

*The* NATIONAL  
HORTICULTURAL  
MAGAZINE



OCTOBER - - - 1928

# The American Horticultural Society

*A Union of The National Horticultural Society and The American Horticultural Society, at Washington, D. C. Devoted to the popularizing of all phases of Horticulture: Ornamental Gardening, including Landscape Gardening and Amateur Flower Gardening; Professional Flower Gardening and Floriculture; Vegetable Gardening; Fruit Growing and all activities allied with Horticulture.*

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**A. E. Kunderd**

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**Goshen, Indiana**

# The National Horticultural Magazine

B. Y. MORRISON, *Editor*

SHERMAN R. DUFFY, BERNARD H. LANE, J. MARION SHULL, HAMILTON TRAUB,  
*Contributing Editors*

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It seems hardly possible that plans for Volume 8 should be pressing in upon us at this time, but it is true. The issue for January may seem remote to the reader but it looms very near to those of us who have gathered together the material that has come to you during the year. We would all appreciate a more lively cooperation from our members because this magazine is a cooperative undertaking, by which very fact it is freed of some of the fetters that control to some degree more commercial undertakings.

Nothing is more heart warming than the support of members. We have had this support in generous measure and it is appreciated. We are greedy of many things for the magazine and the society. So, shamelessly, we ask for even more support. Tell us of your experiences, your ambitions, your failures. Other members will learn and profit from them. Do not hesitate because you may still be in the zinnia stage of gardening. The gardener of the gentian stage may smile a little, but there are hosts of other zinnia gardeners! If you have a secret love for garden history, there are others who have as much. (Read the delightful account of the life of the Tradescants in the last R. H. S. Journal.) If you like plant breeding and practice it, let us have your deductions and your intuitions; they are important. If you would like more pictures, tell us; if you would like no pictures at all, tell us that too! But whatever else you may or may not do, try getting one new member for the society. This is a sport with all the diversions of the world in it, giving the successful member a sense of inner virtue and the new member a large return!

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*Sherman R. Duffy*

*Aster laevis*

[See page 131]

## About Garden Books Old and New

BY HELEN M. FOX

After tramping the city pavements, how pleasant it is on a winter afternoon to draw close to the fire with a volume of Pliny or Parkinson and mull over their musty, leathery smelling pages; or in the summer when the work of the day is finished to carry two or three books out amongst the phloxes and roses, because the mood for the special one does not come over one until one is settled amongst the cushions on a wicker chaise longue. Then and then only, when smelling the warm scent of the flowers and listening to the drowsy tinkling of the fountain, can the decision be made whether to open "More Aristocrats of the Garden," "Jean de la Quintinie," or the newest Rose Annual.

At present collecting old garden books is still possible to those with fairly limited purses—and it is a most exciting pursuit. A catalogue arrives from England, Germany, or from France announcing the sale of a book you have been awaiting for years. You know that the same time that your copy of the catalogue was mailed others were sent off to collectors living in Italy, Russia, Australia and South Africa. So to forestall them the order must be hurriedly sent off. And then one waits and wonders whether the collector in Capetown, Sydney, or San Francisco wrote sooner, or whether perhaps the book was sold to some one who strolled into the shop and picked it off the shelf.

It is strange to find what kinds of books are scarce. The English translation of the Bohm edition of Pliny, published in 1855, is practically impossible to find, while there are ever so many copies of a Latin rendering printed in Venice in the sixteenth century. The horticultural societies and garden organizations, the landscape schools and colleges are beginning to buy old books, and it is a

fortunate way to preserve them from having their illustrations cut out and sold separately. But at present there are only two good complete collections of garden books in America, that I know of, for the student. These are the one in the Horticultural Society's Library in Boston, which does not contain all the periodicals (they are, however, in other libraries in Boston) and the Library of the Department of Agriculture in Washington, a branch of the Congressional Library. There is a fair collection of garden books at the New York Public Library, and another at the Bronx Botanical Gardens. So for most of us, unfortunately, the great number of old garden books are closed.

The garden books of all times are a compendium of the history of the world, not of its wars and dynasties, but of how men tilled and fertilized the soil, what they ate and wore, how they cooked and preserved, and cured their ills; how they cared for their animals and what these were; what labor they used and how they marketed their produce, and lastly, how they embellished their grounds. They are a source of material for research in history which so far as I know has never been tapped. Reviewing the subject of garden books is like giving a review of the whole history of gardening.

Our first knowledge of gardening comes to us as does our knowledge of the history of man from the myths. The myths and stories about sacrificing a human being to the gods is the first we know that agriculture was being practiced. Men noticed that after a burial the grass grew better round the grave. Ergo, to have good grass, bury some one—the inference is most obvious. This was the first record of deep cultivation and fertilization of the soil.

Gardening and agriculture were closely interwoven in the old books. In Bacon's *Sylva Sylvarum* or *Naturale Historie*, he has headings of "making wines, purgatives, etc."; "experiences in comfort touching meats and drinks that are most nourishing"; "experiment solitary touching the version of water into air"; "touching the power of heat"; "the passage and interceptions of sounds." Agriculture contained under its heading, animal husbandry, medicine (as regards the healing use of herbs), cookery, perfumery, botany, a little astronomy (for the phases of the moon influenced the planting of the crops), and many other sciences.

Reading garden books is like traveling, not only over different countries, but to different ages as well. These books are a mirror of their times in their style, language binding, and above all in their ideas. Each period has its own way of thinking, and, as Whitehead tells us, a state of mind exists only once and is never repeated, we can date the garden books by the state of mind of the author. There is also a rhythm in their excellence corresponding exactly to the line of culture in the other arts, as well as the art of gardening.

The fourth century B. C. of Greek Culture produced Aristotle and his pupil, Theophrastus, who made the first classification of plants we have. Cato, Varro and Pliny lived at the high points of Roman civilization. The Arabs in Spain wrote some fine books on agriculture and botany, and during the awakening of learning, the Renaissance, in France and England, we have the first books devoted solely to gardening as a fine art. In the middle and the end of the eighteenth century there was more interest in politics than the arts, and gardens of that period are not good, nor are the garden books. They rose in excellence again in the early nineteenth century only to fall during the Victorian and Edwardian eras. Now they are again beginning to improve. Of course there are ex-

ceptions to this statement—there always are, there have to be, to prove the rule.

All scientific books fall into two classes, those belonging to the group called primary material and those belonging to secondary material. Under primary material belong the source books which tell of the author's own observations and experiments, and, naturally, these are the most valuable. The secondary class can be divided again into two sections; those which repeat what was heard from an eye witness and those which are copied from other books. In olden days it was good form to begin a scientific book with the story of the Creation, and to explain the elements and one's conception of God. Undoubtedly most of this was not based on personal observation.

Ways of reading, too, can be classified. There is thorough reading, going over each phrase and studying it. Then there is reading for research, taking up a book and looking only for the material relative to one's study and which requires great self control, not to be led astray by the fascinating things one comes across on the way. And, lastly, the kind of reading one does in old garden books, where one skips and skims and stops here and there over some bit, either to relish its quaint historical flavor or to note its remarkable wisdom. Sitting absorbed and unaware of one's surroundings does not happen as often in reading garden books as it does over exciting stories, but sometimes they, too, are so entrancing that lunch time goes by without being noticed.

It is the astounding fact that for fifteen hundred years after Theophrastus had written down his classification of the 400 plants arranged by him under the inspiration of his teacher, Aristotle, there was no new approach to the subject of botany. Dioscorides merely copied Theophrastus and Pliny copied Dioscorides, and so it continued on down until the herbalists in northern Europe began to be interested in



plants. Here they struck a snag because they could not fit the descriptions of plants growing along the Mediterranean to those found in Germany and France. That was how along in the fifteenth century that they first realized that plants have habitats. What an unobservant lot we humans seem to have been. I said "seem" with intent, because all this while the old wives, and perhaps earlier the priests, practiced in the art of healing, knew their herbs and simples and handed down their jealously guarded knowledge by word of mouth. Perhaps writers of scientific books were not dexterous enough in their technique of writing to note down original observations. They were taught by memorizing and copying, and this was so firmly ingrained in their consciousness that they could not get away from it.

Slipped in between these copies in the early science books, such as Pliny's *Natural Science* and other books were little remarks which might be classed as source material. Here is a remark bearing on the labor conditions: "With respect to the use of freemen in agriculture, my own opinion is that it is more profitable to use hired hands than one's own slaves in cultivating unhealthy lands and even when the country is salubrious they are to be preferred for the heaviest kind of farm work such as harvesting and storing grapes and corn. \* \* \* Avoid having many slaves of the same nation, for this gives rise to domestic rows." Cato and Varro—first century B. C. This next one shows how much they knew: "But of all legumes alfalfa is the best because once it is sown it lasts ten years; because it can be mowed four times and even six times a year; because it improves the soil; because all lean cattle grow fat by feeding on it, etc., etc." Columella.

When taking up any book, first look at the title page to see its date, then if it is a book undertaking to teach or explain, see what the author's qualifications are. The bibliography and index give a fairly clear idea of his

methods of work and the reliability of what he says.

When working on old books, either to collect them or to use them as research material, good accounts of the English authors and herbals are in the *Encyclopedia Britannica*. Most of the French ones are found in the bibliography at the back of *Les Divers Styles de Jardins* by Fouquier and Duchene. For herbals, there is Agnes Arber's excellent book called "Herbals"; and the best bibliography of garden books I know of dealing with European garden craft is in that splendid book, "Garden Craft in Europe," by Inigo Triggs.

Thousands, not only of garden books but of all books, are good only to light fires with. Last year I spent four weeks or more sitting in the stacks of the Public Library at Forty-second Street going through three thousand garden books in order to help select three hundred titles for the catalogue to an exposition on garden books which was being staged there. I got so that by just turning back the cover I could often tell the calibre of the book—not always, of course, but often. Just as people unconsciously reveal themselves by their way of shaking hands and greeting you.

