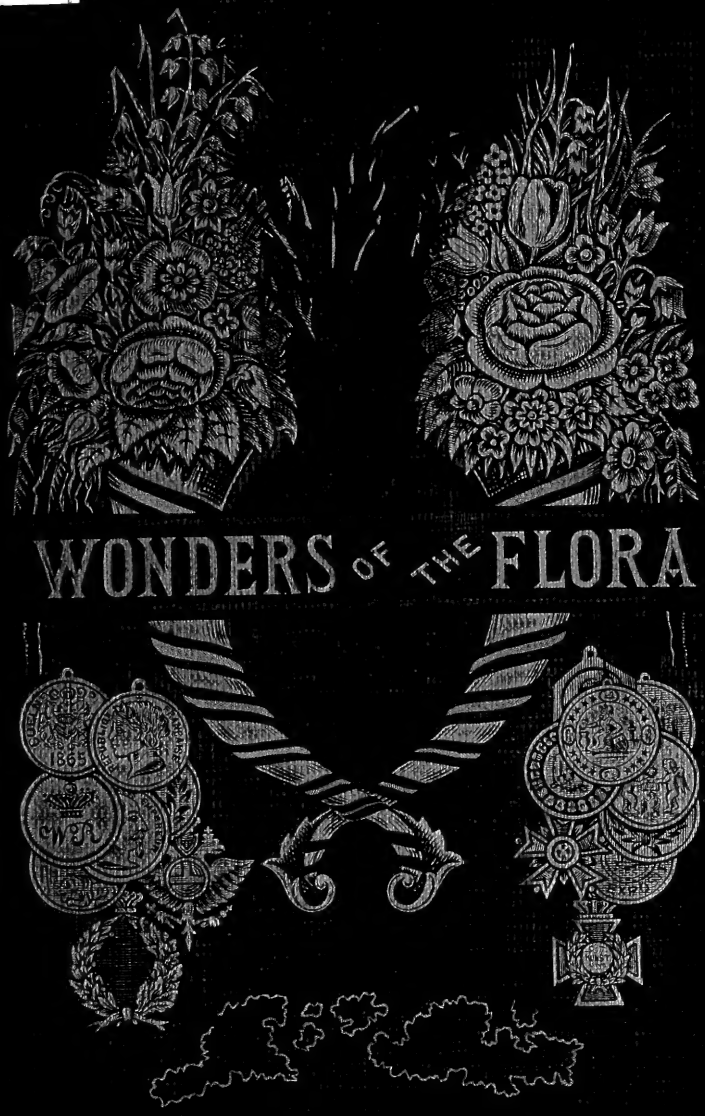

H. Acosta Hresken

WONDERS OF THE FLORA.

THE

PRESERVATION OF FLOWERS

In their Natural State and Colors.

ALSO CONTAINING A TREATISE ON

ORNAMENTAL GRASSES & MOSSES,

Their Uses, and How to Color Them, &c.

BY

H. ACOSTA KRESKEN,

Practical Florist.

ILLUSTRATED.

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PREFACE.

THE eagerness for new and wonderful developments, which in the present age seems ever on the increase, and leads men to new researches into the realms of science and art, includes within its scope all nature, of which, it will be freely admitted, the floral kingdom forms a very important part. The endless variety and beauty of floriculture offers to the student of nature unequaled attractions not only to discover and develop new marvels of beauty that lay hidden in this fine study, but also to find the means by which countless numbers, already known, may be preserved for a longer than the short space of time allotted to them by the laws of nature

in which to delight our vision and add something to our earthly enjoyments. A higher Dispensation has decreed the dependence of man upon organic nature for many of his comforts and pleasures. This is nowhere so apparent as with the gifts of Flora. From time immemorial flowers were used as representations of the tender and the lovely.

Their allegorical appliance was in all parts of the world inherent to poetry, and emblematic of all that is great and good. There is in fact but little poetry without flowers. All art, all ingenuity of human invention, has always failed, and will forever fail to make or compose an ornament that could equal the simple rose, the modest violet, or the chaste lily. Did not the Savior himself pay a glowing tribute to the latter in the parable of the lilies? According to his words, there was nothing among all the wealth that even a Solomon possessed which could be compared to the beauty of the lily. Yes, verily, the

most lavish use of gold and diamonds will rarely form anything but an imperfect ornament, if not supported or enriched by the inherent beauty of leaves, buds, and blossoms. The flower is the messenger of love and friendship. It serves as a token of esteem, as a prize for gallantry or virtue. More than this, it is the last gift of bereaved friends which follows the departed to their final narrow resting-place. Even a coffin is seldom seen without flowers; and the melancholy aspects of a funeral are mitigated to no small degree by the tender and sweet influences of flowers. It is a mysterious consolation to know that our dear deceased are surrounded by fragrant flowers, and that their place of silent rest is encircled with lofty trees and blooming shrubs. That a little bouquet, a single flower left from such an occasion, should gain a thousandfold value from the memories attached to it, and its preservation become an object of great solicitude, is certainly not to be wondered at.

Yet despite all the eulogiums that can be bestowed on flowers, they do not last. They are short lived; and their mere temporary existence depends upon season, temperature, and weather. By the laws of nature these dear tokens of affection are, with few exceptions, doomed to well-nigh immediate decay, unless means can be devised by which this natural tendency to decay can be arrested.

To discover the best and most practical methods by which this so desirable object could be attained has been my study for years, and it affords me great pleasure to be able to state that my efforts have been crowned with very satisfactory results.

As early as the year 1865,—fourteen years ago,—when scarcely anything was yet publicly known of this art, I received the grand prize-medal for my display of preserved flowers at the international horticultural exhibition at Cologne on the Rhine. Since then, I have received no less than eighteen

medals of high grade at the different worlds' expositions, as also a number of valuable and rarely-bestowed decorations from the reigning potentates of Europe, and many honorary diplomas in the United States and other countries for my exhibitions of preserved flowers. Firmly believing that a treatise on so interesting a subject, of which so little is generally known as yet, would be hailed with pleasure by a great many lovers of flowers, I have now laid down in this volume my long and extensive experience with the subject in question.

The reader will find in the book before him several methods, clearly and concisely given, by which the rose, the violet, the pansy, the forget-me-not, and hundreds of other beautiful flowers, may be kept in nearly their original beauty for many years.

I have also added several important chapters on the gathering, coloring, and arranging of numerous varieties of ornamental grasses,

mosses, and leaves for home ornament or decorative purposes on public occasions, besides a number of chapters on subjects pertaining more or less to the title of this book.

With these prefatory remarks, I commend this book to the favorable notice of the public, feeling confident that it will contribute something toward an agreeable and profitable occupation of the time of its readers, and awaken, by the knowledge of how to preserve many of them, a still deeper interest in the beautiful gifts of the Flora.

H. ACOSTA KRESKEN.

CINCINNATI, OHIO, May, 1879.

Wonders of the Flora.

Chapter I.

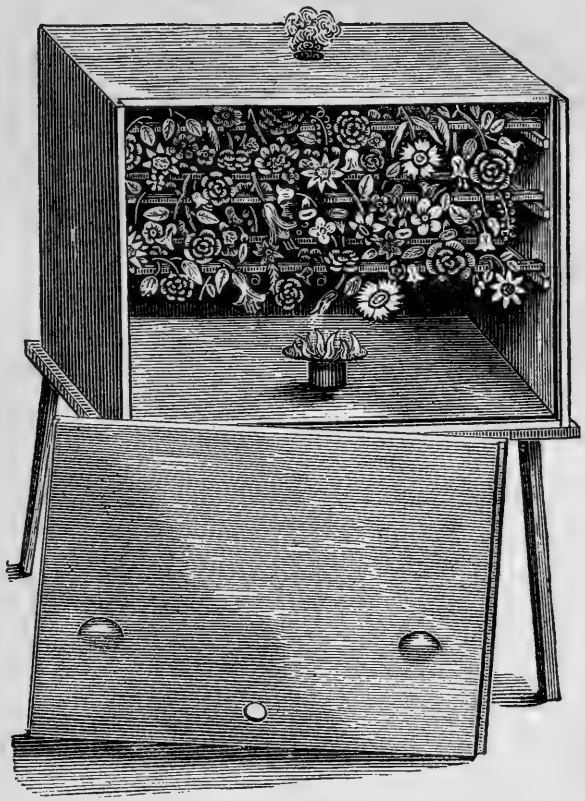
THE ART OF DRYING FLOWERS BY APPLICATION OF SULPHUR VAPOR.

KNOWING the curious and sometimes destructive effect that sulphur has when brought in contact with different objects, some of my kind readers will no doubt be surprised to find it placed at the very head of this book as the saving, the conserving element of many of the delicate and beautiful gifts of flora.

Yet, strange as it may appear to many, it is none the less true, and without entering upon any scientific theory of the subject, I merely state

the fact, leaving the verification of it to experiments by the reader.

To cure or dry flowers by sulphur vapor, the first thing requisite is a wooden box of a size to suit the quantity of flowers on hand. For general use I would recommend the following size: Height and width two feet, length three feet. The box should have a sliding lid, or rather, front, and be as near as possible air-tight. All cracks must be closed by filling them up with putty or soft clay. Place the box so that the lid be on the front side and that it may be opened by drawing the lid upward. Inside, on both of the short sides of the box, there should be two laths one inch in thickness and six inches apart. On



THE SULPHUR-BOX.

When ready to be closed.

these laths the sticks of corresponding length are laid to hold the flowers. The latter should be put up in small bunches. Of the smaller flowers quite a number may be bunched together, but of the larger, like peonies, roses, and asters, not more than three. Ordinary coarse thread may be used for binding; common wire will blacken and spoil the flowers. Two bunches are joined by a short thread, and then hung over the sticks with the flowers downward and sufficiently far apart to avoid pressing. When the box is filled with flowers, place a little tin or earthen vessel on the bottom, about six inches from the flowers above it, containing about four ounces of common sulphur or brimstone, and

enough sulphur-fuse to make it burn well; then ignite it and close the box. To prevent the extinguishing of the sulphur and to furnish a draft of air, there should be two holes one inch in diameter in the box, one in the lower part of the lid or front side, and another in a straight line with this in the upper board, to insure the desired draft. After the brimstone has been burning freely about ten minutes, and the box has been well filled with vapor, cork up the draft-holes and close all the cracks through which the vapor escapes, with putty, and keep the box hermetically closed at least twenty-four hours. When the box is opened the flowers will appear white; those which retain much

of their natural color are not fully cured, and are unfit for preservation. After having been taken out of the box, suspend them in some shady room and expose them to a continuous draft of air, but at the same time be prepared to close the room and protect the flowers from dampness, if rainy weather sets in, in order to prevent them from molding. As the drying process progresses the flowers will gradually regain their natural color. They may then be put up in little paper or wooden boxes until used.

In the above described manner a large quantity of flowers and of numerous varieties may be dried without great trouble and in a comparative-

ly short time, but it is essential that the sulphur-box be not opened too soon. A few hours longer makes little difference, but one hour too soon may spoil them. These flowers may be used for various ornamental purposes, and their curing and arranging may be converted into a profitable business, if pleasure or the love of art be not the only motive for the experiment.

Before specifying the varieties of flowers best adapted to this manner of curing, I wish to direct the attention of the reader to a certain treatment of preserved flowers which is almost indispensable to their usefulness for decorative purposes. Flowers cured by sulphur vapor should, before

working them up for ornamental purposes, be placed in a cellar, or in any other damp place, and be left therein about twenty-four hours or until they become flexible. Their straw-like appearance will then be changed; their color will become natural and more vivid. Certain varieties, for instance asters, will begin to look as fresh as if they were recently cut.

All dried flowers of red colors, including pink and crimson, will be greatly improved by being submitted to the following manipulation: Mix one part of chemically pure nitric acid with eleven parts of cistern or river water; put the mixture in a glass or earthen vessel; dip the dried flowers in only for a moment, then let the

liquid drop off, and suspend the flowers in a shady and airy place to dry. Flowers treated in this manner will often acquire brilliant colors. There is hardly any other way to give dried roses an appearance of freshness. They must, however, not be dried before the open fire or by stove-heat.

Fuchsias must not be fully developed if to be cured to advantage. Buds of all varieties may be preserved so as nearly to equal the fresh ones. When they are to be used, it is only necessary to moisten them slightly, when they may be easily opened with the fingers, and the stamens arranged to suit taste and purpose.

The *Xeranthemum annuum flora pleno albo*, the double white Xeranthe-

mum, although an everlasting, will invariably acquire a dull, dirty yellowish color in whatever manner it be dried, except when cured with sulphur vapors, which will render it snow-white.

Not all varieties of flowers are adapted to this process of preservation, but the following named certainly are:

German and Chinese asters, except the quilled asters, the needles or quills of which will become thin and shapeless.

Roses of all varieties, especially the dark and light red. No white.

Double peonies of all colors.

Fuchsias in the bud or half open.

Robinia or sweet-scented locust.

Acacias of all red-blooming varieties.

Pomegranate flowers of all varieties.
Wisterias.
Sweet-scented peas.
Canterbury-bells
Rhodantes.
Statice.
Clematis (the double).
Peach-blossoms on the branches.
Apple, pear, and cherry blossoms.
Cacalia (the scarlet).
Lupinus.
Spirea (all red varieties).
Solidago (nearly all varieties).
Larkspur.
Centaurea Americana.
Candy-tuft.
Agapanthus.
Hollyhock (the double).
Honeysuckle.

Experiments will satisfy the amateur as well as the professional florist that many flowers not named here, especially among those growing on wooden stems, can be preserved by this process with more or less success. The application of the flower varnish, described in Chapter IV., to a flower not of a velvety surface, and on the lower side if so, will not unfrequently adapt it for this method of drying. Most sulphur-cured flowers after having been hung up to dry for sometime will contract more or less from their original size. Much of this can be overcome by careful remodeling or arranging the petals after they have been exposed to damp air for a short time, and just before they are intended

to be used. In large and very compact roses and other well-filled flowers, the contraction is not considerable.

For future use keep the drying-box, which has been found to work well, in a place of comparative even temperature, where the wood is not likely to swell from dampness nor shrink from too much heat. Any cracks or rents that may at any time be discovered in the sulphur-box should be carefully closed by pasting strips of paper over them before it is used, as success depends on a close confinement of the sulphur-fumes. To prevent any sulphur odor from being offensive, it may also be advisable to keep the box in an unoccupied room or place.

Chapter II.

TO DRY FLOWERS IN SAND.

