hortus siccus. Some persons have proposed to dry herbs in a water-bath, but this occasions them to be as it were half boiled in their own water, especially as the evaporation goes on slowly in close vessels.

DRIED FLOWERS. They should be dried as speedily as possible, the calyces, claws, &c. being previously taken off: when the flowers are very small, the calyx is left, or even the whole flowering spike, as in the greatest portion of the labiate flowers. Compound flowers, with pappous seeds, as coltsfoot, ought to be dried very high and before they are entirely opened, otherwise the slight moisture that remains

would develop the pappi, and these would form a kind of cottony nap, which would be very hurtful in infusions, by leaving irritating particles in the throat. Flowers of little or no smell may be dried in a heat of 75 to 100 deg. Fahr. The succulent petals of the liliaceous plants, whose odour is very fugacious, cannot well be dried, as their mucilaginous substance rots and grows black. Several sorts of flowering tops, as those of lesser centaury, lily of the valley, wormwood, melilot, water germander, &c. are tied in small parcels, and hung up, or else exposed to the sun, wrapped in paper cornets, that they may not be discoloured. The colour of the petals of red roses is preserved by their being quickly dried with heat, after which the yellow anthers are separated by sifting. The odour of Provence roses and red pinks is increased by drying. Much of the odour of labiate plants resides in their calyx.

After some time, the dried flowers of violets, bugloss, or borage, grow yellow, and even become entirely discoloured, especially if they are kept in glass vessels that admit the light; if, however, they are dipped for a moment in boiling water, and slightly pressed before they are put into the drying stove, the blue colour is rendered permanent.

Plants lose more or less by drying, according to their state of dryness or freshness.

The flowers of borage, bugloss, spotted lungwort, lily of the valley, violet, St. John's wort, red poppy, sundew, lose about fourteen ounces in the pound: water lily flowers lose still more. The flowers of marygold, broom, rosemary, sage, and almost all the labiate flowers, as also wet saffron as it is called, the tops of water germander, and wormwood, lose twelve and a half, or thirteen ounces. Roses, clove pinks, leaves of bugle, tops of wild marjoram, feverfew, camomile, arnica, *gnaphalium dioicum*, and other corymbiferous plants, lose eleven and a half or twelve ounces. Flowers of the mallow kind, and elecampane root, lose nearly the same. Eyebright, yellow ladies' bedstraw or cheese rennet, melilot, and other herbs of the papilionaceous kind, sanicle, the flowers of the lime tree, lose ten or eleven ounces. Periwinkle, tops of lesser centaury, the excrescence of the dog-rose called bedeguar, and all herbaceous stalks not of a woody nature, lose from nine to ten ounces. Saxifrage and other roots of a middling size, lose nine ounces, or rather more than a half. Rhubarb, the succulent roots of briony

or wild vine, wake robin or cuckow pint, lose about two thirds. Barks, woods, especially those that are resinous, lose about one half.

DRIED PLANTS for a hortus siccus. The plants being laid down, in their natural position as far as possible, upon some sheets of blotting-paper, are then to be covered with two or more sheets of the same, and a board being laid upon the whole, to prevent the leaves, &c. from curling up, weights are put upon the board, and the whole exposed to the air in a dry place. If the stalks or other parts of the plants are very thick, the lower part may be pared, so as to lay the whole as flat as possible. The paper should be changed every two or three days, and the weights increased until the plants are thoroughly dry. A number of plants may be submitted to the same press at once, placed one upon another, with several sheets of blotting-paper between them. If circumstances require haste, the plant spread between papers may be dried by a warm smoothing iron, such as is used for linen. When this is done by a well-practised hand, the colours of the flowers are preserved better than by any other mode.

A still better way is to have a box the size of a sheet of paper, and about nine inches or a foot deep, then strew some sand about an inch thick at the bottom, over which place a sheet of blotting-paper, and upon this, as many of the plants as will conveniently lie upon it, carefully expanding and smoothing them; then put a sheet of blotting-paper over them, and the thickness of about half an inch of sand, upon which another sheet of paper, another layer of plants, paper, and sand, may be placed, thus continuing till the stock of plants is exhausted, or the box filled, observing to have a layer of sand at the top: the box is then to be put into a dry airy place, or near a common fire, till the drying is complete: when the plants are dried, they may either be pasted down on sheets of paper, or otherwise fastened by thread, or slips of paper passed through slits in the sheet.