After this experience we can not agree with Pliny, the elder, whose nephew wrote the following about him: "\* \* \* it being a maxim of his that no book is so bad that some good may be got out of it."

The earliest records we have of gardens were on the sculptures and tiles found in Mesopotamian ruins of Assyrian civilizations. We know of old Chinese gardens through the paintings on silk and brocades representing garden scenes and showing pictures of their favorite peonies, iris and wisteria. There are three books which give information about Chinese gardens and only one of these is a garden book. It is a collection of garden prints published in Paris just before the revolution, by Le Rouge, and contains plates of sixteen Chinese pleasure palaces

taken from paintings on silk which had been sent to Louis XIV by the Chinese Emperor. They were found in the archives and permission given to Le Rouge to publish them. There is a copy of this book in the Metropolitan Museum.

There are no books about Persian gardens and the only representations we have of them are in miniatures. These are small water color paintings done with a pen on parchment or fine old paper to illustrate poems or sacred books. A hundred years ago one of the Coste family in the British Museum went to Persia and drew wonderful plates of some courtyard gardens, mosques and palaces which he called "Monuments de la Perse Moderne." It is, unfortunately, an unwieldy quarto book and there is a copy in the New York Public Library. "The Gardens of the Great Moghul," by Villiers Stuart, is about the gardens of India and also speaks of the Persian gardens. We are told these were the most beautiful and also most subtle in their use of lighting at night, their handling of water, their colorful tiled panels and walks.

Undoubtedly the gardens of the Near East, of India and the Far East mutually influenced each other, as the designers of brocades and pottery were influenced through having traders carry the wares back and forth, and from very early days craftsmen were sent from far-away countries to help in the building of palaces and gardens.

Parts of the Persian palaces of the seventeenth century in Ispahan were built by Italian masons, so Pierre Loti writes in his "Vers Ispahan."

In the early books Pliny is often quoted. He lived in 77 A. D. and had two country homes on Lake Como. The sight of one is still called Villa Pliniana and on it is a formal little terraced garden with box edged walks and a house with a Roman portico framing the matchless view up the lake. Although Pliny's book is merely a compendium of his diffuse reading, there are a few original remarks tucked

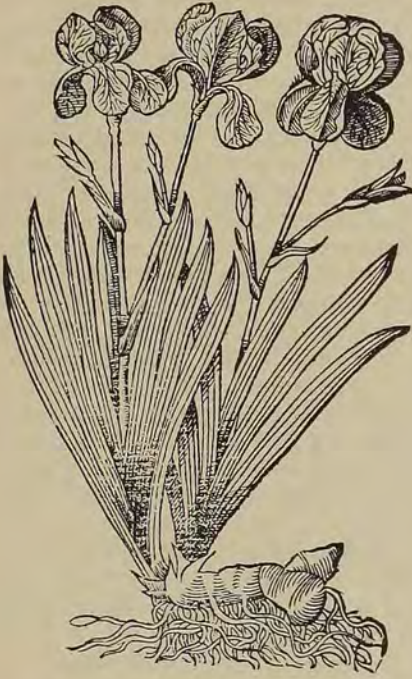
away, and he preserved the earlier writers for us. He and his adopted son were so much looked up to for their truly Roman virtues that when the citizens of Como built their cathedral hundreds of years after his death they placed statues of the two Plinys at either side of the entrance as their two most distinguished citizens along with the saints and holy men.

The Georgics of Virgil is another old garden book. He is said to have cribbed liberally from Cato. Cato and Varro's writings have been selected and translated into English by one who modestly hides behind the anonymity of "A Virginia Farmer." The book is entitled "Roman Farm Management." Varro speaks of seed selection, the propagation of plants and the breeding of cattle. He wrote in 37 B. C. He describes the use of the goat as a proper sacrifice to Bacchus.

Cato, in writing about manure, says, "You can make a manure of litter, lupine, straws, chaff, bean stalks, husks and the leaves of the ilex and oak." And speaking of manures, I read that the myth of Hercules' cleaning out of the Augean stables was in reality the story of the first use of animal dung as a manure.

Although the Arabs were nomads at home, when they came to the fertile plains of Spain they became passionate horticulturalists and created the beautiful gardens of Andalusia. There is a book written by a Spanish Arab called Ibn Al Awam, who lived in Seville in the thirteenth century. It is one of the rarest of garden books although it has been translated twice into Spanish and once into French, this last in 1843. There is a copy of it in the New York Public Library and may no harm come to it! Ibn Al Awam, although he wrote in Arabic, does not depart from the popular formula of his day. He, too, begins at the beginning and quotes liberally from all his predecessors, from before and after Aristotle. He often speaks of "Nabathian" authorities, which have been explained as being "Meso-

1 *Iris vulgaris.*  
Flower de-luce.



2 *Iris palustris lutea.*  
Water flags, or Flower de-luce.



1 *Iris Florentina.*  
Flower de-luce of Florence.



2 *Iris alba.*  
White Flower de-luce.



potamian." He describes the flowers, vegetables, fruits and fragrant herbs grown in the gardens of Spain and those he saw on his many trips forth and back to Syria. Ibn Al Awam was original in his classification and divided his plants under the headings of medicinal, forage, food and ornamentals, instead of arranging them alphabetically. He describes sky blue roses and yellow ones and speaks of the phases of the moon as having an important bearing on the seeding and harvesting. The charm of the book aside from his material is the way he shows his Mohammedanism. If in doubt he says, "God only knows." When he quotes a Greek or Roman he merely mentions his name, but when he quotes a true believer he appends "May God grant him blessings." He mentions asparagus, almonds, oranges, spinach, peaches and other plants introduced into Europe by the Arabs.

The part dealing with horses, I am told, is considered never to have been outmoded and is still followed in Spain.

Ibn Al Awam tells in his book that if one is sad and knows not why, he should go into the garden and walk slowly around the bush of a Rose of Sharon, always keeping his eyes on the rosy flowers, and at the end of the time the grief will have entirely disappeared. He tells how the Emir's clothes were washed in rose water and describes various ways for making perfumes from the barks of trees, flowers, leaves and stems of herbs.

There is an Arabic herbal written by Ibn Baithar, who lived in Malaga in the tenth century, in the Columbia Library. It has been translated into German.

After the taking of Granada, the last Moorish stronghold in Spain, 70,000 manuscripts were burned in the square. The Christian king and his cardinal thought they were doing a holy deed in destroying these infidel books. Undoubtedly valuable dramatic and philosophic books, perhaps the only copies extant, perished forever in the flames.

While learning was shining brightly

in Spain, soon to be extinguished, darkness ruled in northern Europe, and our only glimpses of gardens in books are the illustrated missals and romances. There was a Roman de la Rose, a Roman du Violet, and a Roman du Lis. The title had nothing to do with the context except as a reminder of the flower. These romances were illustrated by miniatures very like those of the Persians and Indians and many of them showed garden scenes. One naïve one, a copy of the Roman de la Rose, in the Morgan Library copy, represents a gentleman embracing his lady as they sit on a grassy flower-strewn mound, while a monk, standing by, is reading aloud to them. An indication of a purely local state of mind.

The flowers in these books usually grew in the imagination of the cloistered artist, who rarely left his cell, and are not reproductions of living plants gathered from the fields.

There was always a crop of Herbals. These books describe the plants botanically, and after the description comes a long appendage of "Virtues," which were still taken from Theophrastus and Dioscorides down into the seventeenth century. They are not really garden books but medical Botanies. John Parkinson's *Paradisi in Sole* is the first Herbal to branch away and tell about gardening processes. He describes them as follows:

"Trachelium, American Flore ruberrime, fine Plants Cardinalis, The rich crimson Cardinals flower.

This brave plant [and then follows a minute description].

#### *The Place*

All these bell flowers do grow in our gardens, where they are cherished for the beauty of their flowers. The Couentry Bels doe not grow wilde in any of the parts about Couentry, as I am credibly informed by a faithfull apothecary dwelling there, called Master Brian Ball, but are noursed in gardens with them, as they are in other places. The

last growth near the river of Canada, where the French plantation in America is seated.

#### *The Time*

They flower from May until the end of July or August and in the mean time the seed is ripe; but the peached leaved Bell-flowers for the most part flower earlier than the other.

#### *The Names*

[Here is evidently confusion between lobelias and campanulas.]

#### *The Virtues*

The Peach-Bels as well as the others may safely be used in gargles and lotions for the mouth, throate or other parts as occasion serueth. The rootes of many of them while they are young are often eaten in sallets by diuers beyond the Seas."

The Herbals blossomed at the beginning of the Renaissance and Reformation, and many of their compilers were active in the Protestant reforms in France and Germany. Fuchs, Clusius, L'Obel, Tradescant, Matthioli, Gerarde, are some of the famous names.

One of the earliest garden books has a set of plans and elevations of the buildings and the parterres belonging to them designed by Andruet de Cerceau, architect to Henry the IV of France. It was published in 1576. At that time and later it was fashionable to have an artist draw a perspective of one's house and grounds. In these he would draw a coach and four driving up to the entrance, huntsmen chasing through the woods, and ladies and gentlemen picnicking or strolling through the gardens. So these pictures are valuable from the point of view of costume and social custom in addition to the garden design. The plates were collected into books, usually quarto volumes.

Bernard Palissy wrote a treatise on French gardening in 1563. One of the two Mollets, gardeners to Henry IV and Louis XIII, wrote a book on the theory and practice of gardening in 1651, and described the making of

trellis work for arbors and fences and the training of espalier trees. These two were the forerunners of LeNotre, who is said to have built up his ideas on gardening from them and the practices then current in France. A complete set of his plans and drawings are now in the London house of Pierpont Morgan.