F the several known methods by which flowers can be successfully dried, there is none so well adapted to general use as that by sand. It will no doubt, when once better and more generally known, be a very popular pastime; and I think the day is not far distant when the sand-box will be considered almost indispensable in the flower-garden.

If but a small quantity of flowers are to be dried, almost any vessel or paper-box may be used—even a clean flower-pot will answer. The article to be used should have one or more

small holes in the bottom, or better yet, on the lower part of one of the sides, to let out the sand at the proper time. This hole can be temporarily closed with a card or strong piece of paper placed on the inside. For general or permanent use I would recommend a box from five to six inches high, eight inches wide, and twelve inches long, made of half-inch pine boards, and provided on two sides with convenient handles. It can however be made larger each way, if the quantity of flowers on hand make it desirable. To facilitate the removal of the sand, the following arrangement is highly recommendable: Let the box above described be made with a sliding bottom and provided with a

little knob in front, similar to a wooden bird-cage. Half an inch above this sliding bottom a close sieve or plain piece of wire-cloth should be fitted in and nailed to the box.

The sand to be used is next to be considered. This should be the kind known as white silver-sand; also, New Orleans sea-sand, an article of commerce generally to be had where plaster of Paris is sold. When this can not be had, white pit or fine river sand will answer. Whatever kind is used, it must be well sifted, then washed and stirred in water as long as there appears to be any unclean substance in it. When the water, after being poured off a number of times, becomes perfectly clear, the

sand should be put in a suitable vessel and heated over a fire until it is perfectly dry. It is now ready, and can be advantageously used before it cools off entirely. On hot days the sand may also be dried in the sun. Cover the bottom of the vessel to be used with about an inch of sand, or half an inch over the sieve if a box has been provided as described above. Begin now to lay the flowers to be dried on the sand. Flat-shaped ones, like vincas, phlox, and others of similar form, should be placed face downward, while those with bell or funnel shapes, and double flowers of every kind, must be turned so that the inside of the flower can easily be filled with sand. The flowers should not

touch each other. When placed properly, let the sand flow slowly around and in the flowers. Anything having a small hole through which the sand can flow, may be used for this purpose. An envelope or a paper bag, with an aperture in one corner, is a handy article for the purpose. It should be borne in mind that the future shape of the flower depends in a great measure on how it is placed in the sand and surrounded by it. Experience will, however, soon be the best guide in this matter.

When all are placed properly, they should be entirely covered with the sand; and, if desired, two or three rows of flowers can be placed in a similar manner over each other, if the

size of the box will admit of it. The box can then be exposed to the sun and a piece of glass placed over it, or, when practicable, placed on the upper shelf of a green-house. A well-regulated heat,—say between eighty and one hundred degrees Fahrenheit,—over steam-pipes, or anywhere else, where such regulation is possible, insures the best success with the drying process. If dried in the sun, and the day be a very hot one, it is advisable to neutralize the piercing rays of the noonday sun by placing a sheet of paper over the glass. Boxes placed in the open air in day-time must be brought under shelter at night, and all precaution taken that no moisture is drawn by the sand while the flowers

are in, as that will spoil them. In a *continual* temperature of from eighty to one hundred degrees, most flowers can be dried in from twenty to twenty-four hours. Those with large and heavy cups under the flower, like hollyhocks, dahlias, and others, require a longer time, and should be placed separate. After the flowers are dry, draw out the sliding lid of the drying-box, or the coverings put over the escape-hole of any other vessel you may have used, when the sand will flow out and leave the flowers free from it. They are now extremely crisp and fragile, and should be carefully put away one by one for a few hours, when the sand remaining on them can be dusted off with a camel-

hair brush. They should then be placed in paper or wooden boxes, and these put in a *dry place* until needed. Before using the flowers put them in a damp place for half a day, when they will become quite pliable and can be handled without injury.

Flowers to be dried by sand should be cut during dry weather, and when the morning dew has entirely disappeared, otherwise they will not keep. In most cases the stems should be cut off within an inch of the flower, as it adds to the convenience in placing them in the sand; and the stems are also better replaced by pieces of wire, when needed. Another quite commendable method to dry flowers in sand is the following: To twelve

quarts of sand take one ounce of genuine spermaceti and one ounce of stearine, and heat them in a large pot with a round bottom. While stirring the mass, see that the sand becomes equally glazed while hot. When cool, it may be used in the same manner as above directed. Thus prepared, it will never adhere to the flowers, which may be the case when ordinary sand that is not perfectly dry and clean is used.

The following are some of the flowers well suited for drying in sand:

Pansy.	Lobelia.
Verbena.	Stocks.
Pelargonium.	Browallia.
Deutzia.	Pinks.
Forget-me-not.	Tea Rose.

Lantana.	Mignonette.
Sweet Alyssum.	Primrose.
Marigold.	Thunbergia.
Nemophila.	Nigella.
Abutilon.	Whitlavia.
Gaillardia.	Campanula.
Vinca.	Violet.

Chinese Pinks (the light-colored).
Hollyhocks (the light-colored).
Lily of the Valley.
Narcissus (only the single).
Dahlia (the light-colored).
Day Lily
Calliopsis (the yellow and brown).

Besides these, many other flowers are adapted for this process; and practical experience will soon enable any one to make the proper selection. Very watery flowers, such as lady's-

slippers and hyacinths, will not dry well. As a rule, light-colored and white as also yellow and blue flowers, keep their colors best in sand. Pink, scarlet and the dark red ones frequently get much darker.

Besides the flowers, many kinds of ferns, especially maiden-hair and other small and hardy varieties, can be very successfully dried in sand; also, many kinds of leaves and ornamental mosses. The beautiful smilax dries so well that scarcely any change can be seen between the fresh and dried. Many of the above can be preserved by pressing; but they will remain forever "pressed,"—flattened out,—while those dried in sand will retain their natural graceful forms.

See "Publisher's Remarks" on page 195.

Chapter III.

THE DRYING OF FLOWERS BY CURING THE SAME WITH ACIDS.

TAKE one part nitric acid,* and eleven parts cold, clean cistern rain water sufficient to submerge a bunch of flowers. Put the mixture in a glass or earthen vessel, and submerge the fresh-cut flowers in the same about one minute. The liquid should then be shaken off, and the flowers suspended in a shady place until they become perfectly dry.

This, it will be observed, is the same method as that recommended in the first chapter to heighten the brilliancy of certain flowers, but with

* See page 198.

this difference, that in the method recommended there the dipping is to be but momentary, while for the entire curing of flowers, as intended in this chapter, the submersion should last about fifty to sixty seconds.

This process may be considered best adapted to flowers of a straw-like nature, as red xeranthemum, helichrysum, gomphrena (globe amaranth), etc., the red varieties of which have naturally a dull and not very pretty crimson appearance; but after passing through the acid process they adopt a beautiful bright-red color. All red varieties of asters and roses—the latter should be of a hardy, well-filled variety,—can be successfully dried by the use of acid, although for roses I

consider the sulphur process, as given in Chapter I., preferable. They can, however, after having been dried in sulphur, be greatly improved by being dipped into the diluted acid, and may be, during the winter, used to great advantage among the finest fresh-cut flowers. Florists may, at a time when flowers are scarce, avoid great inconvenience in this way. No plant shows better after this treatment than the beautiful little erica or heath blossom. Pity that it is not more common in this country; but there are many similar species of flowers found everywhere which have nearly the same qualities. In hanging up flowers dipped in acid use only coarse strings, as light ones may break from its effect.

Chapter IV.

SPECIAL TREATMENT FOR CERTAIN FLOWERS.

EXPERIMENTS made during a number of years have proved to me that some flowers are not well adapted for preservation by sand or sulphur, unless first strengthened by what I will term a "flower varnish." These are such flowers, whose petals are either too thick to be cured by any ordinary process or too thin and flabby to withstand a treatment accorded to flowers of a more hardy nature. I will here give the names of some of either kind. To the first may be counted the following:

Camellia.
Pond-lily.
Lilies of various kinds.
Magnolia.
* Passion Flower.
Fuschias.
* Cobea.
* Oleander.
Tuberose.

To the second class belong

* Morning-glory.
* Petunia.
* Azalea.
* Geranium (light colors best).
* Phlox-drummondii.
* Poppy.
* Nierembergia.
* Whitlavia.
* Cactus-blossoms.

* Those marked with a star should only have the varnish applied on the lower side of the petals and down to the calyx.

The "flower varnish" before mentioned is prepared and applied as follows: Take one ounce of gum sandarac, a half ounce of gum mastic, and a piece of camphor the size of a hazelnut. Pulverize all of it; put it into a wine or other long bottle, and pour over it a pint of first-proof alcohol. Then heat it mildly, often shaking the mixture. After the ingredients have become thoroughly dissolved, let the bottle stand quietly until the dregs have settled at the bottom, when the clear portion should be poured off. This will soon assume the appearance and qualities of a transparent varnish, a thin coat of which may be put on the flowers with a soft camel-hair brush. When the varnish has be-

come perfectly dry, put them into the sand-box and treat them as directed in Chapter II. Care must be taken that the sand be perfectly dry. Flowers preserved in this manner are never injured by insects, and keep for years if protected against dust. The varnish should also be applied to the calyx of flowers which have a tendency to drop their petals when dried in sand, as the geranium and pelargonium.

If the ingredients above given be doubled to the same amount of alcohol, it will produce an excellent elastic varnish for imitations of fruits, especially the small varieties, as blackberries, cherries, strawberries, etc.; also for artificial leaves, flower-vases, chromos, etc.

Chapter V.

TO PRESERVE OR EMBALM FLOWERS WITH WAX, PARAFFINE (COAL-OIL WAX), OR SPERMACETI.

THIS method may be considered specially adapted for the preservation of such memorial souvenirs as floral decorations used at weddings, funerals, or other occasions, when their preservation would be a source of future gratification.

Especially is this method well adapted to such a purpose, as the flowers then commonly used have already more or less a waxy appearance. For this process, either wax, paraffine, or spermaceti can be used; but the first named is preferable, and I will here state how to proceed with the same.

Take one pound of good bleached wax, break it into small pieces, and put it into a porcelain vessel of not too narrow proportions; then place a larger vessel on the fire to serve as a water-bath for the first, so as to prevent the wax from igniting. Place the vessel with the wax into the water, and keep this boiling until all is melted. Then add three tea-spoonfuls of rectified turpentine to the wax, to make it soft and more pliable. When the mixture has turned to a perfect liquid, take the flowers, one by one, dip them into it, and with a pair of nippers, withdrawing quickly, gently shake the flowers, and then hold them upward so that the superfluous wax can run down to the stem. When

the wax has cooled a little,—which takes but a few seconds,—lay down the flowers, but not before, as they would otherwise flatten on the lower side from the weight of the soft wax and become misshapen. The same process may be gone through with when paraffine or spermaceti is to be used, excepting that to these two substances no turpentine is needed.

White flowers can be greatly improved by adding to the above preparation, while in a liquid state, enough carbonate bismuth to cause it to assume a perfect milky color. It gives the flowers a beautiful brilliant appearance, which is especially noticeable in lilies, tuberoses, camellias, white carnation pinks, primroses. etc. Car-

bonate bismuth can be had at any drug-store, and is a perfectly harmless and cheap article.

It will of course be desirable in the preservation of funeral and other memorial souvenirs of this nature to preserve the leaves that have come with the flowers. For this purpose a preparation of a green color becomes necessary, which may easily be had by proceeding as follows: Prepare one pound of white wax in the same manner as that given for the flowers, leaving out the carbonate bismuth. To this add, when boiling, one ounce of tincture of carmine indigo (indigo paste), and one half ounce *curcuma*. Stir it well, and dip the leaves in the

same manner as above described for the flowers.

If a dark green is desired, add a little more of the tincture; but if a light green is preferred, a little more of the *curcuma* becomes necessary.

To give the leaves a flocky, velvety, appearance, the dusting process, as given in the next chapter, may be applied before the wax hardens.

It may be considered superfluous to say that the success of the directions given above depends in a great measure on the freshness of the flowers that are to be preserved. An already wilted flower can never be restored to its natural beauty, and it therefore becomes of the utmost consequence, especially during the heat of

summer, that the preserving process be commenced as soon as possible. "Never put off until to-morrow what can be done to-day," finds here a striking illustration. A few flowers, if subjected to the waxing process (without carbonate bismuth) when fresh, will soon decay and get black. These are: Camellias, tea-roses, bouvardias, jasmines, and tuberoses. To these apply the flower-varnish, and then place them in warm sand for about twelve hours for partial drying. They can then be waxed the same as others. The petals of lilies are liable to drop off when dried in sand. To prevent this, run wires through a part of the center ridge, which, if neatly done, can not be noticed when the flower is waxed.

Chapter VI.

TO PRESERVE AUTUMN LEAVES, AS WELL AS THE VARIOUS KINDS AND SHADES OF GREEN LEAVES AND FERNS.

THE method to be pursued in this chapter is partly the same as that given in Chapter IV. Prepare the same varnish as there described, and apply it to the leaves with a soft camel-hair brush. A small quantity of flock of the desired color—an article that can be had in every drug-store, and in various colors,—should then be spread on clean paper; and the leaves, which must be partially dry, may then be pressed into the outspread flock. When perfectly dry, brush off such of the flock as does

not adhere to the varnish, when the leaf is ready for whatever purpose it may be intended. Leaves with yellow or brown spots can be imitated very closely by putting the same spots in yellow or brown flock on the outspread green, and slightly rubbing it into the latter so as to look more natural. Press the varnished leaf on the flock so prepared, dust off when dry, and the process is finished.

Natural autumn or variegated leaves which in the late fall months can be found in endless variety, and in the most beautiful and fantastically arranged colorings, can be preserved for an indefinite period by using the varnish described in Chapter IV. When dry, put the leaves singly on a

clean piece of blotting-paper; put another on top of this, and flatten them out with a hot smoothing-iron. The method given above is based on preserving the leaves by the application of 'flower-varnish" and some colors. But should it be desired to keep them in their green color without the use of these, they can be dried in sand, as directed in Chapter II., by which many kinds of foliage can be very successfully preserved. Ferns can be treated in the same manner as the leaves, but for all the hardy varieties, their preservation can also be accomplished most satisfactorily through the sand process.

Chapter VII.

SKELETON LEAVES.