Instead of flattening the plants for the purpose of placing them in books, they are sometimes dried in their natural form, by suspending them in a tin box of sufficient depth, then carefully filling the box with sand, and placing it in a warm dry place for a few days; after which the sand is to be taken out carefully, and the dry plants may be either made into nosegays and covered with a glass case, or stuck

in pots, and scented with a few drops of a proper essential oil: even mushrooms may be dried under sand in a similar manner. The sand should be rather coarse, that the moisture may breathe out the more freely.

DRIED SEEDS. These require, in general, but little attention. The farinaceous and leguminous sorts may be dried in a stove; oily seeds, fit for making emulsions, must not be dried by heat, but only in the free air, and even then they are liable to become rancid. The seeds of cruciferous plants soon lose their germinative faculty, unless they are kept under moist sand in a cool place; but those of black and white mustard, rape, and charlock, are dried in stoves until they become in some degree friable, for the purpose of being ground into flour of mustard. Almonds, pistachias, and in general all seeds, keep best in their shells or other integuments. Horny seeds, although highly dried, retain their germinative faculty for a long time. The seeds of umbelliferous plants, although they are oily, dry very well in the air, the oil being volatile.

SEEDS PRESERVED FOR TRANSPORT. Large seeds, as acorns, have been sent to distant countries by being wiped dry, rolled up very close in thin ribands of bees wax, put into boxes, and the interstices filled with melted wax, poured in when it was just upon the point of becoming solid; but the best way with all seeds is to put them in their natural covers among raisins or brown sugar, which keeps them moist, and in a state fit for vegetation.

DRIED FRUITS. Fruits gathered before they are thoroughly ripe, are kept upon a layer of straw, in order to ripen, in a cool, dry, shady place. Citrons and oranges will thus ripen, although gathered quite green. The fruit ought not to touch one another, lest they should grow rotten, for want of free evaporation at the place where they touch. Cherries and plums are usually dried in an oven heated to 110 deg. Fahr. Figs, dates, jubebs, sebestens, myrobalans, and other nutritive fruits of warm climates, are dried in the sun upon hurdles. Dried grapes, raisins, and grocers' currants, are made by dipping the fruit into a ley made of wood ashes or barilla, at 12 or 15 degrees of Beaume's hydrometer, to every four gallons of which is added a handful of salt, and a pint of oil or a pound and a half of butter, and then drying them in the sun; they lose about two thirds of their weight, and become covered with a white saccharine exudation.

Mangoes are peeled, pulped, pressed into thin sheets, like brown paper, and then dried. Chestnuts are dried upon hurdles over a clear fire.

DRIED ANIMAL SUBSTANCES, *for the materia medica.* These are usually done in a stove or oven, as vipers, skinks, cantharides, cochineal, &c.; but if any larvæ should hatch in them, they must be heated to 122 deg. Fahr. to destroy the insects.

FROZEN SUBSTANCES. The action of frost has been used to dry some animal substances, as ling, haddocks, rein-deer tongues, &c.

SUBSTANCES PRESERVED BY HEATING IN WELL-CLOSED VESSELS. This mode of preserving vegetables as well as animals has been lately written upon by Appert, in France, and a patent has been taken out by Donkin and Co. in England, to prevent us from receiving any benefit by Appert's work, unless through their medium. The substances to be preserved are to be put into strong glass bottles, with necks of a proper size, corked with the greatest care, luted with a mixture of lime and soft cheese, spread on rags, and the whole bound down with wires across it: the bottles are then inclosed separately in canvass bags, and put into a copper of water, which is gradually heated till it boils, and thus kept until it is presumed that the substances are, as it were, boiled in their own water. Meat or poultry ought to be three quarters boiled or roasted before it is put into the bottles: the whole is then left to cool, the bottles taken out and carefully examined before they are laid by, lest they should have cracked, or the lute given way. The patentees use stone-ware jars and tin boxes soldered up, instead of glass bottles.