The formal English gardens were French in origin. When a good French book appeared it was translated into English. This was the case with Jean de la Quintinie's treatise on fruit trees, which was translated by John Evelyn. Jean studied to be a lawyer, but left the law for gardening. He was given charge of the fruit and vegetable garden of the king, Louis XIV, and wrote a book about it. "The Potager du Roi," as it is called, still exists at Versailles, and is now the grounds of the School of Horticulture. Here you will see trees trained rigidly to suit the fancy of man and not as they might ever wish to grow. The beds are bordered with low trees bent about two feet from the ground from which apples and pears hang, and in front of them are lines of pansies and forget-me-nots.

The following quotation is from Jean de la Quintinie from Evelyn's translation to show the French epicureanism about their food.

"Of the excellency of Peaches and wherein it consists—

The excellency in peaches consists in the good qualities they ought naturally to have. Of which the first is, to have their pulp a little firm \* \* \* This excellency further appears when we cut a Peach with a Knife which is in my Opinion the first thing to be done to them at Table by any one who would eat them delightfully and with a true Relish and then we may see all along where the knife has passed, as twere an infinite number of little Springs which are methinks, the prettiest things in the World to look upon. They that open the Peach

## The Gardeners Labyrinth .

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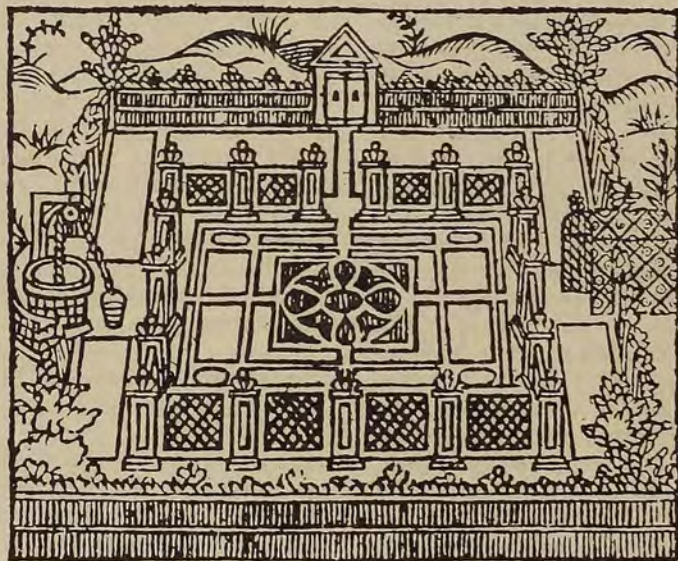
From the seventh degree of *Libra*, vnto the .xix. degree of the same signe (the *Mone* answering thereto) sowe and plant.

From the sixth of *Capricornus*, vnto the .xix. degree of the same signe (both the *Mone* and *Ayze* ayding thereto) sowe your fine seedes and daintie plantes set.

From the .xxiiij. degree of *Pisces*, vnto the seventh degree of *Aries*, the *Mone* increasing of light, and ayze calme, bestowe your seedes and plantes in the well dresled earth, prepared for the onely purpose.

These precepts of the prudent experimenteres, well bozne away of every carefull Gardener, the seedes and plantes no doubt, shall prosper and increase the better.

Certaine instructions more curious to be learned of every skilfull Gardener, in the bestowing of seedes and daintie hearbes in a well dresled earth. Chap. 21.



He learned *Plinie* worthy of memorie, uttereth a speciall note and rule of the auncient obseruers, to be learned of every carefull Gardener, in the bestowing of seedes : that if he bee occasioned to commit seedes into a moyst earth, or the seedes to be bestowed are of a greate moysture, then shall the Gardener commodiously chouse the ende of the *Mones* decrease or waine, and neare to hir change.

f.

In

otherwise oftentimes losing half the delicious Juice that makes them so highly esteemed by all the World."

"The Gardener's Labyrinth," by Didymus Mountain, was printed in 1586, and dedicated to Lord Cecil. He says:

"The owner or gardener that would set Rose trees to run up by the poles of the arbor, ought to work mainly to begin and do the same about the middle of February, and in the first quarter of the moon, the beds before well reared with a stonie and dry earth and not with dung. [The latest theory in rose planting.] The Rose trees with their roots are also to be planted in that and narrow beds diligently raised with a dry earth, but if the gardener or owner [significant] will, slips may be broken off from the roots cut in a slope manner at the heads, about a mans foot and a half long, withed at the ends, and so let in a slope manner a foot deep into the beds well reared with earth and in the increase of the moon."

"The Englishe Housewife" was published in 1649, and not signed. The title page, leaving out the differences in size of letters and spacing, reads as follows:

"The English Housewife, Containing the inward and outward Vertues which ought to be in a compleat Woman. As her skill in Physick, Surgery, Cookery, Extraction of Oyles, Banqueting stufte, Ordering of great Feasts, preserving of all sorts of Wines, conceited Secrets, Distillations, Perfumes, ordering of Wooll, Hemp, Flax, making Cloth and Dying, the knowledge of Day-ries, Office of making Oates, their excellent uses in the Family, of Brewing, Baking and all other things belonging to an Household. A Work generally approved and now the fifth time much augmented, purged and made most profitable and necessary for all men, and the generall good

of the Kingdome. London, Printed by B. Alsop for John Hartson and are to be sold at his shop in Pauls Churchyard, 1649. by G. M."

With all these duties and activities, no wonder the women were contented and happy.

In 1728, after the passing of Elizabethan gardeners and LeNotre, we begin to come on less glorious days and have a book by Batty Langley of Twickenham. The title is

"The Principles of Gardening or the laying out and planting, parterres, groves, wilderness, laberinths, avenues, parkes,—after a more grand and rural manner, that has been done before with experimental directions for raising the several kinds of fruit trees, forest trees, evergreens and flowering shrubs with which gardens are adorned."

He says English gardens are the worst in the world because of their stiffness and lack of shade, and goes on to say (you see he is the first of the naturalistic gardeners):

"Having duly considered these erroneous practices and what a pity it is that gardens should be thus let on for want of being furnished with designs that are truly grand and noble after nature's own manner, I thought if I communicated some, from that way, I might do no considerable service by the country nor prejudice to any of my brother gardeners."

He gives plans of what might be called the extremest Baroque gardening. No line is straight, and the garden paths waver and curl about and lead nowhere at all.

Humphrey Repton came at the end of the eighteenth century and was the exponent of naturalistic gardening. His books, although so recent, are expensive to collectors because they are illustrated with hand colored and double plates. He put in a "fly" to

show how the garden looked before and after—being changed by him.

A book called *Flora's Dictionary* was published in Baltimore in 1833. It is typical of the sentiments of the period, and the compiler or author, because it is a compilation of garden poems with some original ones, is so modest that she merely signs herself "A Lady." We think she was.

The book is a dictionary for the language of flowers. Each flower represents a word. For example, the cypress means despair, the daffodil chivalry, the crocus cheerfulness, sweet briars simplicity, and to each are appended poems. Speedwell means fidelity and the poem to illustrate it is:

Oh! woman's love's a holy light,  
And when 'tis kindled, ne'er can die,  
It lives, though treachery and slight  
To quench the constant flames may try.

Like ivy, where it grows 'tis seen  
To wear an everlasting green;  
Like ivy too, 'tis found to cling  
Too often to a worthless thing."

This is not the first American garden book. He went in for almanacks here and I believe the first was printed in Boston (but am not sure) at the end of the seventeenth century, at any rate very early in our history. It was entirely English in all of its references and data. In the forties and fifties of the nineteenth century American botany began to come into its own and very good work was done classifying the plants. At that period Downing wrote one of the earliest American treatises on landscape gardening.

We copied the English more than the French and read their books to our destruction when it came to planting and growing. It was just as foolish for us to use English manuals as for the German and Dutch to try to fit Mediterranean plants to their own flora.

This brings us pretty well down to modern times, and as for the sea of present-day books, rising and falling,

some to disappear forever, I will make no attempt to even wade into them.

The important modern contribution to garden literature is the periodicals and bulletins of Societies and Departments of Agriculture. Almost the best information is found in these. They are scientifically correct and accurate but not artistically written. When modern scientific observations are written in the style and with the charm of the old books, we have delightful books like Dean Hole's "Roses," the perfect garden book, as redolent of Old World charm as the roses it describes. Clutton Brock's *Essays on Gardening* are delightful, too. The best garden book should give one a sense of gardening as an art and make us feel its relation to the other arts. It should not be didactic or full of hard and fast rules and lists but be suggestive, and from its poetic descriptions of trees, flowers, shrubs or lawns inspire one to try new color schemes, and the study of new plant families, and above all to go out of doors and sink one's hands into the yielding crumbly earth.

#### A CORRECTION.

In the article entitled "The Development of American Horticultural Literature, Chiefly Between 1800 and 1850," on page 99 of the last issue, an article in the *Agricultural History Society Papers* was attributed to Mary G. Lacy; it should have been credited to Marjorie F. Warner. The reference to pages in foot note 13 should be corrected to read 431-442. Further, the foot notes referring to *Gardening in England*, 3d Edition, etc., should have had the author reference as the Hon. Mrs. Evelyn Cecil, the present reference indicating that the author is a man.



## Perennial Asters and Sunflowers

BY SHERMAN R. DUFFY.

Michaelmas daisy is a pretty name applied to our native perennial aster by English gardeners some seventy-five years ago. It is not, however, particularly appropriate in the native country of the aster for two reasons. Very few people know when Michaelmas Day comes. It falls on September 29 and by that time the great army of perennial asters is, for the most part, done with its season's display over the greater portion of the country. An older name was starwort, although the best known varieties are not particularly starry in outline and the termination "wort" always seemed to me to be particularly ugly. As it is closely associated with a popular but nefarious trade at the present time it might be just as well to drop it from plant nomenclature.

Aster is quite a good enough name, although it conflicts with that of the annual aster which botanically isn't an aster at all. Perennial aster has come to be the most commonly accepted name and it is thoroughly descriptive.

Perennial asters give the fall garden its complexion and they furnish the blue, lavender, and pink color scheme which seems to have so much popularity.