THE art of investing with a weird charm even the leaves which our divine Maker strews in countless numbers and varieties in our paths, has of late years had no inconsiderable share of attention by many lovers of natural beauty; and when in search of these beautiful, curious, and quaint ornaments with which to adorn the house, care should be taken that only such leaves as are perfectly developed be chosen. Leaves from young shoots, even when of large size, have little value for this process, being deficient in the strength of their fibers for the boiling process. Those leaves

SKELETON LEAVES.

that have been injured by insects, or are too much spotted from one cause or another, are valueless for skeletonizing, as are also those of herbs, and other leaves of a soft, flabby nature. When a good store of finely-veined and healthy leaves are gathered, proceed in the following simple and comparatively inexpensive manner:

In a quart of boiling water dissolve four ounces of common washing-soda. Add two ounces of slacked quicklime, and boil about fifteen minutes. Allow the solution to cool, and then pour off all the clear liquor into a saucepan. Another heating is necessary now; and when at the boiling point place the leaves carefully in the pan. Let it

boil all together an hour; and to replace the water lost by evaporation add a little from time to time. It will now be necessary to test the effect of the first hour's boiling, for which purpose take out a leaf and rub gently between the finger and thumb in cold water. If the cellular matter does not come off easily from the veins, boil them again for a short time. When the fleshy part is found to have softened sufficiently, rub the leaves gently, one by one, under cold water until the perfect skeleton is exposed. At first their appearance will be a dirty white color. To make them a pure white, bleach them in a solution of chloride of lime: take a table-spoonful of lime to a quart of water, and

add one spoonful of vinegar to the solution. In about fifteen or twenty minutes they will be perfectly white, and clear-looking. Dry them in white blotting-paper, beneath a gentle pressure, when they will be ready for mounting or any ornamental purpose they may be destined for.

Another method to skeletonize leaves is the following: In a glass, or well-glazed earthen vessel, mix one part of sulphuric acid with seven parts of clear water. Put the leaves into the mixture until the cellular matter is sufficiently softened, which may take about twelve hours. Then put into a sieve and remove the green substance by carefully pouring water over it. After having become dry, they may be

used as they are, or bleached in the same way as stated in the preceding method. Although the last process is much more simple and less troublesome than the first, the success of it is not always so well assured, as great care is necessary to keep the leaves from being "burned," or overdone by the acid. The leaves to be skeletonized should be collected from June to August, but never in wet weather. Those from tropical trees kept in greenhouses can, however, be made available for skeletonizing in winter when trees in the open air are without leaves. Those from the magnolia, orange, poplar, willow, aspen, maple, linden, apple, pear, holly, rose, and ivy have been found the most suitable,

while those containing tannin, as the oak and walnut, are unfit for the purpose. Before closing this chapter, it seems proper to give what is termed the "slow but sure" process, which, although very tedious, is preferred by many. It is as follows: Place the leaves in a jar or wooden vessel and immerse them in soft water. Expose the vessel to the hot sun, or place it in some other warm locality for several weeks, when they may be examined, and those that are found sufficiently soft should be placed in clear water, and the pulpy matter removed from them with a soft tooth-brush. According to the nature of the different leaves, these examinations may last from two to twelve weeks.

Chapter VIII.

THE COLORING OF EVERLASTING FLOWERS AND GRASSES IN VARIOUS SHADES.

IN the shops of our florists, as well as in many homes, we very often see everlasting flowers, grasses, and mosses exposed, which being bleached, faded, and soiled are anything but ornaments. Even wholesale dealers not unfrequently sell and ship articles of that description which have but little similarity to flowers. I will now show how this class of flowers, grasses, and mosses may be prepared so that they will not only keep their good appearance for a very long time, but will even withstand the influence

of dampness and dust. The process is simple as well as comparatively inexpensive. It is surprising to me that either this or similar methods have not been applied more generally heretofore, as it puts the objects named in such a state of durability that they may easily be renovated after having been exposed for years to damaging influences.

No exact quantity of the aniline colors mentioned below can be given. They will of course vary in proportion to the more or less frequent use which is to be made of them; but as a partial guide in the matter, I will state that one ounce of any aniline color dissolved in a half-pint bottle of rectified or first-proof alcohol is sufficient

to color a great mass of everlasting flowers and grasses, and if kept corked well will keep for years.

COLORS AND THEIR PREPARATION.

No. 1. *Crimson.* Use aniline fuchsin red. This may be found in almost any wholesale or retail drug-store, in crystallized as well as liquid form. The crystals should be dissolved in first-proof alcohol. Put the aniline in a bottle, add enough alcohol to cover the same, then cork up, and let it stand in a warm place for a day. On the second day fill the bottle with alcohol, and shake well until the aniline is wholly dissolved. If only a very small quantity of flowers is to be colored, the liquid aniline may perhaps

be considered preferable, in so far that it saves the trouble of dissolving.

To apply the color, take a glass or well-glazed earthen vessel, pour boiling water into it, and add enough of the tincture to make it appear bright red; and to make the shade lighter or deeper, as may be desired, dip the flowers or grasses in until they are colored to suit; then dip them into clean cold water, and suspend them to dry either in the sun or near the stove.

No. 2. *Violet.* Color: Aniline de pansee. Application the same as No. 1.

No. 3. *Purple.* (Redish violet). Color: Aniline de parme. Application the same as No. 1.

No. 4. *Brown.* Color: Aniline Bismarck. Application the same as in No. 1.

No. 5. *Orange.* Color: Aniline orange. Application the same as in No. 1, except that the flowers or grasses after having been dipped in the solution must not be washed with water, because the orange-color is not of a quick-penetrating quality, and would wash off. This dye can best be purchased in a liquid state.

No. 6. *Blue.* Color: Aniline bleu de lion. Application the same as in No. 1, except that a small quantity of sulphuric acid—about a table-spoonful to a gallon of water—is to be added to and mixed with the solution. The latter should be boiled from five to

eight minutes before the flowers or grasses are dipped into it.

No. 7. *Scarlet.* Color: Aniline fuchsin red, mixed with a small quantity of aniline orange,—enough to produce the shade wanted. Application the same as in No. 1.

No. 8. *Black.* Color: Aniline black 00 (pulverized). Application the same as in No. 1.

No. 9. *Lemon-Yellow.* Color: Picric acid. This must be dissolved in boiling water,—say half an ounce for one coloring operation; more it will not be advisable to dissolve at a time, as all coloring-matter dissolved in water does not keep long. Mix this color with one quart of lukewarm water, when the objects to be dyed

may be dipped in for about five minutes. They can then be dried, but without any previous washing. As the picric acid is a strong poison, it should be handled carefully. Avoid inhaling its vapors, and also staining the hands with it, as such stains are difficult to remove.

No. 10. *Green.* Color: One ounce of tincture of carmine indigo (indigo paste) and two ounces of alum to three quarts of boiling water. Stir frequently until all is dissolved, and then add a few drops of picric acid, which gives a more brilliant color. The latter is, however, not absolutely necessary, and may be replaced by a tea-spoonful of pulverized *curcuma*, which is harmless, while the picric

acid, as stated before, is a poison. When boiling, dip in the flowers or grasses until they turn to a bright light green. If a dark green is desired, leave out both the picric acid and the *curcuma*, whichever may have been used. The articles so colored will not stand washing in water before they are fully dry.

No. 11. *Pink or Rose.* Use the color mentioned for No. 1, with this difference, that but little of it must be put in the water.

No. 12. *Lilac.* Use the color of No 2, but only a small quantity, as stated in the foregoing paragraph. Besides these, a number of other variations may be made, either by mixing two colors or diluting with additional

water the more solid colors, as, for instance, the scarlet. By using the preparation by which this color has been produced, and adding about one third more water, a cherry color will be the result. By a still further addition of water, the scarlet tint or peach-blossom can be produced. This, however, refers only to scarlet color No. 7. Scarlet color No. 13 is only for flowers with a yellow ground, as French immortelles.

The same gradation of shades may be obtained in nearly every color by either diminishing the depth of the full color with the addition of water, or increasing a light shade by a gradual addition of more coloring matter.

For further particulars on colors, see page 205.

Chapter IX.

ORNAMENTAL GRASSES.

FOR these, the coloring process has already been given in the foregoing chapter. The colors from No. 1 to No. 12 can be used for grasses as well as for everlasting flowers, with this difference, that they require a longer dipping than the latter, their surface being generally of a less penetrable substance than the more delicately formed flowers. Grasses of all kinds, as also French immortelles, require a peculiar treatment prior to the dyeing process. It is as follows: Set a large wash-kettle or other suitable vessel containing about

two gallons of water, on the fire; cut up into small slices to that quantity of water a quarter of a pound of venetian soap, which can be had in any drug-store. Allow it to boil gently, and when dissolved dip the grasses or immortelles into the water about half their length, or about as far as it is desired to color them. In a few minutes they will lose their natural appearance and color the water in the kettle. Boil about fifteen minutes.

If it is considered more convenient, they may be tied into small bunches, two and two together, with a cord or thread, and hung over a stick placed across the kettle, so that their tops and part of the stems be submerged. When the natural color is extracted,

ORNAMENTAL GRASSES.

in so far at least as to color the water green, rinse in cold water, and hang out to dry. They can now be colored as already described. Grasses will assume specially fine shades if they are subjected to the sulphur process before coloring. If this is not convenient, they can be bleached as follows: Take two table-spoonfuls of chloride of lime and one of vinegar to a quart of water. Pour off the clear portion when settled, and immerse the grasses into it until nearly white.

The variety of grasses that can be made available for ornamentation is very great; but I will here only name a portion of them, and such as I consider best for the purpose. For general information, I will give the botan-

ical as well as the English names of most of the following grasses:

BOTANICAL.	ENGLISH.
Briza maxima.	Quaking-grass.
Briza geniculata.	Shaking-grass.
Briza gracilis.	Large shaking-grass.
Phalaria canariensis.	Canary-grass.
Agrostis nebulosa.	Bent-grass.
Bromus briza formis.	Drooping-grass.
Lagurus ovatus.	Rabbit-tail grass.
Penisetum longistylum.	Long-pen grass.
Stipa pennata.	Feather-grass.
Eryanthus Ravennae.	Sugar-grass.
Gynerium argenteum.	Pampas-grass.
Poa pratensis.	Blue-grass.
Poa nemoralis.	Wood-grass.
Anthoxanthum gracile.	Sweet vernal grass.
Agrostis vulgaris.	Redtop-grass.
Lolium perenis.	Rye-grass.
Daxtilis glomerata.	Orchard-grass.
Briza pyrum siculum.	Glitter-grass.
Chloris barbata.	Beard-grass.

LATIN.	ENGLISH.
Coix Lacryma.	Job's tears.
Eragrostis cylindriflora.	Love-grass.
Zea caragua.	Giant maize (corn)
Zea Japonica.	Striped maize (corn).
	Timothy-grass.
	Broom-corn.
	Sorghum.

Also, the following well-known cereals, which belong to the family of grasses: Wheat, rye, barley, oats, rice, and millet. Any of these are suitable for ornamentation, if treated as directed in Chapter VIII., and page 68, of this chapter.

All grasses to be used for ornamental purposes should be cut before the seeds develop in the ears. They must then be dried well before they can be boiled.

Chapter X.

TO BRONZE AND CRYSTALLIZE GRASSES.

BRONZED and crystallized grasses are of a peculiar splendor and brilliancy. If properly selected, they may be very advantageously used together with fresh as well as with preserved and dried flowers, and will heighten the effect of most any floral work, however delicate it may be.

To Bronze. Spread over the grass a thin solution of gum arabic,—in other words, gum-water, an article found in nearly every household. Apply with a soft brush, and when half dry put on bronze-powder with a

gilder's brush. After the gum has hardened shake the grass over a piece of paper to remove the bronze-powder which failed to adhere, and which may be reserved for future use. Colored as well as uncolored grasses may be thus bronzed. The various kinds of bronze-powders—gold, silver, copper, fire-browns, different shades of reds, and other colors—can be had at the drug or paint stores.

To Crystallize. Solution of gum arabic is applied in the same manner as directed in the foregoing paragraph; but instead of bronze, frostings of any desired color may be put on. The latter, however, does not adhere as readily as the bronze, and the gum should therefore not be quite as thin

as that used for bronzing. The finer the frosting is pulverized the better.

Bronzed and crystallized ears of wheat, barley, oats, and the smaller varieties of Indian corn, are a novelty which the author of this book has introduced with grand effect, as larger decorations for dining-tables on festive occasions, such as society-suppers, and celebrations of a similar character. They can also be used with brilliant effect for decorating fair and festival halls, ball-rooms, etc., if arranged tastefully and care is taken to avoid the appearance of overcrowding. The process of crystallizing, by depositing crystals of alum on the grasses, is so seldom attended with any satisfactory results that I have omitted it entirely.

Chapter XI.

FRENCH IMMORTELLES.

(*Gnaphalium Orientalis.*)

VERY few flowers, if any, are of such general utility, and form an article of such vast commerce, as the French immortelle. It is well known that the natural color of this little flower is yellow. To change the natural for other colors, it becomes necessary to extract the yellow, which is done as directed in Chapter IX. on "Ornamental Grasses." Several colors can, however, be given immortelles without the extracting process. These are: Brown, scarlet, and dark green, besides several variations, as

stated in paragraph No. 17 of this chapter.

In the following directions for coloring immortelles, the numbers begun in Chapter VIII. will be continued for the sake of easy reference:

No. 13. *Scarlet.* Color: One ounce of borax dissolved in a quart of boiling water. The flowers should be dipped in until they show a bright scarlet color, but they must not be rinsed or washed off in water. Borax is a white salt, and in itself contains no coloring-matter; but its action upon the natural yellow of the immortelle and other everlasting flowers of that color is that it changes this to a bright red.

No. 14. *Red-Brown.* Color and treatment the same as described in

Chapter VIII., No. 1, the apparent difference in the result (crimson in the first and red-brown in the last) being brought about by the yellow ground of the immortelle, while the color-subject for No. 1 has to be made white or colorless by the previous boiling process.

No. 15. *Black.* Color and treatment the same as No. 8

No. 16. *Dark Green.* Dissolve two ounces of alum and two ounces of indigo paste in two quarts of boiling water. Dip them in until they assume the desired shade, and rinse with clean water before drying.

No. 17. Leaving the French immortelle its natural beautiful yellow, a little variation in some of them will

often produce a very pleasing effect. The best of these variations is a red center, which can easily be imparted by dipping a small piece of wood or a feather in the solution of borax as described in No. 13, and apply to the center of the flower.

Another pleasing variation is a green center, which can be had in the manner stated above by using the green color named in No. 10.

Different colors of bronze-powders, as described in Chapter X., on "Bronzing and Crystallizing Grasses," can also be applied to immortelles with beautiful effect, the red and blue shades being especially brilliant on these yellow flowers.