FRUIT, &c. PRESERVED IN WATER. This mode is in some measure similar to the preceding: the fruit not quite ripe, pulse or other substance, is put into wide-necked bottles, which are placed in a copper of water nearly up to their mouths, and they are lightly corked; the water is then heated till it is very hot, but does not scald, and this heat is kept up for half an hour: the bottles are then taken out, and immediately filled with boiling water to the very brim, carefully corked, wired, placed on their sides, and turned at first every week, but afterwards seldomer, to prevent any part, in consequence of the bubble of air that forms in them, from getting dry, and thus becoming mouldy. Some

attempt to preserve fruits, &c. without water, by heating the water-bath to boiling, and corking the bottles while in the boiling water, but this does not succeed so well, unless the fruit is very green; and the water is at any rate useful to put into pies. Great quantities of cranberries are yearly brought from the northern countries, in casks preserved in water.

PICKLES IN BRINE. A brine is made of bay-salt and water, thoroughly saturated, so that some of the salt remains undissolved; into this brine the substances to be preserved are plunged, and kept covered with it. Among vegetables, French beans, artichokes, olives, and the different sorts of samphire are thus preserved; and among animals, herrings and pork, but these latter can hardly be said to belong to this work. Specimens of animals may also be preserved in brine, as also anatomical preparations; and this method, although it may not be so elegant as the use of spirit of wine, yet it answers nearly as well, and is much more economical: for this purpose, the brine should be filtered.

PICKLES IN DRY SALT. This mode of preservation is almost entirely confined to beef or pork: the salt is to be well rubbed in, and the meat then laid on a table, or in a tub with a double bottom, that the brine may drain off as fast as it forms, and frequently turned; when the brine ceases to run, the meat is to be buried in salt, and thus kept closely packed. Meat which has had the bones taken out is the best for salting: in some places the salted meat is pressed by heavy weights or a screw, to extract the moisture so much the sooner. In hot climates, the meat being cut up as soon as killed, is immediately rubbed over with the still warm fat, before the salt is applied to it.

SALTED FLOWERS. *Flores saliti.* Rose or elder flowers one bushel, brown salt 2lb; mix and beat them to a paste, which keep in a close vessel; by this means the chemists are enabled to distil rose or elder flower water at any time.

PRESERVES IN OIL. In some countries they keep salmon and tunny in olive oil, as also truffles; the jars are kept closely luted till the substances are wanted, to prevent the oil from growing rancid.

WET CONSERVES IN SYROP. In making these, it is necessary to consider the manner in which the several degrees of strength in syrop is judged of in boiling: if moist sugar

is used, the syrop must be clarified with white of eggs, but if refined sugar is used, it need only be melted over the fire in a quarter, or at most one third of water, and as the water evaporates, the syrop must be taken up with a large spoon, and let to fall into the pan again. If, during this manipulation, it forms a broad sheet as it falls, it is said to be boiled to a candy height, and will exhibit when taken from the fire, but still warm, 36 deg. of Beaume's hydrometer: if it has not been boiled quite so far, the sheet is formed but imperfectly, and it exhibits a smaller number of degrees; it is then said to be boiled to a weak candy height. In shaking the ladle of syrop, when in this state, it runs over in the form of the feathers of a quill, or drops in the manner of pearls, which being received in a glass of water, ought to fall to the bottom in solid and brittle globules. If the boiling is continued a little longer, these effects are produced in a more perfect manner, and the syrop exhibits 37 deg. by the hydrometer; it is then said to be boiled to a full candy height: if it be now stirred until it is cold, it forms a dry powdery mass. As all the water is now evaporated, if the sugar is continued on the fire, it begins to turn red, and acquires a burnt taste.

To preserve fruits, then, which are the substances usually preserved in syrop, the latter is boiled to a weak candy height, and poured hot upon the fruits so as to cover it; the juice of the fruit of course weakens the syrop, which must, therefore, the next day be poured off the fruit, and reboiled to the former height, and then poured on the fruit again; and this must be repeated if the fruit is very juicy, a third or fourth time, until the syrop is no longer weakened by the juice of the fruit.