They are making their way into gardens much more slowly than their beauty and usefulness deserve, because of a common impression that they are weeds. They grow plentifully in waste land and give a great show of bloom on the edges of woods, along fence rows and decorate lavishly the rights of way of railroads. Under cultivation they are much finer than in their native haunts where they must fight for their existence with the growth of other vegetation.

The two commonest types have been named botanically *Aster Novae-*

*Angliae* and *Aster Novi-Belgii*, the New England and New York asters respectively, although this sectional discrimination is very much of a misnomer also.

The finest varieties, because of their slender stems and rather scant foliage, may be planted among other plants liberally to rise up and brighten the September days when most perennials are waning.

There are several types of the perennial aster that are of great garden value. Besides the New York and New England asters, these are the *cordifolius* or heart-leaved type and the *laevis* or smooth-leaved type. These are the four great divisions of the fall-blooming asters. A summer blooming type of low growth and unusual beauty that is little known is the Italian aster, *A. amellus*. This is an August bloomer and a forerunner of the taller, later types.

The New England asters, while making a gorgeous display of bloom and bearing the largest flowers are too coarse for small gardens. Besides their coarse growth they are tireless colonists, and as some of the seed invariably seems to ripen and float away to settle all over the garden before the bloom is gone, once you have them you have a large-sized job of pulling up volunteer New England asters.

The New York class is the largest one and it has been the subject of much development by plant breeders abroad, so that now the varieties offered under name reach somewhere around two hundred, perhaps more. They have been hybridized with some of the other classes as well.

There is no finer perennial for a great mass of color than these perennial asters, particularly the New York type, planted in solid borders or sprinkled about the garden. They become fountains of bloom in their

seasons and many of them have become favorite cutting material, the fine aster Climax now being sold liberally by florists. Although one of the older of the named asters, it still remains one of the finest.

American trade lists carry only a limited number of varieties owing to the fact that there is not the demand for them yet to justify a large stock, but the cream of the foreign varieties may be secured. It is also an easy matter to collect plants from the wild for excellent garden effects—the wild asters, with the first red of the sumachs and the wild sunflowers, heleniums and golden rods making the fall color the most gorgeous of the year. It is an effect very easily brought into the garden.

There are no true blues among the asters any more than there are among the irises, but there are many blue in effect. Under the manipulations of plant breeders double forms have been produced, which in some cases lack the graceful beauty of the single sorts. The best improvement has been in increasing the number of ray flowers to double rows, giving more solid texture to the flowers, some of the older forms of less petalage appearing ragged.

Of the blues, so called, I have found Blue Gem and Cloudy Blue two of the most attractive. The former is of the double type and the latter has a double row of ray flowers. Of the mauves, lavender and heliotrope shades there is an army, many of them very much alike.

Climax is one of the finest of the light lavender blue types. King of the Belgians is a fine large lobelia blue. Climax makes a height of five feet and the King is a little shorter. Glory of Colwall, one of the earliest of the double varieties, is a large-flowered pale lavender.

Moving towards the redder coloring, Maggie Perry is a soft rosy mauve. Peggy Ballard is another fine one of this type, and Nancy Ballard is deeper in the red purple scale.

Among the pinks, the old St. Egwin, a low-growing rosy pink, because of its clear coloring remains a favorite and associates beautifully to hide the legs of Climax and other tall-growing lavender blue asters, all of which have a tendency to shed their lower leaves and show an expanse of bare stalk. Erica and Lady Lloyd are later varieties of fine rose and pink coloring.

A new set of quite recent introduction named for various cities in Belgium contains some fine things. Brussels is a very large light lavender blue; Ghent, a soft lilac; Liege, a fine pink but low growing, and Louvain, reputed to be the finest of pinks, although I have not seen it.

In unusually dry falls and in poor soils some of these delicately tinted asters show a tendency to fade to a uniform gray white. The New England types are best in situations where they are shaded from the afternoon sun.

A common native aster, *A. laevis*, is one of the finest in garden effect, it seems to me, although not offered by plantmen as freely as other types. Mine were collected and a supply raised from seed which show a richer tone of blue than the New York types, although not as large flowers. They raise huge plumes and are quite as fine in effect, and the color range is from rosy mauves to fairly deep violet, with the prevailing color blue in effect. In the wild they are seldom more than three feet tall, but under cultivation they reach a height of six feet in some cases, and all are between four and five feet.

They have slender wiry stems and need staking before the stem begins to branch out to form buds.

Staking is one of the necessary factors in all of the tall growing asters as they go over easily from the weight of their heads of bloom. Light bamboo canes stuck into the ground slightly aslant to spread the stems and permit the heads of bloom to expand without crowding give the finest effect. The *laevis* asters are particularly use-



*Sherman R. Duffy*

*Aster, Elsie Perry*

ful to plant among irises and to be allowed to droop over them, giving a second crop of bloom in the same space. As the foliage is sparse they may be used without damage to the irises, as they do not shade the roots sufficiently to interfere with the needed summer bake.

While the New York asters like partial shade, the *cordifolius* type is a wood aster and does best of all in shady situations.

I have never cared for any of the white asters of the fall blooming types as most of them seem weedy. The best white for the asters it seems to me is furnished by *Chrysanthemum uliginosum* or, as it was formerly known, *Pyrethrum uliginosum*.

A very fine perennial aster and one seldom seen is the *amellus* type. It makes beautiful beds or groups in the perennial border and is of more pronounced coloring than the later types. The individual blooms are larger than those of the New York and New England types and the color ranges from a good blue through violet blues, with a very fine series of pink and rose shades. King George, Onward and Ultramarine are fine named varieties on the blue side, the first being the finest and Perry's favorite with large bright rose-pink flowers, the finest of the pink side. The *amellus* asters grow from a foot to two feet in height and make fine compact plants covered with a sheet of bloom in their season. They require full sun and need a better soil to be at their best than the native types.

The *amellus* asters may be grown from seed and good quality plants will result. Growing the New York type from seed is rather an unsatisfactory process as so many weedy and inferior types appear.

The perennial asters seem to associate naturally with the sunflowers, heleniums and golden rods in the garden. A so-called yellow perennial aster is a handsome plant and very useful for cutting, but this "*Aster hybridus luteus*" is a golden rod of

dwarf stature, *Solidago missouriensis*, and well worth a place in the fall garden.

These *e pluribus unum* plants which make up the natural order compositae, each so-called flower being a collection of many flowers in one head, are the mainstay for garden color in the fall months. It is an enormous family of plants, including the dahlia and the chrysanthemum, the zinnia and the annual asters. A large proportion of them are natives of America, the dahlia and zinnia from Mexico and South America, with a great list of plants of the temperate regions of North America.

Among the gayest of these are the perennial sunflowers which spread their gold in waste places and which have given Kansas its name of the Sunflower State. One of them, common in the middle west, has been botanically named the joyous flowering sunflower, *Helianthus laetiflorus*. The Sunflower is a "prairie flower growing wilder every hour." If given the opportunity, a roystering vagabond of a plant rambling recklessly if not rigorously curbed, but furnishing a brilliant mass of color in its more refined forms that are well worth the restraining efforts necessary to keep most of the genus in bounds in the garden.

The garden forms are selected types of natives, the botanical distinctions of which are too much of a puzzle for a mere journeyman botanist such as the writer, as they are so close to one another in appearance, especially in the garden forms, that it is a difficult matter to tell one from another. The botanical forms in many cases have two names, which adds to the confusion, as well as varietal names.

*Helianthus rigidus* or *scaberrimus* has given handsome garden types, notably Miss Mellish and Wolley Dod. *H. decapetalus*, the ten-petalled sunflower, which rarely has so few as ten petals, in its variety *multiflorus* has given us two fine double forms, one known as the dahlia sunflower,

*H. multiflorus plenus*, and a quilled double, *Soleil d'Or*, both fine garden plants and excellent long-keeping cutting material.

These are the traveling sunflowers, and their wanderlust makes them a garden problem. Each fall they send out from the base of the stem underground stolons radiating like the spokes of a wheel, bearing at the end a bud which forms a new plant next year. There is always a patch of sunflowers the following spring from one stalk, and the patch, usually circular in outline, may be as much as six feet in diameter in rich soil, and is never less than three, so the traveling speed of a sunflower allowed to roam at large in the garden is easily seen.

Fortunately, when these new plants appear in the spring they have not yet sent down the strong roots that later anchor them, and can be pulled up readily. They grow from three to six feet tall. They are improvements over the wild forms in an extra row or even more than one row of petals which are beautifully twisted, suggesting something of the grace of the cactus dahlias, and all have contrasting dark centers. There are several named varieties, but I think *Wolley Dod* and *Miss Mellish* about the best, the latter coming into bloom first usually the last of August or early in September and *Wolley Dod* coming a week or ten days later. *Wolley Dod* is not of such rank growth and makes a handsome show.

These plants need to be dug and reset frequently, for if not given cultivation and attention they tend to revert to the native form. *Miss Mellish*, left to itself in a corner, has "run out" for me and now comes only in the single row of flat petals of the wild *rigidus*. *Wolley Dod* seems to be more stable.

Perhaps the finest of all the single sunflowers of September is the one offered in trade as *Helianthus sparsifolius* and botanically known as *H. atrorubens*, the dark red sunflower. This color is confined to the disk, which is a rich dark reddish brown surrounded

with the numerous gleaming golden ray flowered. They thrive in any soil, and I like them best in poor soil where they do not have so much incentive to spread as they do in rich soil. They also do not make ungainly height under these conditions.

While the foregoing types are rather widely branching in their flowering period, there are three sunflowers which are worth growing for the beauty of their foliage as well as for the brilliancy of their blooms, which are smaller and not so lavishly produced. These are *Helianthus orgyalis*, *H. Maximiliani*, and *H. angustifolius*.

*H. orgyalis* is a very tall grower, reaching ten or twelve feet in rich soil, its tall and graceful stem clothed with long, narrow drooping leaves, bearing at the summit a large cluster of rather small brilliant yellow bloom. It is much later than the *rigidus*, *decapetalus*, and *laetiflorus* types. Its foliage lacks the coarseness of some of the sunflowers, and it is a stately clump for the back of the border. It is not an inveterate spreader and may be trusted not to steal the entire border.