The foregoing colors, as stated in

the beginning of this chapter, may all be produced on the natural color of the immortelles. For all others, however, the extraction of the yellow is indispensable to success with the coloring process.

No. 18. *Green.* Color and treatment the same as in No. 10, except that the picric acid is not needed.

No. 19. *White.* After extracting the natural color, and cleansing the immortelles thoroughly in cold water, they must, when perfectly dry, be cured by sulphur vapor, as described in the first chapter.

No. 20. *Crimson, Violet, Purple, Blue, Pink, and Lilac.* After the flowers have passed through the boiling process they will easily adopt the

above colors, if applied as directed in Nos. 1, 2, 3, 6, 11, and 12, respectively. These colors are considered especially fine; and although not absolutely necessary, it is advisable to apply the sulphur process, of Chapter I., as a bleaching method before the coloring is done. Ornamental forms, like crosses, wreaths, and anchors, with inscriptions, can be easily made with white immortelles. I will here only describe the first: Take a plain board or wire cross and cover this evenly with green, dried moss. Pick off the heads of the immortelles, and paste them in close rows on the moss. When the whole is covered, take a small stiff brush and color such of the immortelles as will form the inscription desired.

Chapter XII.

EVERLASTING OR STRAW FLOWERS.

UNDER the name of everlasting or straw flowers we understand those for which nature itself supplies the drying process; that is, the petals, after the flowers have bloomed for a certain time, and while still retaining their natural colors, gradually turn to a straw-like condition, from which they receive the designation of straw-flowers. If, however, their seed-vessels are allowed to form and ripen, the flowers themselves will have little value for ornamental purposes, as the seed-cells with the

seed will soon drop off and leave the balance of the flower in a shabby condition. To prevent this, it becomes necessary that all everlasting flowers be cut about the time the buds are opening, and then be dried in the shade. While some of these straw-flowers are extremely beautiful in their natural colors, others are less so; and it may seem desirable to change their natural for other colors, or for the sake of variety to change some that might otherwise be considered very pretty without being colored.

All the colors given in Chapter VIII. can be applied to straw-flowers without the previous boiling process; but for such delicate colors as crimson, violet, blue, pink, and lilac, it is

advisable to use only the natural white varieties.

Scarlet, No. 13 (with borax), can only be applied to yellow everlasting flowers.

The following are some of the principal varieties of these flowers:

Gnaphalium parviflorum.

Gnaphalium leontopodium.

Statice, all varieties.

Waitzia aurea (morning gold).

Catananche coerula (blue).

Helichrysum, the colored only.

The following straw-flowers, especially the white, some of which have already been mentioned in Chapter I., require the sulphur treatment there given to make their colors more brill-

iant, and the white brighter than the natural white:

Acroclinium (white and pink).
Gomphrena (globe amaranth).
Helichrysum (white only).
Gypsophilla paniculata.
Helipterum sanfordi.
Cape flowers (Edelweiss).
Rhodante (white and pink).
Xeranthemum annuum.
Ammobium alatum.

Gnaphalium maritium, a native American everlasting flower, very common in the eastern states. Except its color, which is white, it differs but little from the French immortelle. All everlasting flowers, including immortelles, should be exposed to heat before coloring to develop or open the flower.

Chapter XIII.

MOSS—ITS VARIOUS USES AND HOW TO DYE IT.

MOSSES of nearly all varieties, although very useful for numerous decorative purposes, will soon droop and seldom have any lasting value when detached from their sustaining source, unless other means are used to give them artificial life and brilliancy. These means are the bleaching and dyeing processes, which I will now describe:

Dark Green. Dissolve two ounces of alum and two ounces of tincture of carmine indigo in two quarts of boiling water; put in the moss after it

has been well cleaned and bundled up; soak it a few minutes, until it has adopted a deep green color; then hang it up to dry without rinsing in water.

Light Green. Same mixture and treatment as given in Chapter VIII., No. 10.

Brown. Same color and treatment as given in Chapter VIII., No. 4. A light brilliant-brown can be produced by the addition of half a tea-spoonful of picric acid.

Black. Same color and treatment as given in No. 8.

Dried moss colors better than fresh. Our common sea-moss may also be dyed, and thereby be made ornamental. A most beautiful effect can

be produced by the use of bronze-powders, put on sparingly, especially the silver on green moss. Application the same as directed in the chapter on bronzing grasses.

Dotting green moss with small red or white spots by the use of fine dry colors or frostings, especially when whole sheets of the well-known wood-moss are used, has a most beautiful effect, giving it at a short distance the appearance of a small field of little flowers. These spots of color have to be applied with gum-water when the moss is in the exact place where it is to be used.

A splendid moss for decorating purposes is that known as lygodium, by some called ground-pine, also erro-

neously by others club-moss. It is found in great quantities in the New England states and in the northern part of Michigan. It will, however, soon lose its natural beauty unless subjected to a treatment like the following: Take one ounce iron-glass to two quarts of water. When boiling, put in the green coloring-matter described in the first paragraph of this chapter. Put in the wreaths or other decorations, and proceed as above.

White Moss. Dealers in floral decorations have for some time past witnessed an increasing demand for this article. It is used for the foundation of skeleton-leaf ornaments, in bridal bouquets, funeral wreaths, and various other kinds of floral ornaments.

To prepare this for use, proceed as follows: First boil the moss in venetian soap, as described in Chapter IX., to extract the natural color. Expose it to the sun or other heat to dry. Then dissolve a table-spoonful of chloride of lime in two quarts of clean rain-water and leave it stand twenty-four hours. The vessel used should be either glass, porcelain, or earthen-ware, as metal of any kind will not answer. It is also advisable to keep it well covered. At the expiration of the above time, pour off the clear solution into another vessel, and immerse the moss to be bleached into it for a short time. After being dried, it is ready for use. When moss has been boiled with venetian soap it

will also readily adopt any of the finer colors mentioned in Chapters VIII. and XI.

For green, brown, and black, the boiling with soap is not necessary.

The well-known sea-moss is greatly admired by many for its beautiful long-trailing construction. Its natural grayish color, however, is considered less attractive, and whenever desired can be changed to a number of pleasing colors. To do this, it becomes necessary to subject the moss to sulphur bleaching, as directed in Chapter I., after which it will easily adopt any desired shade. For various purposes, a slight application of bronze-powders will produce a very fine effect on this moss.

Chapter XIV.

HOW TO MAKE PRESERVED AND ARTIFICIAL FLOWERS FRAGRANT.

PRESERVED and artificial flowers may be greatly enhanced in value by giving them as near as possible their natural fragrance.

Roses.—The scent of roses can only be reproduced by applying the genuine Turkish rose-oil. Two drops of it mixed with a pint of distilled water (the *aqua destillata* of our drug-stores), and shaken for several minutes, will furnish perfume for thousands of preserved or imitated roses. Well corked up in a bottle, the water will retain the flavor a long time.

Pinks.—The scent of pinks may be successfuliy given to dried or imitated pinks

by sprinkling a little finely-pulverized clove-dust over them. This flavor lasts for many months.

Violets.—Civet, 2 grains.
Otto of rose, 8 drops.
Alcohol, 2 ounces.

Orange-Blossoms.—Oil of neroli, 1 dram.
Alcohol, 7 drams.

Heliotropes.—Tincture of Tonka beans, 1 oz.
Extract of vanilla, 1 oz.
Otto of rose, 4 drops.

Tuberoses.—Extract of yhlang-yhlang, 1 oz.
Otto of rose, 4 drops.

Hyacinths.—Tincture of benzoin, 4 drams.
Tincture of storax, 1 oz.
Extract of vanilla, ¼ oz.
Extract of yhlang-yhlang, ¼ oz.

Smaller proportions than the above can be had if desired.

It must of course be admitted that it is utterly impossible to compound

preparations to imitate the sweet fragrance of every flower. Nor is this necessary where a variety of them are clustered together, and where a flavor of a more general application would seem to suit best. Cologne-water is the most desirable for this class. It may be prepared as follows:

Oil of lemon, ¼ oz.
Oil of bergamot, ¼ oz.
Oil of lavender, ¼ oz.
Oil of roses, 20 drops.
Tincture of benzoin, ½ oz.
Powdered orris-root, ⅛ oz.
Alcohol (98 proof, if possible), 1 qt.

Mix well, and let stand a few days; then filter through paper. Proportionately smaller quantities can also be had. The above will be found an excellent cologne, and fully equal to much of that which is bought in fine bottles at high prices.

Chapter XV.

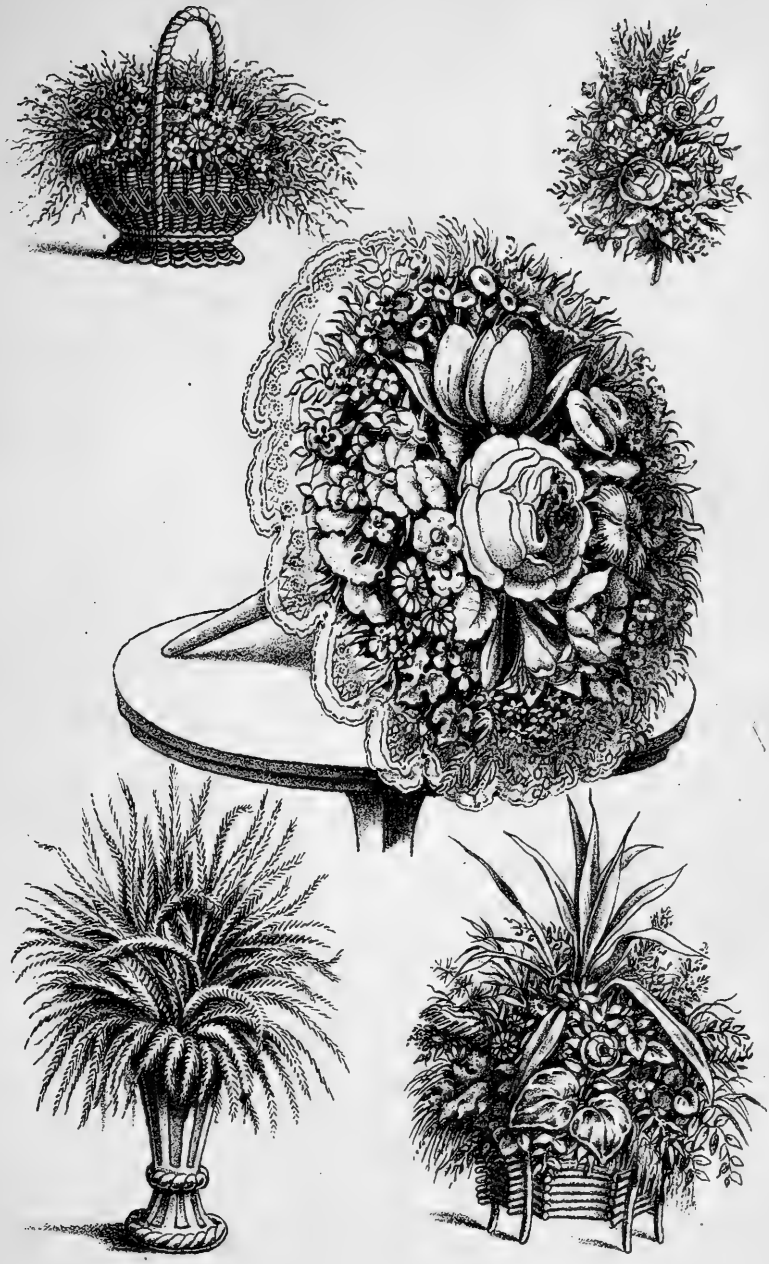
HOW TO MAKE BOUQUETS, WREATHS, &c., TASTEFULLY.

IN the preceding chapters I have shown how you can, with small outlay, decorate your rooms perpetually with flowers, ornamental grasses, etc., but I hardly consider this work complete without giving some directions how to arrange a number of them — whether fresh or preserved — into bouquets, or other floral ornaments.

How easy it is to make a bouquet; and yet it is a hard task for many persons. The secret of the art con-

sists in knowing how to make a handsome and tastefully-arranged bouquet with comparatively few flowers. To make a bouquet, cut your flowers and have them all ready before you begin. Fasten wire stems (about No. 26 soft wire) five to six inches long to them, as the natural stems are in general too short; and even where this is not the case they will make the bouquet look too clumsy, as the natural stems are too thick and not so easily put together as the thinner and more pliable wire substitutes.

Fancy, and the flowers actually on hand, will of course more or less regulate the style of the bouquet; but as a partial guide I will give the following as an approximate method to be



pursued and what flowers to procure for the purpose:

First, one dark rose for the center. Arrange around this five bunches of white ammobias (about four to six to a bunch); next, five light-red asters, five pink helichrysums, five light-colored roses, several deutzia blossoms, and a few immortelles, all fastened to wire stems about six inches long, as stated above. Gather fine grasses and varieties of moss, such as you may consider pretty for the purpose, and fasten these in small bunches to wire stems. You can now proceed to form the bouquet. First, take a little stick about the size of a lead-pencil into your left hand, and to this fasten with strong, coarse thread the

rose or other flower that you may wish to use as a center-piece. Around the lower half of the stick place a quantity of moss, which, if moistened, keeps the flowers fresh and fills up the empty space between the stems. Form now around the center the five ammobias and a few different colors of immortelles. With the thread you have, fasten the stems of all the flowers as you proceed by winding it several times around the stick. Add another layer of moss, and then place in position the asters, or when fresh flowers are scarce, a row of fine straw or everlasting flowers. Continue in this manner to place the balance of your flowers as taste may suggest, until your bouquet has reached the

desired proportions, always, if possible, making the full row around of one size of flowers. To give relief to the whole, the outer rim of the bouquet should always consist of small green leaves such as smilax, myrtles, rose-geraniums, rose-leaves, etc. To give the whole a particularly rich appearance, paste a few small flowers, like forget-me-nots, browallias, resedas, etc., upon the protruding tips of the moss. Here and there you may put in a few sprigs of fine grass; and lastly, let a few fuchsias or deutzia blossoms hang over the edges, which will give the whole a natural, artistic, and graceful appearance. Two or three handsome butterflies or beetles pasted on the leaves are a unique

and very pretty addition to the bouquet.

White, pink, and red are the principal colors for all floral combinations of this kind. Blue, violet, and yellow should only be represented sparingly. A little practice, combined with a small amount of good taste, will soon enable any one with the directions given above to compose a beautiful bouquet.