DRY PRESERVES IN SUGAR. The fruit, if very succulent, is first soaked for some hours, in very hard water, or in weak alum water, to harden it, and then drained. Upon the fruit, either prepared or not, syrop boiled to a candy height, and half cold, is to be poured: after some hours, the syrop, weakened by the juice of the fruit, is poured off, reboiled, and poured on again, and this repeated sometimes a third time. When the syrop is judged to be no longer weakened, the fruit is taken out of it, and drained.

CANDIED ANGELICA. *Caules angelicæ conditi.* The stalks are to be boiled for a quarter of an hour in water, to take away their bitterness and some of the strong scent;

they are then to be put into syrop boiled to a full candy height, kept on the fire until they appear quite dry, and then taken out and drained. Cordial, aphrodisiac.

CANDIED ERYNGO. *Radix eryngii condita*, is prepared nearly in the same manner, but the roots are only slit, and washed three or four times in cold water, before they are put into the syrop. Highly aphrodisiac.

CANDIED ORANGE PEEL. *Cortex aurantium condita*.

CANDIED LEMON PEEL. *Cortex limonum condita*. The peels are soaked in cold water, frequently changed, till they lose their bitterness, and are then put into syrop, till they become soft and transparent, when they are taken out and drained. Stomachic.

CANDIED ORANGE FLOWERS. *Flores aurantiae conditi*.

Orange flowers, freed from their cups, stamina and pistils, four ounces are put into lbij of sugar, boiled to a candy height, and poured on a slab, so as to be formed into cakes. Stomachic, antispasmodic.

PRESERVES IN HONEY. Seeds and fruits may be preserved by being put into honey, and on being taken out, washed, and planted, they will vegetate. Honey has also been used to preserve the corpses of persons who have died at a distance from home, that they might be conveyed thither. The Spartans who fell in battle were usually buried on the spot, but the bodies of their kings were preserved in honey, and carried home.

PRESERVES IN BRANDY, OR OTHER SPIRITS. Plums, apricocks, cherries, peaches, and other juicy fruits, ought to be gathered before they are perfectly ripe, and soaked for some hours in very hard water, or in alum water, to make them firm. As the moisture of the fruit weakens the spirit, it ought to be strong, and five oz. of sugar should be added to each quart of the spirit.

OBJECTS OF NATURAL HISTORY PRESERVED IN SPIRIT.

In this case a small quantity of spirit of hartshorn is usually added to the spirit of wine, which prevents the specimens from growing so brittle as when preserved in pure vinous spirit, and renders them capable of being examined anatomically, even after being kept for several months. Flowers and fruits are also preserved in this manner, but in pure spirit of wine, or other similar liquor.

PICKLES IN VINEGAR. Many of these are kept in the shops: the vegetables are usually soaked in salt and water

for some hours, then drained, and boiling vinegar poured upon them; in a few days the vinegar is poured off, boiled a little, and then poured on again: if the vinegar is good, and the substances are not too moist, it is sufficient to pour it cold upon them, and keep the vessel closely covered.

SAUR KRAUT. *Brassica acidulata.* Large white cabbages are cut into thin horizontal slices, and placed in a barrel with a layer of salt at top and bottom, and between each layer of cabbages. A board with some weights on it is then put on the top, and it is kept in a cool place for some weeks: a kind of fermentation takes place, and vinegar is formed. Some add juniper berries, coriander seeds, tops of anise, or carui seeds, to the salt, as a kind of spice. It may be dried in an oven without any loss of its flavour.

POTTED MEATS. Quails are taken at the time of their passage in the Archipelago, and preserved by pouring melted butter over them. Char is also treated in this manner in England.

SMOKED MEATS. They are usually salted previous to the smoking, which ought to be done with a wood fire, or rather one of moist saw-dust, by which means the pyroligneous acid is better enabled to penetrate into the substance exposed to its action.