*Maximilian's* sunflower is one of the latest to bloom. It has heavier foliage, thickly clothing the stem with large rich yellow blooms. Often the frosts catch it before it has a chance to show the full beauty of the flowers.

A combination of beauty of foliage and beauty of bloom, but also a very late one often spoiled by frosts, is the swamp sunflower, *H. angustifolius*, bearing stems of beautiful brilliant yellow rather small flowers with dark centers. It is not a plant for all gardens as it will not thrive in dry soils. It ranges in height from one to three feet according to the soil. The leaves are narrow and glossy dark green, ornamental enough to make it worth growing even without the wealth of its dazzling bloom. It was introduced under the erroneous name of *H. questifolius*.

This sunflower may be raised from seed and will bloom the first year if



*Sherman R. Duffy*

*Aster, St. Eugin*

given an early start. Aside from the chrysanthemums it is the most brilliant of the very late fall hardy perennials. Sometimes in favorable seasons it will show a fine display in early November. It is the finest of all the sunflowers for cutting.

For those who admire sunflowers, the swamp sunflower, *H. sparsifolius*, and Wolley Dod should be grown for their bloom and cutting value; *orgyalis* and *Maximiliani* for both their foliage and flowers.

The perennial sunflowers should not be confused with the coarse growing tall annual sunflowers. They more nearly resemble the dwarf-growing annual sunflowers known as the cucumber-leaved section which are achieving much popularity among hardy annuals.

Closely allied to the sunflowers is the heliopsis or orange sunflower. It has not achieved great popularity in American gardens owing to the competition of the more graceful sunflowers and because of its coarser growth. However, European catalogues carry a number of named varieties in varying tints of yellow from pale to almost orange. These have been derived from *M. scabra*, the commonest form, and *H. laevis* and its variety *Pitcheriana*. They are showy plants and useful as a prelude to the sunflowers, as they are earlier bloomers and are in full beauty in July and August. A double heliopsis is one of the more recent additions and its rich yellow makes it a handsome addition for the garden. It has long keeping quality when cut.

With the heliopsis comes another brilliant prairie plant that has become a popular garden subject, the Kansas gay feather or blazing star, the brilliant purple wands of which in large patches in the few stretches of unclaimed prairie are one of the vivid sights of August. This plant has grassy foliage from which arises the tall stem which has the unusual trick of blooming from the top of the spike down instead of the regular method of

opening the flowers at the base of the spike first. There are three species in cultivation that are now commonly seen, *Liatris pycnostachya*, *spicata*, and *scariosa*. The first is usually recommended, but I like the last best of the various forms. While the first two have the bloom close set along the spike, *L. scariosa* has larger individual blooms placed at intervals. It will make a growth of four feet. The liatris grows from a tuber and does well in dry situations. It is propagated from offshoots or from seed. I have had the best luck by sowing the seed in the fall. The seedlings so closely resemble grass that the rows must be marked with care or they will be lost. They are brilliant companions of the rudbeckias or coneflowers as well as the earlier sunflowers. They thrive in dry situations and adapt themselves readily. I found a plant growing in the crevice of a sandstone ledge, the tuber on the surface of the rock exposed to the sun, and a bright green. I took it into the garden thinking I had found a new type. The next year the tuber had gotten underground and the plant developed into a four-foot *scariosa*.

Much praise has been showered on the three-lobed coneflower, *Rudbeckia triloba*. It is a reliable late fall bloomer extending well through September, and is particularly valuable in that it will flourish in the shade, and is one of the few brilliant yellow plants of its season for such positions, being particularly valuable for the edges of shrubbery. It has become so popular that it is beginning to disappear from gardens much as its relative the tall double rudbeckia, Golden Glow, which swept the country and was then swept out.

It is a biennial and an inveterate colonizer, being surrounded by myriads of self-sown plants, and gives a problem of weeding it out annually. It is a useful plant for situations where nothing else will flourish in its season.

The brilliant gold and red of the heleniums, the Helen flower, add

another valuable native to the fall display. The yellow *H. autumnale* in its garden form *superbum* is one of the finest yellows of September. There are several with wallflower red and crimson blooms that are very showy and make a brilliant mass. These are Riverton Gem, Gartensonne, and *striatum*. Riverton Beauty is still different with a dark button surrounded by yellow rays. This is a neat-growing plant and deserves a place in any garden. They require a liberal supply of moisture to flourish.

The Boltonias in lavender pink and white are almost as violent colonizers as some of the sunflowers, but give tall masses of their small aster-like bloom that are effective. They are too rank growing for small gardens and usually need to be tied up, as the first heavy rain or wind topples them into a disorderly mass of wreckage of stems.

Gaillardias take on a new lease of life in the cool days of fall and their color at this season is the most brilliant of the year. The new strains are so superior to the older varieties that the latter are hardly worth growing. The Dazzler is a giant among gaillardias with its four-inch blooms and brilliant crimson center. Lady Rolleston in clear yellow with no red in the disk is a fine contrasting companion. The American variety Portola and its seedlings form a near strain with more rounded ray florets than the Dazzler and other newer types.

In the white composites of fall which are none too common in the army of purples and yellows is that attractive woodland plant now hunted in Illinois under State orders as a dangerous malefactor, the white snakeroot, *Eupatorium urticaefolium*, which was formerly known by the more descriptive term of *ageratoides* as it resembles a white ageratum. It is a fine, handsome plant for either sun or shade. In full sun it is more compact than in the shade. It is very useful for cutting, and while it must be destroyed where found in the wild as it is a dangerous poison to stock, it may be saved for

our gardens and receive proper appreciation.

Everybody likes goldenrods except hay fever patients, and the writer is an exception even in this class. Goldenrods share the fault of so many of the fall composites of becoming alarmingly numerous with the least provocation. Goldenrods should be cut without fail before their seed has a chance to float over the surrounding territory. The finest for the garden is the dwarf golden rod, *Solidago missouriensis*, originally introduced into gardens as a yellow perennial aster. It is a handsome plant of two-foot growth and makes beautiful bouquets. I like the tall *altissima* and its named variety Golden Wings to tower above shrubbery, but it must be watched as it is an indefatigable colonizer, worse than a tough ward on election day.

But with ordinary attention all of these composites which give such a gay and cheerful display in the declining weeks of the season may be restrained and made very valuable garden material.

Chicago, Illinois.

The winter is the time above all others for studying the structure and growth of trees and shrubs with an eye for future pruning. Then the mind is not intrigued by the beauty of foliage, flower or fruit and the heart is not softened into foolishly sparing some branch that should go in spite of its momentary beauty. The angles of branching are the key to good pruning, for if cutting is done in such a way that growth is forced out in unnatural angles, the very character of the tree is altered.

Pruning should be entirely avoided for many ornamental shrubs except in cases of overgrowth. The Japanese perhaps have achieved the greatest skill in pruning in their dwarfed trees and shrubs which preserve, in the face of continual cutting, the contours which characterize adult, freely grown specimens.



## The Fernery

By H. CORREVON.

(From "Les plantes des montagnes et des rochers," Geneva, 1914; translated by Bernard H. Lane; published by permission of M. Correvon.)

The ferns occupy an important place—a place of their own—in the ornamental garden. They should not be used as a trivial article of adornment, suitable to play a part in the hands of an architect or to give an accent on the palette of a painter, but cultivated for themselves and for the grace which they give in the places which they seek and under the conditions which they demand. These timid dwellers in the great forests have nothing in common with the brilliant exotic flowers which have been introduced into our gardens, where they have supplanted—for a time only, because the old friends are coming back again—the beautiful hardy plants of former days. These are two separate worlds—in one grace and elegance of form is everything; the other possesses in abundance colors, perfumes, vivid and brilliant attractions.

Alas, in the modern garden, put together more or less happily by the professional garden planner, there is no place for the ferns. One wishes the gaudy, the startling, the brilliant—gayety and colors. Although not being submitted to the tedious rules which governed the gardening of our fathers, the gardens of to-day are no more natural. Their formal style, their flower beds of one or many colors, cut out as with a punch from a turf of velvet where each poor strange flowerlet is inexorably extirpated; the multi-form arabesques imitated from the epoch of the Italian renaissance and spread before us anew as an ingenious discovery of the modern landscape gardeners; the massive shrubberies on which a certain form is imposed according to the rules of convention—there you have, certainly, a setting

where one could find no place for the plants of our woods. In the parterre so well calculated, where the composition is modified and transformed at regular periods, thanks to the clever combinations studied out in the decorator's office, there is no room for the imagination of the artist or the poet. A simple rock adorned with wild flowers is out of tune and makes a blemish there. "Mosaicultures" (abominable neologism which our French dictionaries do not recognize) are the order of the day and may be seen even in our horticultural expositions. Nevertheless, let us be fair—a movement of reaction is commencing to be manifest on all sides, to which the artistic societies are giving their support. It is 30 years ago that we cried in the wilderness, and the wilderness is beginning to return echoes. Our commission of public art at Geneva, the Heimathschutz, is sounding through all Switzerland, to whoever is willing to understand it, the call to Beauty and Truth. In Belgium there has just been established a society called "Société du jardin pittoresque," whose object is precisely to endeavor to introduce into the art of the garden the notion of natural scenes. And we have good expectations, for Belgium, so close to English territory, is at a good school to study the art of elaboration in a garden. England herself follows her own fancy and scoffs at the rules and conventions of the architect-gardeners. And that is what makes the beauty, the grandeur, the variety of the gardens across the Channel, which offer so much more than ours a personal and natural note.

The ferns have their especial place in every garden over which hovers, like a good genius, the inspiring muse

of the picturesque and the natural. In such a garden, whether it be large or small, park or terrace, there is always a wild shady corner, which the daughters of the woods will transform quickly into a sanctuary of Flora—a sanctuary full of grace, elegance, and mystic beauty.