Wreaths are also easily made—even more so than bouquets. After you have procured a wire ring of the proper size, put wire stems about four inches in length to your flowers, and fasten them to the ring with thread, in a manner similar to that above described.

With crosses, crowns, anchors, etc., proceed in the same manner as above described, the main thing necessary in these being that a correct model made of wire, and painted green, be procured for a foundation to work upon. Florists usually keep these for sale.

Baskets of flowers are arranged in the following manner: Fill the basket with common moss. If for fresh flowers, wet this; if for dried, use dry moss. Press it down tight, keeping it in position by stretching fine wire across the moss and fastening it to the basket. Again, as in all other floral work of this kind, fasten your flowers to wire stems; but these need not be over two inches in length. Dip the stems into dissolved

gum arabic, and stick them into the moss, continuing to do so until the latter is entirely covered. Grasses can be stuck into the moss without wire stems. The more delicate flowers, to which you can not fasten stems, may be pasted on the moss. Around the handle of the basket twine delicate creeping vines, leaving the same hang over its sides.

Chapter XVI.

CORAL FLOWER-BASKETS, STANDS, Etc.

FLOWER-BASKETS, stands, and other similar ornamental articles may be beautifully constructed in imitation of coral in the following manner: Take No. 18 well-softened wire, and with the aid of a pair of pinchers form the basket or flower-stand, the wires of which should not be too far apart. It will also be advisable to have before you some draw-

ing or picture of coral-work from which to copy the rustic-like forms for which this article is known. At various places let small pieces of wire project, which should be curled so as to give them the appearance of vines.

Take some vinegar and immerse into it the basket or flower-stand so prepared until it becomes rusty, as the preparation hereafter named does not adhere well to the smooth wire.

To obviate all danger of the rusty wire ever eating through, it is advisable to varnish it or coat it with a solution of glue. Dissolve a quantity of plaster of Paris in water until it assumes the consistency of cream. Steep into this the wire form until the plaster adheres to all parts of it. This must

be repeated several times, until its size is about equal to that of a lead-pencil. Then melt bees-wax of a good quality, and sufficient for the work in hand. Into the liquid wax immerse a small closed linen bag containing about one ounce of alkanet-root, which will soon impart a beautiful red to the wax—much finer, in fact, than the vermilion commonly used.

Another method to produce the comely and irregular shapes of coral-work is to fasten numerous pieces of Indian corn—softened and strung beforehand—to the wire frame, and then cover as above. Small drooping ornaments for hanging-baskets or other similar purposes can be beautifully made by using grape or raisin stems;

and proceed in the same way as for larger work.

For white coral-work the process is precisely the same, except that instead of the alkanet-root, carbonate bismuth should be put into the wax in the proportion of one-half ounce to a pound of wax.

Carbonate bismuth is a very light substance, and does not immediately unite with the wax, especially if the latter be too hot. Mix the first with the wax as soon as this begins to melt, and stir both gently until the whole turns to a creamy white. As long as this is not the case the mass will appear more or less streaky.

Chapter XVII.

ROSE OF JERICHO BEADS.

IN several monasteries of Palestine the religious have for centuries prepared beads made of roses, which are known as "Rose of Jericho beads," and which are bought by pilgrims and other travelers as precious souvenirs. The beads are formed into rosaries, crosses, necklaces, bracelets, and various other articles of use and ornament. The art of their production was kept a profound secret until the advance in chemical science made it possible to analyze the material of which they are made; but this science

destroyed to a great extent the secrecy previously connected with the process.

As a member of the botanical section of Prof. J. B. Morsemann's Oriental Expedition, in 1857–58, I had during an eleven months' sojourn in the Orient the opportunity and special privilege of witnessing on several occasions the process of their manufacture; and I believe many of my readers will appreciate a description of it. I have since then tried it frequently, and always with the best success. It is as follows: Gather about two pounds of the so-called garden cabbage-roses (the original Bourbon rose). The usual pink garden rose will answer the purpose if the first named can not be had, but is

not as well adapted. Faded tips that have already turned white should be picked off, as these will speckle the beads. Pick off the roses, or rather their petals, at the bottom of the flower, just where the cup begins. Put them in a brass or china mortar, and pound them until the whole turns to a jelly-like mass. Spread this mass upon a perfectly clean sheet of tin and expose to the sun, or near a warm but not hot stove. When perfectly dry, put the hardened pieces again into the mortar, and pound the whole to a fine powder. Then add to the quantity of roses stated above one half of an ounce of pulverized gum arabic and two ounces of rose-water. Stir the mass, and leave it

stand a few hours. If a specially strong scent is desired, one grain of musk and two drops of oil of roses may be added. After thorough mixing, and when in the consistency of soft putty, the mass may be formed into small balls either by rolling in the hands, or what is far better, by obtaining a pill-mold from a druggist for the purpose. Before they become too hard, run a large-sized needle through the center, to form a hole for stringing. It will take at least a week before the beads become perfectly solid. After this, they are ready for use. To get the beads perfectly smooth, they may be laid in copal varnish for a few minutes. Should the quantity of roses to be had at one time be insufficient for

the article desired to be made, the product of the first gathering, after having been well mashed and dried, may be carefully put away in a well-corked bottle or jar for a week or two, until a new crop of roses can be gathered. The final preparation, however, should be done at one time in order to obtain sameness of color.

Omitting here any of the numerous uses that may be made of these beads or ornaments, I will only hint that an article thus prepared from the products of your own flower-garden, and sent to a far-distant friend, would likely have an uncommon value.

The beads will always retain their rose-scent, even if no other ingredients

are added, and be of a pinkish brown color.

Experiments made with a number of other flowers were entirely unsuccessful, as the adhesive quality of the rose-matter was totally wanting, unless mixed with a proportion of gum arabic, — enough to spoil the product. Moreover, the natural fragrance of other flowers did not last long after they had been subjected to the above treatment.

Chapter XVIII.

THE HERBARIUM.

Directions for Finding, Preparing, and Keeping of Specimens.

ON this interesting subject a number of learned treatises have been written; but taking it for granted that many of my readers have no access to these, and also considering it a kindred subject to the main one in this book,—the preservation of flowers,—I will here give a few brief directions, mainly based on my own experience, which at one time extended over a period of seven months devoted almost exclusively to the collection of specimens for the herbarium.

A fair understanding of nature is the first thing necessary in order to carry out this instructive undertaking. In all parts of the globe plants may be found, from which interesting and useful information can be drawn. The phanerogamia, that is, plants with visible reproductive organs, can only be gathered to advantage when they are in full bloom. Wild flowers are generally preferable to cultivated ones, because on their construction of the organs the flowers are classified, consequently their greater value for instruction. It is advisable to collect for the herbarium specimens which have the natural seeds attached. When plants can be found that

while blooming already form the seeds and fruit, they are preferable; but where this is not the case, both flowers and seeds may be separately kept. It is also advisable to collect the specimens during dry weather, and at a time when they are not covered with dew or rain-drops, as they will then preserve their natural colors much better.

When going upon extended trips the botanist must be supplied with a specimen-box sufficiently large to hold a number of papers filled with plants; also a portfolio containing a number of sheets of heavy book or letter paper, a quantity of white tissue-paper, and some white blotting-paper. It is necessary to have a light pole

with a hook on one end,—to draw down the branches of a tree or pull in a shrub with blossoms beyond convenient reach,—and on the other end a small shovel with which to dig up desired roots. Should a desirable plant be longer than the specimen-box or the sheets of paper on hand, fold it over; but never cut it in two or more parts, as it will then wither much sooner. The plants or flowers must be laid between the different sheets of paper, and upon arriving at home or at a suitable stopping-place they should be assorted and prepared for the purpose intended. Avoid putting water-plants among the others, as the gummy juice they contain would likely destroy the lat-

ter. Good heavy letter-paper, upon which several sheets of blotting-paper have been laid, is best for drying plants for the herbarium, as the latter absorbs the moisture very quickly, while the first prevents any injurious effect being communicated from one plant to another.

For tender plants and flowers use good tissue-paper, as that preserves the beauty of the flower much better than common paper. I have successfully dried thousands of plants and flowers by placing them, as above described, between sheets of paper and then putting them between boards, on the upper one of which I placed several large stones for the purpose of pressing them down. The thick and fleshy

branches may be easily prepared by splitting them into halves and pressing only the one side. Succulent plants should be scalded a few minutes before pressing, as they will then dry much sooner and lose none of their characteristics.

When gathering flowers or plants it is advisable to write the name, and when and where collected, on a small piece of paper, and pin it to each variety, especially if the specimens are intended to be put under glass. When dry, the same variety will usually look alike, yet in their original state a great difference often exists between flowers of the same kind that grow in low and those that grow on elevated places. The gath-

ering of specimens near home does not of course require as extensive preparations.

Plants and flowers intended for the herbarium may then be carried in the hand; but care should be taken not to expose the gathered specimens to the rays of the sun, as they would quickly wilt and leave little chance for home study.

The dried specimens may then be fastened to sheets of white paper by means of hot glue or by using slips of gummed paper to fasten them down. The plants, when so mounted on sheets of about ten by fifteen inches and folded in other sheets of manilla-paper, form a collection of dried plants for scientific use. A

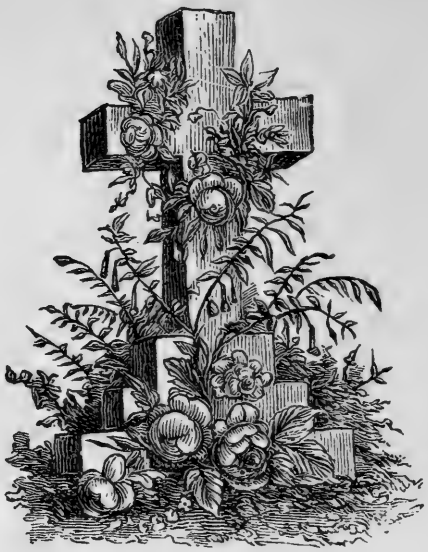
complete collection of all the plants of a particular region constitute its Flora.

The above brief directions will, I believe, afford some assistance to the amateur student in this branch of nature's study, but to those whose time and inclination lead them to seek a full knowledge on so interesting a subject I would recommend the following standard works: *Gray's Manual of Botany* and *Wood's Class-Book of Botany*.

The limited space of this volume makes it impossible to give a general outline of plants most desirable for the herbarium. A full knowledge and description of these can be gained by a careful study of the works just men-

tioned. They afford a vast amount of interesting matter not only for the students of botany, but also for those of other natural sciences.

NOTE.—Just as the above chapter was ready for the printer, my attention was called to a new book entitled, "*The American Plant-Book.*" For the purpose intended, it is the most complete and practical affair I have ever seen, and I can heartily indorse the following recommendation of it in *Harper's Monthly* for July, 1879: "The taste for collecting and preserving flowers, ferns, leaves, and grasses, which has been steadily growing of late years, deserves to be encouraged as affording a means of healthful recreation to young people, especially to young ladies, while it concentrates their attention upon a subject of interest which will prove a source of elegant and refining knowledge. Many of the difficulties that have hitherto attended the gathering and preservation of these beautiful but fragile children of nature have been removed, and the pursuit directed in a systematic manner, by the instrumentality of the student's *American Plant-Book*, recently published in this city. This book is in the form of an ingenious and convenient scrap-book, one half of whose large pages are of thick paper on which the specimens are to be fastened, and interleaved with these are as many more pages printed in outline for the analysis of the specimens. It also contains an alphabetical index, brief but sufficient directions for gathering, pressing, and mounting the specimens, and leaves of adhesive paper for fastening them to the page. In neat and tasteful hands, the book may be made an elegant and durable ornament; and it certainly provides a rapid and easy method for preserving and describing flowers and foliage of all kinds."



Chapter XIX.

SPATTER OR SPRAY WORK.

SPATTER-WORK, so-called, is a little art which, although easily learned, may be the means of displaying a good deal of fine taste in the arrangement and grouping of the objects to be used for models. Not only can beautiful pictures be made in this

way at a trifling cost, but lambrequins, screens, window-curtains, etc., made of light-colored or white stuffs, such as linens, jaconets, hollands, paper-muslin, etc., can be beautifully decorated in the same manner. Proceed as follows: For a picture use fine white card or bristol board, which should be securely tacked to a pine board. Have ready all the requisite patterns, such as pressed ferns, leaves, and paper patterns of crosses, or any other designs you may wish to form. Lay them on the paper just as you wish them to appear when finished, using as much taste as possible in the arrangement. Select gracefully-curved ferns, leaves, and stems, that your picture may not look stiff. When they are placed to

suit, pin each point and edge down by driving a fine pin through the patterns and paper, into the board. Having prepared a good black ink by soaking Indian ink in rain-water, pour some of it into a small dish. Then take a stiff tooth or nail brush, dip it into the ink, and pass it over a fine wire-sieve, throwing the ink spray directly over the paper until it is perfectly black, thus forming the background.

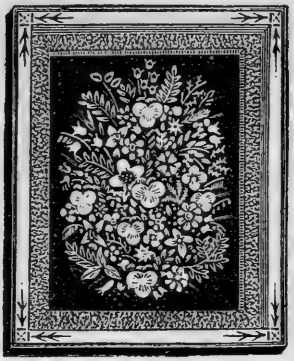
In order to shade your picture, remove the ferns, etc., a few at a time, throwing more spray after each removal, and so on until all are off, when the picture will be completed.

Patterns may be taken from many of the beautiful pressed pictures so extensively used for decorating pot-

tery and other fancy work, if they are cut out close and even with the contour of the object they represent, especially in ferns, grasses, etc.; but where the whole picture forms only one piece they should be traced on transparent linen and cut out of this. For window-curtains, and similar articles to be decorated, proceed in the same manner as with those on paper. Graceful figures of flying cupids holding wreaths or strewing flowers are especially suitable for the last named articles.

To take impressions of leaves and the flat varieties of flowers for a pretty wall ornament proceed as follows: Take lamp-black or gas lamp-black; mix it with sweet-oil

(olive-oil) to the consistency of common oil-paint, and paint a sheet of writing-paper with it. Lay on the paper so blackened the flower or leaf from which an impression is to be taken; then put over it a sheet of paper, and upon this lay a piece of thin leather or pasteboard, and subject the whole to a slight pressure. The blackened flower or leaf should then be placed on the paper, which is to be imprinted and another pressure applied. When the leaf or flower is removed, a clean and perfect impression of the same will appear on the paper. All possible colors may, instead of the black, be used with the same success.



Chapter XX.