PRESERVED MUSHROOMS FOR SPECIMENS. The mushrooms should previously be allowed to remain in the air as long as their texture will permit, in order to allow some of the moisture to evaporate: then they are to be put into a solution of two oz. blue vitriol, in a pint of water, to which half a pint of spirit of wine has been afterwards added: the specimens should remain in this pickle for a day or two, and then put into a wide-mouth jar of a proper size, and the jar filled up with a mixture of eight parts of water with one and a half of spirit of wine, if the specimen is large, juicy, or fleshy; but if thin and woody, it will be sufficient to fill up the jar with a mixture of eight parts water, with one of spirit. The jar must be filled to the top, then corked very tight, and the cork and rim of the jar covered with Venice turpentine, by means of a painter's brush: in a few days the turpentine will be nearly dry, and a piece of wetted bladder should then be tied very tight over the top of the jar. Other succulent plants may also be preserved in this mode.

STUFFED ANIMALS FOR SPECIMENS. The animal being

carefully embowelled, the opening for that purpose being made in some place that will be out of sight, as, for example, under the wings of birds, gashes cut in the remaining flesh, and the brain extracted by a wire; the whole of the inside is washed with a ley of common soda, then dried with tow, and afterwards the inside is done over, by means of a brush, with *Bécœur's arsenical soap*, which is prepared by melting thirty-two oz. of soap in a little water, adding twelve oz. of salt of tartar, and four oz. of quicklime, then mixing with these thirty-two oz. of white arsenic, and five oz. of camphor previously rubbed down with a little spirit of wine; more water is then added to form the whole into a thin gruel: this illinition drives away insects. Larger animals are usually merely skinned: the internal cavity is then filled with tow, shred tobacco, straw, or this powder. Tobacco and powder of black pepper, of each 1℔, flowers of sulphur and sal prunellæ, of each eight oz. burnt alum, four oz. to which may be added an ounce of corrosive sublimate. Animals have also been preserved by embowelling and keeping them for some time in a solution of corrosive sublimate, then hanging them up to dry in the air, and simply stuffing them with tow, which has been dipped in the same solution. Fish are sometimes skinned, the skin is then drawn over a mould made of clay, or plaister of Paris, and varnished with spirit varnish. False eyes are made for these specimens, by dropping some black sealing-wax upon a piece of card, cut a little larger than the size of the natural eye. For large eyes, common glazier's putty may be used, and when dry, painted of any required colour. Baking is not only useful in fresh specimens, but it should be a constant practice to bake them over again once in two or three years, and to have the cases washed with camphorated spirit of wine, or a solution of corrosive sublimate.

INSECTS FOR SPECIMENS. The hard-shelled winged insects to be pinned through the left wing, so that the pin may pass just under the first pair of feet: other insects to be pinned through the thorax. As their feet and antennæ generally fold under them, pin them at first upon a slice of cork, pull out the feet and antennæ very carefully, with a small pair of forceps, and fix them in a proper position with pins for two or three days, after which they will retain their situation: if they are already stiff, breathing upon them for a few minutes will relax the muscles. For the sending of

them to any distance, stick them in boxes about four inches deep, the top and bottom of which are lined with cork, or soft wax spread between paper, about 1-8th of an inch thick, fixed to the box with glue and small tacks; into each box put a small bag of powdered camphire, or a sponge impregnated with oil of cajeput, or any other strong-scented oil. The larger insects must not be put in these boxes, along with small ones, lest they should get loose and break the others during the carriage.

Spiders are best kept in spirit of wine, by pinning them to a skewer of soft wood stuck into the cork of a wide-mouth vial, so as to keep it in the middle; but if they are desired to be kept along with other insects in boxes or drawers, then procure a glass tube, seven or eight inches long, and 3-4ths in. in diameter, open at both ends, with a cork fitted to one end; as also a splinter of wood sharp at both ends, and so long, that one end may be stuck into the cork, and the other may reach to the middle of the tube. When you catch a spider, pin it through the thorax, put the legs in the right position with pins, as above; cut off the abdomen with scissars, and stick it on the splinter of wood, put it into the tube, and hold this over the flame of a candle, turning it constantly, till the abdomen appears dry and round, then let it cool in the tube, and when cold, cut it off, and fasten it again to the thorax with gum water thickened with starch.

Caterpillars may be preserved in a similar way, by being dried over the fire or candle in a tube; a slit being made by which the inside may be pressed out, and the skin, by means of a blow-pipe, blown up to its proper size again.