Have you anywhere a cool and shady place where you do not know what to plant? Convert it into a fernery. For that purpose fetch there some old tree trunks or blocks of rock, which you will arrange upon the soil as naturally as possible; model your emplacement in a natural fashion; improve the soil by bringing in sand if it is too heavy or loam if it is too light, and above all plenty of leaf mold, which is for ferns the one thing essential. If you can possibly do it convert one corner into a bog for the swamp-loving species, and provide chinks between the rocks for the rock ferns. And plant the so numerous, so varied, so astonishingly vigorous species of our temperate regions in such a fashion that the species with persistent fronds alternate with those whose greenery dies each autumn. Enliven all with a little color—with the wood orchids (*Orchis bifolia*, *fusca*, *maculata*, *mascula*), with lilies (*Lilium martagon*, *pyrenaicum*, and the Asiatic and North American species), with the toothworts (*Dentaria bulbifera*, *digitata*, and *pinnata*); with daffodils, primroses, periwinkles (*Vinca*), scillas (above all the delightful *Scilla nutans* of the English woods), with trout lilies (*Erythronium dens canis*); with cyclamen (*C. coum*, *europaeum*, *heder-aefolium*); with cypripediums, and many other plants (which we have indicated in our list under cultural instructions).

In the garden of which we dream there are ferns to some extent everywhere. They are under the trees, along the edges of the water, in the clefts of old walls, as well as in the sunny rockery (for there are species which seek the sun, and these are not the least beautiful), and also in isolated

groups in the shady places of the flowering lawn. They are there in all dimensions, all forms and aspects.

I have seen near Lancaster, on the princely domain of a great plant lover, Mr. Herbert Storey, the most marvelous forest undergrowth which it has ever been given to me to behold (although I have seen a great number of such growths both in nature and in gardens). It was made up of Ferns (I have written this name intentionally with a capital F, for there they were true marvels, unique in their class), which almost reached the dimensions of certain subarborescent species of exotic regions. Their variety was remarkable, and they were set off by many flowers of bulbous or other species. Under the harsh climate of that sea-coast, facing the gloomy ocean, that creation of the master of the house constituted a superb tableau.

At Dublin, in the Royal Botanic Garden of Glasnevin, all the hardy ferns grow in full sunshine—thanks to the humidity of the atmosphere, and they attain there extraordinary dimensions. The humid air of those countries permits such developments in the fronds of ferns,<sup>1</sup> and without doubt that recalls to them the conditions of their origin on the earth, for the ferns were among the earliest plants and formed in the Carbiniferous period gigantic forests of which what is left to us is the fuel that heats our houses.

The genus *Adiantum* provides us with an absolutely hardy species (*A. pedatum* or American maidenhair) of North America and the Himalayas, which is one of the most graceful plants of which one could dream. Its pinnules (lobes of the fronds) are gracefully cut into 10 to 12 pairs of opposite segments in the form of a

<sup>1</sup>It is an error to speak of the leaves of ferns, for they are fronds, which bear the fruiting organs beneath themselves, sheltered from the sun and the rain. For a botanic and physiologic study of this family see our second volume on the ferns, entitled "Les fougères de plein terre," or better still the first, "Fougères rustiques," for those who possess it.

horseshoe spread out at the top of a slender black stem 40 to 60 centimeters high. It requires porous and cool soil and shade or half shade. It is the true maidenhair, otherwise called "Capillaire du Canada," from which the syrup was made. It is the glory of the woods in the northeastern United States. I saw it near Groton, Massachusetts, in large masses carpeting the ground of the damp woods mixed with *Onoclea sensibilis*, *Trillium*, and *Mitchella repens*, and it was a beautiful picture. The Klondike variety has nonstoloniferous roots; the type has running roots, increasing rapidly if planted in a well-drained situation in peat or leaf mold. *A. capillus veneris* (Venus's hair) haunts all the walls and damp rocks of the Mediterranean regions and is found also among us in two interesting irradiations—in the canton of Vaud and at Neuchatel; nevertheless the species requires a well-sheltered position or a winter covering. It grows well in the damp vicinity of rocks, especially tufa.

*Allosorus*; see *Cryptogramme*.

*Aspidium* (*Polystichum*). A genus very rich in ornamental species with persistent foliage.

*A. acrostichoides*, of the United States; 50–60 cm. high; fronds brilliant dark green.

*A. aculeatum*; Europe; 40–80 cm.; brilliant dark green; one of the best and the most vigorous of ferns.

*A. angulare*; southern Europe; 30–60 cm.; dull dark green. This species has a multitude of forms and varieties, many of which are among the most elegant of ferns. Near Manchester I have seen, at the home of a horticultural specialist, a collection so large that I could not believe my eyes. The catalog of this specialist, which is now before me, lists 74 different varieties of the single type *angulare*. The most famous are the *proliferum* of Tasmania, the *wollastonii*, and the delicate and marvelous *plumosum*.

*A. braunii*; North America; 50 cm.; foliage somber and dull.

*A. lonchitis*; Alpine plant of 40 to 50 cm. at most; narrow dark-green fronds.

*A. laserpitiiifolium*; fronds 30 to 40 cm., triangular, persistent, extremely decorative, of a brilliant dark green, brownish red in the new portions.

*A. lobatum*, closely related to *aculeatum*. These two species have long fronds of a beautiful luminous dark green, very decorative. In winter, in the picturesque garden, they make the best possible effect.

*A. setosum*; Japan; fronds 30 to 50 cm.; brilliant green, hairy. Not quite hardy at Floraire, and it is averse to lime.

*A. munitum*; United States; a stiff *lonchitis*, even more somber.

*A. (Pycnopteris) sieboldi*; Japanese species with robust stem, persistent fronds (15 to 25 cm.), not much divided, thick, leathery, of a slightly grayish green; on rocks and in half sun.

*Asplenium*, a numerous genus with us, comprising the most widespread species.

*A. acutum*; southeastern form of the following species.

*A. adiantum-nigrum*; southern Europe, Mediterranean regions; persistent fronds of 30 to 50 cm., brilliant dark green, with black petiole; loves rocks and protected places; dislikes lime. Numerous forms and varieties.

*A. angustifolium*; North America; fronds of 50 to 80 cm., clear green, narrow and not persistent; porous moist soil.

*A. crenatum*; Scandinavia, Siberia, Japan; fronds of 10 to 15 cm., dull dark green.

*A. ebeneum*. This is the *A. trichomanes* of North America but much more developed than the European type.

*A. fissum*; southern Europe; very small, with fronds of 50 to 60 cm., very finely cut.

*A. fontanum* (*A. halleri*); southern and western Europe; fronds 15 to 25 cm., persistent, bright or dark green, very finely divided, one of the best

for rocks and walls; many forms and varieties.

*A. germanicum (breynii)*; southern Europe; hybrid of *A. trichomanes* and *septentrionale*; rare and interesting; dislikes limestone and withstands full sun on rocks.

*A. goringianum pictum*; beautiful multicolored species of Japan; dislikes severe cold.

*A. lanceolatum*; western Europe; fronds of 30 to 40 cm., dark green; rare; prefers rock and dislikes lime.

*A. marinum*; maritime rocks; the most brilliant and decorative; persistent fronds of a lively and brilliant green; 30 to 50 cm.; cold house or orangery, or better still in a protected rockery, a warm shady niche which is sheltered in winter.

*A. montanum*; United States; tiny species midway between *A. ruta muraria* and *A. adiantum-nigrum*.

*A. petrarchae*; Mediterranean regions; delightful little glandular fern with the aspect of *trichomanes*; prefers a sunny place on a rock and dislikes severe cold; synonym of *A. glandulosum*.

*A. ruta muraria*; the common rue of walls, of which there exist a great number of varieties and which should be planted on rocks in full sun.

*A. seelosi*; miniature fern (5 to 8 cm.) with very small fronds, coming from the Dolomites of Tyrol; a cleft in a wall or a rock suits it.

*A. septentrionale*; mountains of the northern hemisphere; a curious fern with narrow fronds cut into three or four linear strips, brilliant dark green, 8 to 10 cm.; absolutely a lime hater; sun.

*A. thelipteroides*; North America; fronds of 50 to 60 cm.; yellowish green; likes a woods soil rich in humus.

*A. trichomanes*; maidenhair of the walls; a very common plant of which there are numerous varieties.

*A. viride*; this is the preceding species but with the rachis (central nerve of the frond) green instead of black.

*Athyrium (Asplenium) filix foemina*; the lady fern of our woods, of which there are a great many forms and varieties. The English catalogs count them by hundreds, and the celebrated pteridologist Druery has devoted to these diverse forms, as well as to those of other ferns of England, a very careful and interesting volume (Choice British ferns and their varieties, by Charles Druery, London, 1888). It is the most finely cut of woods ferns and one of the most popular. It thrives in all places that are lightly shaded and cool and grows with great vigor.

*Blechnum*; see *Lomaria*.

*Botrychium lunaria*; more curious than the lady fern; its stock puts out in spring a sterile frond at mid height of a stem of 10 to 20 cm.; this frond is glabrous, of a brilliant green, and divided into thick pinnules of semi-lunar form; from the base of this sterile frond rises a small green bouquet which represents the fertile frond. A mountain plant which is found in high meadows of the northern hemisphere and in Tasmania!

*B. ternatum, rutaefolium, and virginianum* differ from it in the form and the pattern of cutting of the sterile frond. To be cultivated in a light, moist soil, in half sun.

*Ceterach officinarum (Asplenium ceterach)*; tiny mural fern of southern and western Europe, with thick fronds (10 to 15 cm.) having entire pinnules, dull green above and red-brown below; easily cultivated and reproduces itself spontaneously on sunny walls and rockeries.

*Cheilanthes fragrans (C. odora, suaveolens)*; little rock fern which haunts the rocks and walls of the Mediterranean regions and whose fronds are of an exquisite delicacy. It dislikes severe cold and requires shelter in winter.