HOW TO MAKE BEAUTIFUL PICTURES OF PRESERVED FLOWERS, ORNAMENTAL FERNS, AND MOSSES.

THE taste for home ornaments oftentimes takes the most unique and fanciful forms, while again it not unfrequently has for its objects the simplest products offered by nature herself. I will here refer to only a few for illustration.

To the first class we may count the deep interest lately taken by so many

in pottery decorations; that is, the art —if we may so call it—of decorating pottery-ware with those exquisite little ornaments called scrap-pictures. That a great deal of fine taste has and is still being displayed in this decorative art, will be readily admitted.

Another instance is the for several years prevailing "motto idea." For a long time the manufacturers of "mottoes" could hardly supply the demand. While some of these mottoes were very appropriate, and the work on them beautifully done, numerous others had little if any meaning in connection with their use as home ornaments; and on the whole it is pleasant to think that their day has gone by.

The taste for such home ornaments as are gathered from nature herself usually rests upon a more enduring basis.

The collection of mineral specimens, for instance, is seldom abandoned when once begun. So it is with herbarium, aquarium, butterfly, and other collections of natural curiosities. It is so to a high degree with flowers in their natural state, and it will undoubtedly be so with preserved flowers when this subject once becomes better known and is studied more closely, especially as preserved flowers are by their nature best adapted for home ornaments. It may be said that the beginning is indeed already made. I had the pleasure

lately of inspecting the wall-ornaments of a fine parlor, which consisted almost exclusively of pictures formed of preserved flowers, ornamental grasses, and ferns, all composed by the tasty and industrious lady of the house, who is already somewhat acquainted with the art of preserving flowers. I will here describe a few of these pictures:

The ground on which they are formed is usually black card-board; but other colors can be used equally as well, especially drab, brown, or buff.

For a foundation, No. 1 has a few preserved ferns, neatly arranged to a height of ten inches by six inches wide. Six preserved pansies of differ-

ent colors and two pelargoniums are tastefully placed over and partly under the ferns. Several sprigs of fine ornamental grasses peep out at the central part, completing this simple but pleasing picture. It is covered by a gold-lined mat, with an opening 13 by 7, and set in a one-inch gold frame.

No. 2 is still more simple. It consists of several sprays of preserved salvia splendens (scarlet), interspersed with beautiful grasses of different varieties.

Nos. 4 and 5 are larger sized pictures, formed entirely of natural and colored ornamental grasses, so attached to the black card-board that the full form of each is distinctly seen.

The effect of all these is much finer than can be gathered from this description.

Other beautiful ornaments are formed inside of mats, about 5 by 8 inches. They are small but very elegant bouquets, composed of such preserved flowers as pansies, feverfews, forget-me-nots, delphiniums, and others, interspersed with fine mosses and ornamental grasses. The stems are apparently tied with bright-colored silk cord, giving them a very graceful finish. These and similar floral combinations require to be set back in the frame about one inch from the glass. I will also suggest that very small but fine willow-baskets can be cut in the middle and the one half glued to

a piece of card-board to be filled with flowers, grasses, and moss. When tastefully finished and set in a deep frame, they form tableaux that can not fail to be admired.

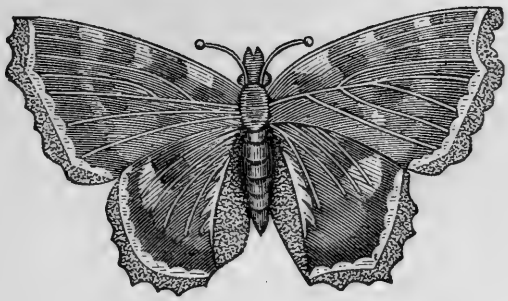
I have made a rustic cross formed of common bark and resting on a purple (card-board) ground. Its base is covered with fine mosses, and the whole ornamented with numerous preserved flowers, ferns, etc., somewhat like the engraving on page 122. It is greatly admired by all who have seen it.

That fancy baskets and other receptacles can be filled with preserved flowers and ornamental grasses and placed under glass shades for parlor

ornaments, it is of course hardly necessary to state.

With these few examples, I believe indications enough have been given for a large store of ideas as to how your home may be beautifully decorated at very little cost. The subject offers a wide field for a fine display of decorative genius; and even children may try their hands at it with a good prospect of success.

In arranging this class of pictures and tableaux, it will be necessary to attach the flowers, grasses, and mosses with a little gum arabic, as they would otherwise be likely to shift out of position. From flat-shaped flowers, like pansies, verbenas, phlox, etc., the stems should be entirely cut off in picture-work. Small flowers, like forget-me-nots, browallias, violets, etc., look best when attached to sprigs of fine moss.



Chapter XXI.

TO COLLECT AND PRESERVE BUTTERFLIES, AND OTHER INSECTS.

PRESERVED butterflies and moths may, on account of their brilliant colors, be very effectually used for ornamental purposes. They are very proper and beautiful additions to any bouquet of natural or preserved flowers. The French modistes, known for their exquisite taste, employ them as ornaments on ladies' dresses, bonnets, and coiffures. The toilet of a Brazilian lady would

not be considered perfect without the attachment to it of some gay-colored butterfly or gold-glittering beetle. A well-arranged collection of nicely-dressed butterflies and moths, put up in elegant glass cases, is one of the most attractive ornaments of a sitting-room or parlor, and certainly more interesting than many of the common pictures we often see there.

The study of natural history belongs to the ordinary discipline of many of the common elementary schools of Europe; and the young people generally take great delight in the study of entomology, principally in that of butterflies and beetles, collections of which can be found in many private residences.

It is pleasing to know that in this country also the study of entomology is gradually being introduced into at at least the higher graded schools.

The *lepidoptera*, that is, insects having four membraneous wings, are commonly divided into three classes:

1. Butterflies.
2. Sphinxes. (also sphinges).
3. Moths.

The butterflies, which fly during the day-time only, have large broad wings and small bodies. The sphinxes make their appearance in the morning dawn and evening twilight, and have comparatively long and narrow wings and very large bodies. The moths, which fly only at night-time, have large wings and thick bodies.

As it requires great skill and activity to catch butterflies and moths enough for a collection, and as their wings are easily injured or deformed, —their color being very delicate and liable to be rubbed off,—it is preferable to gather the caterpillars, or larvæ, and the pupæ, and await the development of the butterfly. Many varieties of these can be collected by shaking the branches of trees or shrubs over an umbrella, in which they may fall without being injured.

The best time for gathering them is early in the morning before the dew dries up, and before the temperature becomes too warm. In the spring-time more varieties may be obtained than in the summer; but in order to secure

a perfect collection, pupæ or larvæ should be gathered at all times between the middle of April and the middle of October. The caterpillars of the butterflies are generally long, slender, and thin-haired. Those of the sphinxes are thick, large, smooth-skinned, and have a horn at the end of the tail. Those of the larger moths resemble the caterpillars of the sphinxes, but the smaller are generally long-haired. To raise the perfect insect from the caterpillar requires considerable care and attention. First, it is necessary to ascertain from which special plants the caterpillar takes its nutriment, for it will starve before eating any other food. The general rule is to give the

caterpillar the leaves of the same plant on which it was found. But this is not always a safe guide, and it is therefore advisable that the collector of insects should procure a book from which this information can be obtained. Several books have been published on insects, more or less valuable to the student of entomology. Harris on "*Insects Injurious to Vegetation*," and Figuier on "*The Insect World*," are valuable works.

The caterpillars are best kept in glass jars adapted to their size and number, and covered with perforated paper or sieve-stuff, in order to admit fresh air. They should be placed in a dry and light place, but not exposed to the hot sun. The bottom of each

jar should be covered with at least two inches of sand, and should contain a branch or twig to give those moths which make cocoons an opportunity to fasten themselves thereon. Many butterfly larvæ suspend themselves upon a branch before the transformation, and their pupæ remain in the same position, and with the head downward, until the butterfly is developed. Others, and most all the caterpillars of the sphinxes, bury themselves in the sand before the transformation into the pupæ. The butterflies need only from two to six weeks for both transformations, while many of the large moth pupæ remain over winter in their inert condition. The caterpillars must be regularly provided with

fresh leaves, and no wilted vegetable-matter should be allowed to remain in the jar.

To obtain good specimens of butterflies, they should, after being thus raised, be killed about the time they are acquiring their perfect state, and before they begin to fly.

The catching of moths is comparatively very easy. During the day-time many of them may be found on the north side of large trees, fences, stone walls, and the cornices of buildings, where they sit still and may be secured by throwing a net over them. The net used for that purpose and for catching butterflies has the form of a small fish-net. The bag may be fifteen to twenty inches long and eight

to ten inches in diameter, made of tulle or good mosquito-bar stuff, and stiffened by a wire ring, which is affixed to a stick about four feet long.

The practice indulged in by some of pinning up the butterfly and leaving it come to its end after a more or less lengthy torture seems like a cruel one, as it is an easy matter to kill it in an instant. By taking hold of its breast with the thumb and the index finger under the wings and giving it a slight pressure, life becomes extinct in a moment. The larger moths and sphinxes, however, are more tenacious of life, and by their fluttering after being caught their color is often impaired. Here the use of chloroform is almost indispensable. Draw a thin

wire through the cork of your little chloroform bottle, fix a small piece of sponge on the end of the wire, and while holding firmly the body of the moth or sphinx with the thumb and index finger of your left hand under the wings, touch its head with the saturated sponge, and the insect will immediately become stiff. Some of the larger moths and sphinxes do not die from the effects of the chloroform; therefore benzine, which does not affect the color of their wings in the least, must be put on the head and body in the same way as the chloroform. Benzine is sure death to all insects.

Chapter XXII.

THE DRESSING OF BUTTERFLIES AND OTHER INSECTS.

IN the formation of a collection of insects the dressing of them is a matter of special importance, as it gives them a fresh and life-like appearance. It is also necessary to secure regularity and systematic arrangement of a perfect cabinet. A dressing-board can be made in the following manner: Take two smoothly-planed strips of soft wood, — either white pine, linden, or poplar, — one inch thick, three inches wide, and twenty inches long. Lay the two strips flat on

the table, leaving a space of one quarter of an inch between them, and nail over them, at each end, a small strip; then nail on these small strips, right under the slit between the two large ones, another strip, on which pieces of cork must be glued or nailed. The slit between the two larger strips should be exactly wide enough to meet the bodies of the butterflies or moths, and it is therefore necessary that the collector should always have three different dressing-boards,—one adapted to insects with large bodies, one for middle-sized, and one for smaller ones. Run a pin about two inches in length through the breast of the insect; stick the pin in the cork under the slit of the dress-

ing-board, so that the axles of the wings are at a level with the board; then spread out the wings regularly and to suit the taste, and fasten them to the board by pinning small pieces of writing-paper over them,—but care should be taken that the pins which fasten these papers are not run through the wings,—and then let the insect become perfectly dry. Some collectors lay pieces of glass on the wings. This method makes it necessary that the dressing-board be guarded against any movement; but when the paper strips are used it will bear moving, and may be hung upon a wall or be placed most anywhere. Moreover, when fastened down with paper the wings of the insects can be

better arranged, fastened, and secured against outside injury. Butterflies will be dry in three days; larger moths or sphinxes in two weeks.

The great enemies and devastators of insect cabinets are worms and the larvæ of small moths. The only reliable protection against these is the poisoning of the insects with arsenic. A thin solution of this drug, which can be bought at any drug-store, should be carefully applied to the body with a soft hair-brush; or it may be injected into it with a small syringe. A very small quantity of arsenic is sufficient to protect any insect against the attacks of worms or small moths, and to mummify its body.

The boxes or cases in which the

collections are kept should be tight enough to prevent any smoke or dust entering, and must never be exposed to sunshine. The glass plates should be covered with some sort of curtain in order to prevent the continuous ingress of light, which would in less than a year fade the colors of the insects. Always keep a small lump of gum camphor or a sponge saturated with carbolic acid in each box.

Beetles need no special dressing. They are killed by immersion in alcohol or cologne-spirit.

Winged insects of other classes are treated in the same manner as butterflies.

Chapter XXIII.

THE ART OF MAKING WAX-FLOWERS. *

SO varied and numerous are the books and pamphlets written on the art of making wax-flowers that it seems almost presumptuous to add another line to these, oftentimes, well-written instructions. But having for a number of years devoted a great deal of time to wax-flowers, and endeavor-

* This chapter was kindly contributed by Miss K. A. K....., who is an adept in the art, and whose charming pieces of wax-work are greatly admired.

ed to reach as near as possible the point of perfection in the art, I trust that my practical experience may not come entirely amiss to those who have already made them with more or less success, as well as those who are beginning the study of this most interesting and beautiful art.

It is my custom to read and study carefully whatever comes under my notice on this subject in the hope of finding something valuable that I did not know before, being convinced that in this as well as in all other things the experience of others can be made a valuable guide for our actions.

It is pleasant to know that the exquisite productions in the art of wax-flower modeling, exhibited during the

last few years at the world's great expositions, have largely increased the interest in this beautiful art.

A most important point, which however very many persons seem to overlook, is that wax-flowers are not like other artificial flowers; that is, that they need only to resemble the natural prototypes. Wax-flowers, to be worthy the name, must imitate nature so closely that they are apt to deceive the observer; and it should be the aim of all who desire to become adepts in the art to consider no flower a success that has not a deceiving similarity to the natural flower.

No matter how large a vase or basket you may wish to fill, or cross, anchor, or harp you may desire to

decorate, you will not need more than from twelve to fifteen varieties of flowers with their respective leaves, as you rarely see a greater number than that arranged in decorations made of natural flowers. It is not my intention to give a description how to make that many kinds of flowers, as the limited space in this book will not permit it, but the few I shall describe will, I trust, enable you, with the aid of nature, which is within the reach of every one, to obtain a fair knowledge of the art, and patience and practice will do the rest.

We often see imitations of pansies, certain kinds of verbenas, speckled petunias, etc., which are so unlike nature that though we can not help

but admire the courage that undertakes so much, we must lament the very poor success of the makers The pansy, especially, is seldom well imitated. It requires the skill of an artist to paint it; and unless it fairly speaks to you it can not be considered well done. My advice is to let this and similar flowers be among the last you attempt to make. Another mistaken idea is that some persons want to make wax-flowers fast,—make a great quantity in a short time. To such I would repeat the saying, "That which is worth doing at all is worth doing well;" and if after spending a few days longer on a handsome piece of work it meets your own and your friends' perfect satisfaction, will

you not feel repaid for all your trouble? In making wax-flowers, the most time is consumed on the staminas or stamens; and whether the flowers shall be perfectly natural or not really depends to a great extent on these.

It is best not to use bought staminas at all for wax-flowers, except for the open rose; and though it is a most uninteresting work to make these, it is well not to become discouraged, for when the work is finished you will not regret the time spent thereon.

Nearly all books on wax-flowers give elaborate instructions on the mode of sheeting wax; but as this article is now so much cheaper than

it has been, and the quality and colors as fine as could be desired, I will omit the sheeting process, especially as but few persons use enough of it to pay them for the long and laborious task of sheeting their own wax. Nor will I give a long description of the tools, colors, and other materials necessary in the prosecution of this work. A list of these can be found at the end of this book.

For stems, use the white cotton-wrapped wire, of different sizes to correspond with the flowers you are making. Cut green wax into strips about one eighth of an inch wide, and put them around the wire; then roll with your index finger and thumb

till the stems are perfectly round and smooth. For seeds use mostly the white stiffened thread, which comes prepared expressly for flowers. But for such flowers, the centers of which should not be stiff as the honeysuckle and others, get either a nice white quill or a small but firmly-set and bright-colored feather, like those used by milliners, the threads of which are well adapted for the purpose. The color can be selected according to the natural one in the model before you.

In imitating natural flowers, always aim to get two alike, — one to be looked at for a model and the other to take apart. For the latter purpose get regular card or very thin pasteboard on which to lay the natural

petal to trace the pattern from, and which can then be cut out. Mark on this pattern the name of the flower, as well as the number of petals it requires, so that you can make the same another time, when the natural flower can not be had to copy from. It is also advisable to keep one well-made wax-flower of each kind for future reference. When the petals are to be cut out of the wax take a clean pasteboard box-lid, lay a sheet of wax with the tissue-paper under it thereon, and with a pointed head-pin draw a cutting line around the pattern. In this way the cutting is much more even, as well as speedy, than when done with the scissors, as the wax does not have to be handled until the

whole sheet is thus cut out. Now take off the petals, and either arrow-root or paint them, as may be required. All petals intended for white flowers should be well arrow-rooted, with the exception of the small part to which the stem is to be fastened, as nothing adheres to wax covered with arrow-root. The tools used in making wax-flowers, such as steel-pins, molding-pins, scissors, etc., should be constantly moistened with warm water or by touching them with your tongue. The latter I consider preferable.

Most flowers should be painted in dry colors, which must be rubbed on the wax with the fingers; but in making variegated flowers and leaves,

use mixed colors, generally chrome colors, except when making Japan lilies, spotted and striped pinks, tulips, etc., of which the foundation should also be a chrome color put on with a sable brush; but whatever shading the flower requires, it is advisable to paint with artists' paint, which can be had in small tubes. Put a small quantity of this on a small pallet, and mix it with a little turpentine to make the paint more fluent.

When imitating bunches of natural flowers and their leaves, cut out the patterns of the leaves in the same manner as described for the flowers. For these, put two sheets of single green wax together, of a shade to suit the natural leaf, one thickness not being

sufficient for the purpose. Cut them out of this double sheet according to your pattern and press them on the wrong side of a suitable metal mold. These can be had to imitate a great variety of natural leaves. In arranging large pieces of wax-work, quite a number of these metal (usually brass) molds will be needed. Before using the mold, dip it into water. Lay on a single sheet of green wax, over which —about two thirds up from the stem— place the wrapped wire, and over this another sheet of wax. With a large pin now run along the edges of the scallops, breaking off the wax, and then pressing the leaf hard enough to impress all the veins of the mold upon it.

Having given a general outline on the making of wax-flowers, and the rules and methods I consider necessary to success with the work in hand, I will proceed to give directions how to make a number of flowers, beginning with those that offer the least difficulty.

Lily of the Valley.—This lovely little flower can be made exactly like the natural one, and it is almost indispensable in arranging baskets and bouquets. Cut strips of pure white double wax three eighths of an inch wide, five eighths and some seven eighths of an inch long, which put around the end of the modeling-stick, and carefully smooth the part that laps over so that the joining does not show. Then

move it up and close it at the top, gliding over it with a modeling-stick until it is perfectly smooth. When it has been taken off dip your modeling-stick in a mixture of arrow-root and flake-white, equal parts, with which the inside is whitened, and its glossy, waxy appearance disappears. Then put the little cup on again and rub the outside well with the arrow-root. After this, make a very small hole in the center, through which put the wire with the seeds. Cut the top in six equal parts, scallop them evenly, and curve each one over a very little. The seed is made by taking the whole length of a sheet of the very lightest yellow-green wax five eighths of an inch wide, between

two strips of white, of which make a roll. The wire, which must be covered with medium green wax, turn at the top about one eighth of an inch. Clip six little pieces off the roll about the size of the head of a chenille needle and put one in the center so that the green stem does not show, and then five around this. Put five, seven, or nine blossoms on one spray, the first three to be a little smaller than the others.

White Clematis.—This very pretty and sweet-scented climber looks charming in wax, and is easy to model. Commence by taking the natural flower apart carefully. Take one of its four petals and cut a pattern from it out of thick white paper.

Place the pattern upon double white wax and cut out four petals for each flower, some a little smaller than others. Then bloom or rub both sides with a mixture of arrow-root and flake-white, leaving, however, the base clear of this mixture,—in fact on the petals of all other flowers, as they would otherwise not adhere in making up. Mold each petal by pressing down the center and on either side, so as to form three lines. Great care is necessary, to keep them from breaking. Apply the already described white mixture once more.

To make up the flower, take a piece of the wire and mold around it a narrow strip of green wax; then turn one end a little ways down and press

on it at its point six narrow strips of white wax an inch in length. After painting each with green powder, mixed in weak gum-water, slightly turn each joint back at the top to form the pistil. The stamens are of two sizes — about one fourth inch and three eighths inch, respectively. They can be made of white cotton. Make sixteen of each size, twelve to remain white, except tinting the tips with straw color, and four of each size to be painted with the prepared green color. When the stamens are cut and arranged, press them on in rows of eight around the pistil,—first the small, then the large size,—and with the point of a pin regulate them according to nature. At their base

press on the four petals first described and curve them back a little toward the stem.

Forget-me-not.—Take pale blue dry color and mix it with flake-white or arrow-root until it is as light as the natural flower. Then take a sheet of double white wax and rub it with the blue powder on both sides. To cut it out, use a small tin-cutter made for this purpose, and which can be obtained at the wax-material stores.

Mold each of the little scallops in your hand with a very small glass head-pin, and put the wire with the seed through the center. This seed is made of four white threads, tipped with a bit of white wax about the size of the head of a small pin. Dip it in

yellow color, and put it on the stem about one sixteenth of an inch above the end of the wire. Arrange six or eight blossoms in a sprig.

Orange-Blossoms.—These are made of very thick white wax. Some have five and others six petals, the pattern of which can either be cut from the natural flowers or a tin cutter used for the purpose. Mix arrow-root and flake-white, equal parts, and rub them well with this on both sides. Mold them in your hand, first with a medium-sized modeling-pin, then with a small round glass head-pin in two or three ridges on each side, which gives them a dewy, transparent look. Curve some of the petals over a great deal, others only a little,

and close some of them altogether, for buds. Cover the wire with a light-green wax; turn the top over slightly, and make a little bulb about the size of a pin-head. Make a good-sized bulb of green wax a quarter of an inch below; then cut strips of thick white wax a little over one half inch wide, which, after being well arrow-rooted, should be cut like fringe. Then moisten the edge and dip it about one sixteenth of an inch deep into yellow color. When dry, press it around the little bulb at the bottom, so that the fringy part will stand straight up; then press the five petals into their proper place.

Roses.—For a good-sized rose cut ten sizes of petals, five of each size,—

except the smaller, of which only three are required. The tin cutter, made for the purpose, answers very well; but if you prefer, cut from nature out of fine card-board. Take a good stiff wire; cover it with green wax; turn it over a half an inch at the top; then of white waste wax make a bulb about the size of a small rose-bud. Arrow-root all the petals, and then rub rose-madder, No. 1 or 2, on them. In the first four courses rub it in as thick as possible, and in the others gradually diminish. The last two courses should be very light. For this flower you need four or five sizes of molding-pins. Mold them in the hollow of your hand, beginning with the smallest. Then curve each petal

over at the top,—some only a little and others more,—taking care that it does not look too regular. The first and second course, which cover the bulb, hardly need to be curved at all. The second, third, and fourth courses should each be a little higher than the preceding; the fifth about even; the sixth, seventh, eighth, ninth, and tenth each a little lower. If a moss-rose is intended to be made, take five very perfect pieces of fine sprig-moss, which is to show only a little from the top of the flower; fasten this on with green wax, and afterward also cover the bottom of the moss with green wax.

In roses, camellias, tuberoses, orange-blossoms, etc., we often per-

ceive an almost invisible veining, which can be imitated very nicely by veining each petal several times with a medium-sized knitting-needle on the one side, and molding it with a very small molding-pin along-side the crease on the other side.

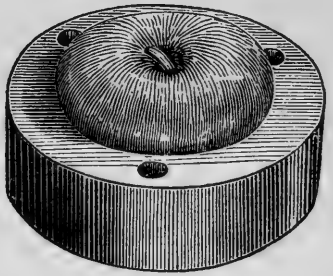
Pink Carnation. — Although this beautiful flower is not difficult to make, yet it is a very important one in the formation of wax-flower decorations. There is perhaps a greater variety of colors in this than in any of our garden pets—first, the pure white, the light-pink, the crimson, the scarlet; then the tinted, the spotted, and the striped varieties. Each flower contains from four to six sizes, and altogether about thirty-five petals.

Trace on card-board one pattern each of the different sizes of petals, which then cut out. They are made of pure white double wax. Scallop the edges in a rather irregular and careless manner, and for the white use equal parts of arrow-root and flake-white to rub the petals with after they have been scalloped. For pink, use rose-madder No. 1; or if a darker pink is wanted, rose-madder No. 2. For striped and spotted, refer to directions given for similar flowers on page 160. When the petals are all colored, make the center by taking two stiff white threads one and a half inches long; cover these very smoothly with white wax and curl them over at the upper

end to imitate the natural flower. Join these at the bottom with a piece of covered wire, and mold around it a little light-green wax to the shape of a small grain of wheat. Mold the petals with a rather large modeling-stick, and then with a small molding-pin around the edges, but in an irregular manner; that is, do not mold all the petals alike, as the flower is naturally so formed. Now press on the petals placing the smallest first. Form the calyx after nature, out of light-bluish green wax, doubled, and when molded press it carefully around the lower part of the petals. Then press on the four very small leaves of the same color as the calyx, the shape of which you can copy from the natural

flower. Make the stem about a quarter of an inch from the calyx.

With this short treatise on wax-flowers as a starting-point, I trust the really anxious learner will soon become interested enough to study closely a large number of other flowers, and learn to copy them. The best help in this art is always offered by the natural flower itself, and if at all to be had it should never fail to lay before you as a model. A good guide-book is, however, generally very desirable; and for this purpose I most heartily recommend "*Mintorn's Lessons in Flower and Fruit Modeling in Wax*," of which a notice will be found in the latter part of this book.



Chapter XXIV.

FRUIT-MODELING IN WAX.

A MOLD made of plaster of Paris is the first thing requisite for this work. To make this, prepare a stiff paper mold about an inch larger all around than the fruit you wish to imitate. Then mix plaster of Paris with water sufficient for the purpose. It must be rather thick, to prevent the fruit from sinking deeper than is intended. With a soft camel-hair brush cover the fruit with olive-oil, and then pour the plaster into

the paper mold. Place the fruit into this, so that there is an equal margin of plaster all around, and allow it to cover just about one half of the fruit. The edge of the mold should be perfectly smooth; if not so, it must be scraped with a knife when hardened a little.

Before the plaster has become hard, bore three holes into it with a modeling-tool. Leave it stand about an hour to become firmly set, and then oil over the fruit and the upper edge of the mold. Mix some more of the plaster, and pour enough over the fruit to cover it entirely, and extend out to the paper form. It will now have to remain about twenty-four hours to become perfectly hard, when the upper half

can be taken off, the fruit taken out, and the paper mold removed. Three notches will have been formed on the edge of the upper half by the filling up of the holes before mentioned, which serve to keep the two parts together when they are to be used. Great care is necessary in placing the fruit so that not more than the half of it is imbedded in either side of the mold, as otherwise it could not be removed without damage to the form. The above method can be applied to all varieties of fruit. After having been laid aside for two days, the mold will be sufficiently hard to cast, for instance, an apple. The process is as follows: Melt a sufficient quantity of good. white wax,

which should be quite fluent, but not too hot. Then immerse the mold into moderately warm water for a few minutes to prevent the wax from adhering to it. Now wipe the mold clean, and take one half of it in your left hand and pour in the liquid wax until the same is nearly filled; then quickly place over the other half, pressing it on tightly, and keeping both in place by means of the three notches fitting into the three cavities before mentioned. Hold the two parts firmly together, and gently shake them in different directions until the wax inside ceases to move. When this takes place, lay it in warm water for a few minutes, after which the wax-fruit can be taken out. Careful handling is necessary, as the

wax is yet soft and easily injured. Pare off the superfluous wax, and carefully rub the fruit with flannel dipped in turpentine, removing all rough places, especially where the two parts of the mold join. Paint with good dry chrome colors. For instance, apples or pears may be painted with yellow chrome, and carmine can then be used to imitate the red cheeks on them. The same varnish used in preserving flowers as described in Chapter IV.—except that double the quantity of ingredients must be taken to the same amount of alcohol—can be used for giving fruit the desired gloss. The crown of an apple or pear can be closely imitated by soaking a clove in

water, cutting off the head, and gluing it on the proper place. For the stem of the fruit, take a small twig and put it in the proper place in the mold. The wax will firmly adhere to it.

Fruits that are not to be varnished, as, for instance, plums,—after they have been painted green, violet, etc., which is done in the manner above described,—must be delicately and very carefully dusted with pulverized chalk or arrow-root, which imparts the tender bloom peculiar to the fruits.

For imitating grapes it is best to buy the glass berries made for that purpose, which must be glued to wire stems, previously wrapped with silk or cotton thread. These berries may then be singly dipped into melted

green wax. Great care must be taken on withdrawing the berries from the wax, so as to hold them in a position to allow the superfluous wax to run down over the stem, otherwise thick drops will settle on the berries and totally destroy their beauty.