*Cryptogramme (Allosorus) crispus*; of the high granite mountains of Europe and Asia; a small tufted fern of a bright green which the English call parsley fern on account of its

resemblance to curly parsley. Its fronds differ according to whether they are sterile or fertile. It must be cultivated with us in the tourbière [subirrigated], in sphagnum, or under lath shade.

*Cyrtomium*; this genus, very close to *Aspidium*, is essentially Japanese and not entirely hardy in our climate. It has thick, leathery fronds, dark green, shining and brilliant in *C. falcatum* (50 to 80 cm., long), which is one of the most decorative of ferns; clear green and veined in *C. fortunei*. These two species, with *C. atratum* and *C. caryotideum*, form a group of great beauty, which is much appreciated for decorating rocks, undergrowths, etc., but which it is well to protect in winter. Moreover, they are the best ferns for the apartment or the orangery and those whose robust nature best withstands the temperature of heated dwellings.

*Cystopteris*; a genus of great elegance and an extraordinary delicacy of design. They are the finest and most graceful among our ferns, and those which are called upon to render the most service in the ornamentation of walls and rockeries.

*C. alpina*, of the limestone mountains of central and southern Europe and Asia Minor; very finely cut form of *fragilis*.

*C. bulbifera*; northern America; one of the most vigorous, the most delicately cut, and the most ornamental of ferns; narrow elongate fronds (30 to 50 cm.), of a clear green with a rose rachis in the center and numerous bulblets attached to the under side of the frond, which, falling to the ground, there reproduce the plant. Excellent for undergrowths, cool places, old walls, and humid stony corners.

*C. fragilis*; the pretty, fine fern of vineyard walls or Alpine rocks; fronds very finely divided. 15 to 50 cm., with yellowish-brown rachis. Rocks, walls, stony woods.

*C. montana*; still more finely cut than the others; it is a veritable Meeklin lace, or rather "point de

Venise" of the most delicate kind. It has, alone among the *Cystopteris*, a triangular frond and grows in mossy woods, among the limy rocks of the mountains of Europe and North America. We cultivate it in the lath house or the tourbière, or better still, in pans in turf or peat. We have also planted it on the north side of a tufa wall, where it does very well.

*Lastrea*; see *Nephrodium*.

*Lomaria alpina* and *L. spicant* (*Blechnum*) are curious lime-hating ferns, of which the first belongs to the Antarctic regions and the second to the mountains of the northern hemisphere. They have thick, tough fronds, of a dark shining green, leathery, and differently formed according to whether they are fertile or sterile. They also have very many varieties. They are cultivated in acid soil, under lath shade or in woods.

*Nephrodium*; an important genus—one of the most important—which in horticulture is sometimes called *Lastrea*. It is nearly related to *Aspidium*, but its fronds are not persistent.

*N. cristatum*; Europe, Asia, North America; fronds (50 to 60 cm.) linear oblong, of a clear green; turfy deep soil.

*N. dilatatum*; woods of the mountains of the northern hemisphere; wide fronds, spreading, almost triangular in shape, lively green; deep soil rich in vegetable humus.

*N. filix mas*; our male fern, the most common of our ferns after the *Pteris* and the one which is most easily introduced into gardens; fronds 50 cm. to 1.20 meters long, of a dark green. It has a considerable number of forms and varieties.

*N. fragrans*; Northern Asia and Arctic America; plant of dark verdure, shining leathery fronds, erect, 20 to 50 cm.

*N. goldianum*; North America; large species attaining sometimes more than 1 meter; brownish hairy stems, triangular shape; excellent under trees.

*N. marginale*; North America; fronds 60 to 70 cm., leathery, somber green; sometimes persistent in winter.

*N. montanum* (*N. oreopteris*); central and western Europe; fronds 30 to 50 cm.; yellowish foliage; fragrant because of its glands.

*N. novaeboracense*; North America; a species distinct in form and of a clear green hue; 30 to 40 cm.; loose moist soil or tourbière.

*N. rigidum*; limestone mountains of southern Europe; fronds erect, short (25 to 40 cm.), somber green, exhaling a violet perfume; a species of sunny limestone gravel. *N. fragrans* is simply the American form.

*N. spinulosum*; mountains of northern hemisphere; this species is very similar to *dilatatum* and is cultivated like it.

*N. thelypteris*; a marsh plant found in the bogs of both hemispheres; fronds sterile (80 cm.) and fertile (50-60 cm.); widely spreading by stolons; it is planted in the marsh or in damp woods.

*Notochleana* (*Gymnogramme*) *marantae*. This is one of the most curious among European ferns; it is a rock plant but is found on damp rocks, where it forms very large tufts—veritable colonies; fronds (10 to 25 cm.) dull dark green on the face and rusty brown on the reverse side. It must be protected in winter and planted in a warm corner of the rockery. *N. vellac* from southern Europe, is a beauty; it is covered with long down and wants sun and granitic rock.

*Onoclea* (*Struthiopteris*) *germanica*; central and eastern Europe, Caucasus; a stoloniferous fern of a bright yellowish green, whose fronds form an elegant cup 80 to 100 cm. high, with, starting from the center, an erect spike of dark-brown fertile fronds. It loves the woods and the edge of water, where it spreads rapidly.

*O. orientalis* (*Struthiopteris pennsylvanica*) is the American and higher (1.50 meters) form of the preceding species.

*O. sensibilis*; North America; another spreading stoloniferous species, with very elegant fronds, of a beautiful

clear green, 50 to 60 cm. at most, which we place in the woods or among the rocks of the fernery.

*Ophioglossum vulgatum* has more the aspect of an *Arum* than a fern; sterile frond not divided, glossy, placed at mid height of a stalk of 20 to 25 cm. in a horn, from the center of which rises the fertile spike, erect and stiff; damp meadows of northern hemisphere. Cultivated in the marsh, the tourbière, or the lath house.

*Osmunda*. This genus is one of the most prized by the landscape architect for ornamentation, for it offers us many elegant species of great variety.

*O. cinnamomea* and *O. claytoniana* are two American species which can reach more than a meter in height and whose sterile fronds, which are the most beautiful and are on the exterior, are highly developed. Cultivated in cool places in deep soils rich in humus and in the lath house.

*O. regalis* (royal fern); a very glabrous plant, of a clear green, wide fronds (1.5 to 2 meters at times), elegantly cut, having at their extremities the fruiting organs in the form of brownish-green panicles. It grows in the bogs of western and southern Europe, Africa, Asia, and America. Japan has given us, under the name *O. gracilis*, a smaller and more graceful form of the royal fern with brown-red stems, and there are cultivated a rather large collection of varieties of the type, of which the most curious is *O. regalis cristata*.

*Phegopteris*; see *Polypodium*.

*Polypodium*; a very important genus among the ferns but one which furnishes especially exotic and greenhouse species.

*P. calcareum*; see *P. robertianum*.

*P. dryopteris*; Europe, Asia, America, and Africa; in the stony rubbish of mountain woods; fronds triangular, 15 to 30 cm., weak, of a yellowish green, glabrous.

*P. hexagonopterum*; North America; fronds of elongated triangular shape, 25 to 30 cm., slightly hairy, with pin-

nules decurrent on the petiole, which is in consequence winged.

*P. phegopteris*; very similar to the preceding species, of which it may pass as the European and Asiatic form; petiole not winged; fronds short, triangular, on long stems, slender and hairy. These two species require a spongy soil that is not limy. Lath house or woods, or still better in a shaded tourbière.

*P. robertianum*; Europe and North America; on walls and gravel beds; near to *P. dryopteris*, from which it is distinguished by its firm dry fronds, hairy underneath. Rockery or wall; sun.

*P. vulgare* (polypody, wood licorice, etc.); distributed over the whole surface of the globe in temperate countries and covering the thatched roofs of eastern Europe. Rhizome fleshy, of a sweetish taste; fronds persistent, leathery, dull dark green, of an elongated oblong shape; rockery or open ground; half shade or sun. There are a great many varieties cultivated, some of which are truly plant marvels.

*Pteris aquilina* (imperial fern, great eagle, common fern, etc.). It is this fern which covers in certain countries, especially Macedonia, immense tracts which it renders absolutely sterile because of its creeping rhizomes. Fronds highly developed, reaching at times 2 meters in height, oval triangular. It is found over the whole surface of the earth but is very difficult of acclimatization; once it is introduced into the garden, however, it is difficult to get rid of. It should not be put in small rockeries. At Floraire we have planted it in the lath house (with difficulty, it is true) and it has invaded us without possibility of being destroyed. This is the only fern which can be utilized as food. One gathers the young shoots like asparagus, ties them in a bundle, and puts them in a basin of water with a little powdered cooking soda; they are allowed to steep four hours in the water; then they are boiled like asparagus and

served hot with melted butter. (Gardening Illustrated, June 4, 1913.)

*Scolopendrium*. Here is the most curious of our ferns, known by the names hart's tongue, hound's tongue, serpent's tongue, spleenwort, etc.; its fronds are not cut but form an oblong lanceolate strap of a clear shining green; the fruiting organs are artistically arranged underneath, in narrow whitish lines. It forms a beautiful persistent verdure, which in winter gracefully adorns the depths of the woods, the rocks, the shady places. It is one of the most vigorous and withstands even the utmost drought. This species, which is distributed over the limestone mountains of Europe and North America, is of infinite variety. The English catalogs contain a multitude of forms, and we ourselves grow many of them at Floraire. The most interesting and most decorative are *undulatum* (first rank), *capitatum*, *crispatum*, *crispum*, and *ramosum*. The celebrated fern culturist O'Kelly, of Ballywangham, Ireland (Ireland is also the country of variable *Scolopendrium*s), offers nearly 300 varieties! The Mediterranean regions offer, here and there, among the fissures of the maritime rocks, a delicate and charming *Scolopendrium* with almost triangular fronds (*S. hemyonitis*). We grow it by protecting it in winter.