For smaller berries that have delicate lines drawn across them, as currants, paint may be used to represent these lines, or silk thread may be tied across for the same purpose. Grape berries, currants, and other varieties of small fruit can also be had with stems, colored and ready for use. After the berries are prepared in this manner they may be formed into bunches, colored and dusted as above directed.

Chapter XXV.

PAPER FLOWERS.

AT the time I began writing this book it was my intention to add a long and what might be termed a "scientific" treatise on this interesting part of the "inanimate Flora." Other seemingly more important subjects have however extended this volume beyond its intended limits, and I find myself compelled to choose but two flowers for this chapter; and these I will not describe in any learned, but in a simple and easily understood manner, so that even children can comprehend and utilize the description without difficulty.

How to make a beautiful rose in five minutes.—Take any colored paper,—common red tissue-paper if you have none better. Cut six pieces of two and a half inches square, as in figure 1.

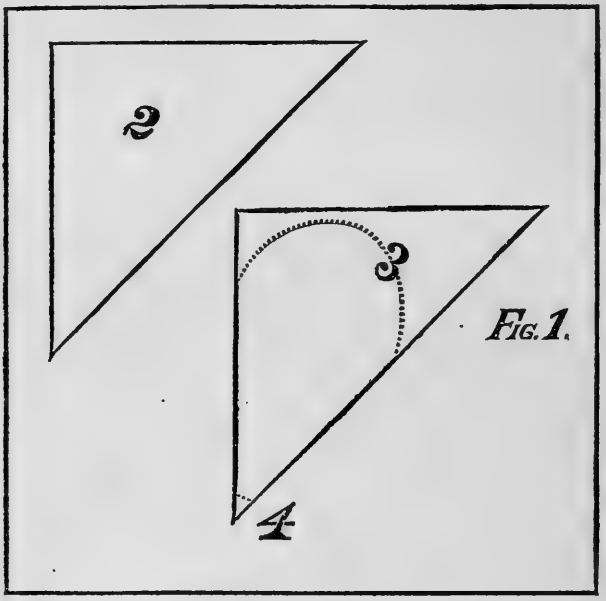
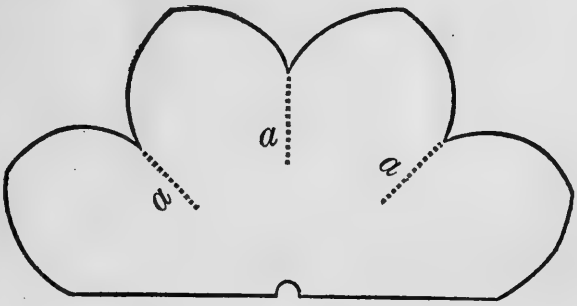


FIG. 1.

Fold it until it has the shape of figure 2. Then take a pair of scissors and cut off

the top as marked by dotted line 3, and the bottom by line 4. Then open



the paper as in this figure, and cut across the dotted lines *a*. Unfold the whole paper and cut in the same manner the two remaining uncut creases. Then take a piece of green or brown covered wire (about No. 26) six inches long; form on one end a bulb of cotton the size of a small rose-bud; cover this with the same color, or yellow paper to imitate the center

of a rose. This can also be made of yellow zephyr worsted, or even a yellow immortelle.

Stick this through the hole in the center of the star-like patterns using a little paste to fasten the first to it. Then with the thumb of your left hand over the petals, and holding the wire stem between the fore and middle finger fold in a careless-like way the first of the eight petals over the center as far as it is cut open. Take the second paper and fold over the first, in like manner. Continue this folding until all the petals are thus laid over, and then form a small bundle about one inch across.

If a green muslin or paper calyx is not to be had, take a few sprigs of fine

moss which paste to the bottom of the rose, and then fasten them with thin-covered green wire or thread.

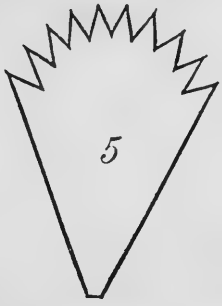
To make a nice spray, attach with tissue-paper a few green muslin or paper leaves at proper places. A bud may also be easily made by attaching some cotton to a wire stem, somewhat in the form of the natural bud, and covering it tightly with green tissue-paper, which can, if desired, be tinted a little at the top with the color of the rose, representing a bud about to open. To this attach the calyx, the same as in the rose.

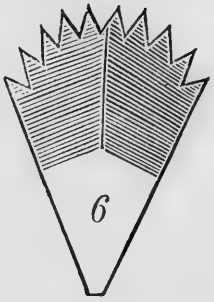
We now return to the rose that we started out to make, and which we left in an unsightly looking lump. Take it by the stem, and with the

point of a pair of scissors open or turn back the top row of petals, then the second, and so on down to the center, when lo! you will be surprised with the sight of a remarkably natural-looking rose,—provided the above directions have been strictly followed. With a little practice a dozen roses, of different colors, can easily be made in an hour. They can of course be made in different sizes also, if desired. Pressing or molding each petal in the palm of your hand with a large molding-pin, or even with the tip of your finger, will add much to the beauty of the rose, although this is more tedious. If the inner row of petals—that is, the first paper put on the wire,—be cut half an inch smaller

than the balance it will imitate the natural rose more closely.

Carnation Pink. — To make this flower in paper quickly, proceed in the same manner as for the rose; that is, use the same sized-papers, and fold and cut them in the same manner as for that flower. When cut, as shown in the half size rose-figure, it will be necessary to clip out little notches,





as shown in figure 5, which can be done while the petals are yet all in one fold, like this in the engraving.

Besides this, crease each petal a little as far as it is cut open, as in figure 6, so that it may have the appearance of the somewhat irregular petals of the natural flowers.

For the pistil or stamens use two threads of a feather; or if these can not be had, cut two very narrow strips of thick white paper about two inches long, draw them over the edge of a pair of scissors, between this and the thumb of the right hand, to make them curl like the natural. Fasten these threads to a piece of wire by means of some cotton, which wrap around the two until it forms a small ball, the size of a little bean. To this attach the first piece of paper, prepared as stated above, by the use of a little

paste, and press it together by drawing it through your partly-closed hand. Then attach the other papers in the same manner, when only the calyx remains to be added. For this take stiff blue-green paper, which can be purchased where paper window-curtains are sold. The form of it in the natural flower will be your best guide in shaping this calyx. It must be notched or cut fringe-like at the top. When slipped under the pink, the flower is done. For the peculiar grass-like leaves of the pink, take the same blue-green paper, 4 by 1½ inches. Cut three inches of this into little strips one eighth of an inch wide, and with the one inch uncut, attach it to the wire stem by wrapping

it around this about three inches below the flower, and pasting on both ends.

To heighten the effect of pinks, impart to them their natural fragrance by sprinkling a little clove-dust over them, which imitates the natural scent very closely.

The above methods for making the rose and carnation pink in an unusual short time, I believe to be original.

In the above description for making these flowers in paper I have not aimed — as stated in the beginning — to be very artistic; although I believe that for this very reason many more will undertake the entertaining little task of making bouquets of them.

To all who wish to learn the art of paper-flower making in a really artistic manner, I would recommend the book entitled, "*Ladies' Fancy Work; or, Hints and Helps to Home Taste and Recreations*," of which a notice will be found in the latter part of this book. It contains, besides numerous excellent lessons in various branches of fancy work, the best and most complete treatise on paper-flowers I have yet seen.

Although paper flowers can be made of the cheapest kind of paper, if the colors are at all like those in nature, it is more advisable to get such as are purposely made for flowers. The most exquisite colors and qualities of paper are now imported

for many of the prominent varieties; and not only the plain-colored for roses, hollyhocks, etc., but also the speckled and striped, for pinks, petunias, etc., as well as the actual forms of carnations, asters, poppies, and other varieties impressed on the sheets, and ready to be cut out, can now be had at some of the stores where flower-materials are kept.

Publisher's Remarks.

IN appearing before the public as the publisher of this volume, perhaps an explanation is due to the many friends all over the country with whom I have had business relations during the past ten years, and who I shall be glad to know are among the readers of this book,—as well as all the other kind readers, whose number I trust will be very large.

With book publishing, as a business, I have no experience, further than the publication of my annual trade-circular, containing from thirty to fifty pages. Nor did I seek or solicit the honor or responsibility of publishing the work of MR. KRESKEN; and when last spring (1879) he presented to me his partially-written

statements, with the request that I should revise and prepare them for publication, it was with no little hesitancy that I assumed the responsibility of coming before the public as the publisher of a book whose main feature was to be the "PRESERVATION OF FLOWERS IN THEIR NATURAL STATE AND COLORS," a matter with which I was but little acquainted. Believing, however, that the subject would be a singularly interesting one, and seeing proof positive in the various specimens MR. KRESKEN presented to me, that flowers could be preserved, I agreed to undertake the task. Yet, while little doubting the correctness of his statements I determined to prove, at least partially, by practical experience, their real value. Accordingly, while the preceding part of this book was in the hands of the printer, I employed what little time I could spare in carrying out the object stated; and the reader will here find the results attained.

Some of the best flowers of spring were

gone when I began my experiments, and the season,—middle of May to the middle of July,—owing to dry weather, was unfavorable to them. Of all flowers I know of, there are none so well adapted to the drying process as the beautiful pansy. I have hundreds of these; and while their beauty is of course not equal to the fresh ones, it is certainly the next thing to it. I have been very successful with many other flowers. Red peonies, when cured by sulphur, especially when not too open, preserve splendidly, and the pink ones turn to a fine crimson. Very compact and well-filled red roses, and buds just opening, besides a number of others, can be successfully cured by the sulphur process, although, as stated on page 22, many—not all—become somewhat smaller,—a natural consequence of the extraction of all watery substances and the closing up of their fluid conduits.

My collection now consists of good specimens of pomegranate flowers, peonies, roses,

pelargoniums, calliopsis, verbenas (especially the light-colored), oleanders, perennial phlox, lantanas, browallias, lobelias, abutilons, passion-flowers, Chinese pinks, fever-fews, canterbury bells, purple day-lilies, hollyhocks, and a number of others. The greatest part of these have been dried in sand, the balance by sulphur, and a few by the application of acid, as described in Chapter III. Most sulphur-cured flowers are also greatly improved by dipping them in the acid for a few seconds, as stated page 18.

I have found pomegranate flowers especially suitable for curing by acid. It is necessary, however, that great care should be taken to use only such acid as is known to be "*chemically pure.*" It may also be stated that "nitric" and "muriatic" acid have each about the same effect on flowers, if "chemically pure." A number of flowers known to be well adapted for drying, as the different kinds of asters, have not yet blossomed at this

writing (July); but it is my intention to have as large a collection as possible of these, and others yet to come, before the beginning of winter.

Many of the common wild-flowers, especially the cluster and umbrella-shaped varieties, can also be dried in their natural forms with good success, provided the most perfect flowers are selected and care is taken that they are perfectly fresh when subjected to any drying process—a precaution which is necessary to success with whatever is to be preserved in this way. Not only can a great variety of flowers be preserved by one or the other of the methods given in this book, but the most gratifying results can be attained in drying ferns, ornamental mosses, and foliage of many kinds, by the sand process. I have now a large number of these; and I consider this mode of far greater value than the well-known one of preserving them by pressing in books or otherwise, as it preserves to

them their natural, graceful, waving forms, which is not possible by the old method.

Of the last method to preserve flowers described by MR. KRESKEN,—that by wax or paraffine,—I can only say that I believe it to be entirely trustworthy, and especially valuable for preserving such flowers in memorial floral souvenirs as can not be preserved by any of the other three methods. I must, however, defer a personal experiment to a later time.

This, then, is a summary of my short experience in this to me, until lately, entirely unknown art. That successes have not been attained without a moderate proportion of failures I freely admit. But these latter I ascribe more to the many disadvantages under which I labored, and the insufficient knowledge I had on the subject as a novice in the art, than to any existing impossibility of carrying out MR. KRESKEN'S statements.

After the above-described experiments and

the consequent results, I will say that it is my firm conviction that by far the largest number of known flowers can, by a careful study of their enduring qualities, be preserved more or less successfully for an indefinite period of time beyond that of their natural existence, and in much of their original beauty. Moreover, I believe that this publication will cause an interest to be taken and further investigation to be made into a subject on which so little is as yet publicly known, and which concerns, more or less, every lover of these beautiful gifts of God.

MR. KRESKEN, in his preface, tells us of the first premium obtained by him at Cologne, in 1865. The reader will pardon me for stating a circumstance connected with this exposition as related to me by him. At the grand opening of the exposition referred to, His Royal Highness FREDERICK WILLIAM, Crown-Prince of Prussia, with his whole retinue, on passing the display of preserved flowers made by MR.

KRESKEN, stopped and closely examined them, at the same time asking many questions of him in regard to these flowers. On leaving, he used these words: „In dieſen präſervirten Blumen haben wir den Anfang zu einem künftigen großen Induſtriezweige." (In these preserved flowers we have the beginning of a future large branch of industry.) That these words have already become partially true is shown by the great and increasing interest taken in the preservation of flowers in Europe, where for some years large amounts of capital have been invested, and whole plantations devoted to the culture of flowers for this purpose. But the business is as yet in the hands of a few, whose interest of course is to let as little as possible be known of the methods used. How much interest will yet be taken in the art of preserving flowers in this country remains to be seen.

Next to flowers, ferns and leaves, ornamental grasses, and mosses, have of late had

much attention bestowed on them by many lovers of the gifts of nature for home ornaments and other decorative purposes. Their adaptation to these objects, and the great ease with which most of them can be procured, seems to make desirable a treatise on their gathering, coloring, and general treatment, to make them valuable for the purposes named.

I think it will be generally admitted that MR. KRESKEN has treated this part of his "Flora" in a thorough manner; and following his directions, I have been enabled to gather, color, bronze, and crystallize quite a collection of beautiful grasses. And I am anxious to pursue these interesting studies much further when time and circumstances shall be more propitious to me than at present. I have no doubt the remaining chapters of this book will be found more or less interesting by most of its readers, according to the use that each one will make of them.

In the selection of types, binding, and gen-

eral appearance of this publication, it has been my endeavor to produce a volume that would, besides its general utility, be an ornament to any parlor or library-case. How far I have succeeded in this, I leave the reader to determine.

PHILIP A. KEMPER.

DAYTON, OHIO, July, 1879

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LEAVES.

On the preceding page I present wood-cut *fac-similes* of a few of the muslin leaves which I keep in stock, except that the wrapped wire-stems which the leaves come provided with are not shown here.

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