*Struthiopteris*; see *Onoclea*.

*Woodsia*; rare little ferns, finely cut, close to *Cystopteris*.

*W. glabella*, of the boreal and arctic regions; glabrous frond, tender green, narrowly elongated (5 to 12 cm.), with pinnules widely spaced and very short.

*W. hyperborea* and *W. ilvensis* are two tiny species belonging to the icy regions of the northern hemisphere, in the clefts of vertical rocks. Fronds short (5 to 20 cm. in *hyperborea*, 30 to 40 cm. in *ilvensis*), of a dull dark green.

*W. obtusa*, of the northern and southern Cordilleras; fronds 15 to 30 cm., of extreme lanceolate shape.

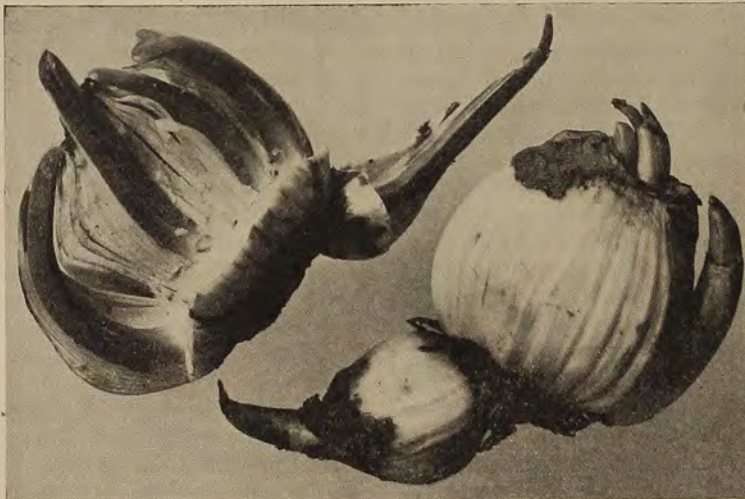
*W. oregana*; Rocky Mountains; diminutive plant with dark green gla-

brous fronds, very narrow toward the tip.

These four species belong to the rock flora and should be planted toward the north or in half sun.

Note.—I have said above that *Pteris aquilina* is the only fern which may be used as food. It should not be concluded from this that the ferns are wholly lacking in utility. *Poly-*

*podium vulgare* is employed in pharmacy, and children relish its sweetish root. Besides, the dried fronds of ferns are recommended as a sedative for agitated nerves, and in certain countries they are used to make ear-caps for the night for persons who suffer from insomnia. The people of the eastern Alps utilize the great eagle fern very extensively as litter.



Dorsett & Dorsett

Bulb Prepared for Forcing in China



## Chinese Sacred Lilies in Peking

By P. H. DORSETT.

In late November, while looking through the market on Hatamen Street, Peking, China, we saw baskets of the familiar Chinese Sacred Lily bulbs displayed for sale at the fruit stands. A few were purchased for photographing and sending back to the United States. The dealers told us that they were shipped to the Peking market from the South, principally from the vicinity of Amoy in the Province of Fukien. We were advised to grow the bulbs in "mud" or soil until they had made a growth of twelve inches when they should be lifted, washed free of soil and put into dishes of water with a few stones to hold them in place.

About a month later the same bulbs were offered in a new way. They were no longer dormant but had been started so that they all showed leaves and flower buds. Three of these started bulbs were fastened together in a row by small wooden skewers thrust through the sides, placed in paper envelopes and displayed for sale on the fruit stands.

A little later still, a street vender was discovered who was selling smaller bulbs fastened together in groups of six. These did not show any flower buds in any of the bulbs that we examined.

After purchasing a cluster of bulbs we stepped into a flower shop across the street to see if there was anything new and interesting to be seen there. The shop was well stocked with plants of various types, among which some of the more interesting were their flowering almonds and peaches, all dwarfed with their branches twisted and tied in every conceivable shape. There were also some very nice begonias and a fine lot of white freesias as well as a window full of Chinese Sacred Lilies in all stages of development.

On a table in the center of the room

and also in the window we noticed oblong pans of plants with short flower stalks and narrow curled leaves, which while resembling the leaves of narcissus were so dwarfed and so unlike anything that we had seen in the forcing of bulbs that we asked Mr. Liu, our interpreter, to inquire if the bulbs were different from those standing nearby or whether there was some secret method of forcing to produce this effect. We were assured that the bulbs were identical, but that the dwarfing was the result of cutting the bulbs. This cutting is done about a month before the plants are wanted for sale.

About January tenth we decided to try the experiment for ourselves and after purchasing some dormant bulbs finally persuaded the florist to show us how the cutting was done.

A cut is first made about half of the distance around the bulb and about three-quarters of an inch above its base. Three cuts are then made from the top down and connecting with the cut around the bulb and the scales of the bulbs which have been cut are then easily removed. This process is continued until one-half of each growing shoot within the bulb is exposed. Extreme care must be exercised to avoid cutting or bruising the leaves of the tender growing shoots. After the bulbs are cut they are placed in water sufficiently deep to cover them, or at least the cut surfaces and left over night. In the morning will be found a layer of light-colored mucilaginous substance over all the cut surface. This is removed by putting a thin section of the scale bases just below the mass. After this the bulbs are placed in pans or dishes with only a small amount of water and placed in the sun where they are allowed to remain for six or seven days.

When the leaves commence to grow

a small section along the entire edge on one side of each leaf is removed with a sharp knife. This cutting causes the leaves to be dwarfed and also to curl about the base of the flower stalks, forming a green covering for the bulbs and roots. The man at the florist's shop who cut the bulbs for us said that

they always selected their largest and best bulbs for cutting to produce these pans of dwarfed plants.

NOTE—This article and the accompanying photographs are published through the courtesy of the Office of Foreign Plant Introduction, U. S. D. A.



*Dorsett & Dorsett*

*Dwarfed Narcissus*

## A BOOK OR TWO

*Gardens and Design*, by J. C. Shepherd and G. A. Jellicoe. Charles Scribner's Sons, New York, 1927. 248 pages. Illustrated.

He who runs can not read *Gardens and Design*. One needs a studious mood to enjoy the text and patience to enjoy the illustrations arranged both laterally and longitudinally on the pages; one needs also a table on which to rest the tome, whose pages are ten by thirteen inches. Supplied with these needs, the earnest reader will find much of value in the book.

Messrs. Shepherd and Jellicoe have arranged their book in three parts, each of which in turn is subdivided into three chapters. Part I is a general treatment of garden design, developing its relations to people, nature, and the fundamental principle of unity. Part II is a historical survey of gardening in Italy, France, and England. This naturally, in Part III, leads to a discussion of the English School; a detailed account of Little Thakeham, Sussex, as an exponent of its influences; and a concluding chapter on the rise and future of national gardens.

One of the authors' theses is that the garden is a medium for repose. "Over visitors, if their stay is short, the spell of the garden can not easily be thrown, and the touch of drama given by a sequence of sensations is invaluable." If one may apply the authors' principles of gardening to their book, he finds upon entering the realm an excess of stimulation. In the beginning there is a panorama of generalizations and detailed suggestions. The reader, like the brief visitor in a garden, is stimulated by the exciting features, but he must return again and again, and subordinate for himself the elements presented there with equal emphasis. Those who had ample time could read the first chapters, let fancy and reason grapple with the ideas therein, and evolve a phil-

osophy of gardening, founded on the authors' sound principles of design, and embellished with details suited to the individual temperaments; the resulting patterns would be as varied as the people who made them.

The latter parts of the book are easier in both manner and matter. We follow swiftly the account of the development of modern gardening from its beginnings in the Italian Renaissance, the impetus given it in France by the lavishness of Louis XIV and the guidance of LeNotre, the deliberate pace it attained in England through the gradual fusion of the opposing interests in man and nature. Profusely illustrated with plates well executed, each period and movement become present realities, conveying lasting impressions of the Italian mastery of form and design, French magnificence, English skill in handling materials. The photographs are like garden gates through which one may step into the peaceful surrounding of the Villa Gamberaia, the pulsating public gardens of Versailles, the varied environments of Packwood House, Canons Ashby, Owlpen Manor, Westbury-on-Severn, Bramham Park.

The isolation of England has had a distinct bearing on its history. In gardening this is no less true than in other phases of its national life. Foreign influences have wielded their power but have been absorbed by a national individuality possessed of distinct characteristics. The history of the English landscape school, present tendencies, and future possibilities furnish fascinating reading for both amateur and professional gardeners. Reading *Gardens and Design* can be like contemplating the pendulum of a grandfather clock swinging in its arc and casting into the recesses echos of moments of time flown by; yet the design that put the pendulum into operation takes care of the present and will mark off the moments of the future.

—FLORENCE LUMSDEN.

*Gladiolus*, by F. F. Rockwell. The Macmillan Co., New York, 1927.

To the series of popular handbooks issued by the Macmillan Company, F. F. Rockwell has now added "Gladiolus." This is an excellent handbook filled with concise and accurate information which can be used by any beginner and by older growers with profit. It has important chapters on Types and Varieties, Propagation, Harvesting and Storing, Creation of New Varieties, and a list of One Hundred Most Popular Varieties chosen from a symposium undertaken by The American Gladiolus Society.

*Spring in the Little Garden*, by Frances Edge McIlvaine. Little, Brown & Co., Boston, 1928. 88 pages. Illustrated.

In this day when there are at least three series of popular garden handbooks published for amateur gardeners, it is a matter of rejoicing that there is so much of difference in both style and content. The present volume, which is one of those over which Mrs. Frances King presides as general editor, is, like its fellows, no catalogue of recipes to be taken in hand and followed with slavish fidelity. This fact saves it as well from the unpleasantness of seeming too instructive!

There is no lack of information. The book is brimming over with keen and pungent comment; with the gleanings of years of personal experience; with the rich harvest of varied reading and correspondence.

There is an initial description and discussion of what should be found in all garden planning and then the author abandons herself to the happy field of "plant materials" which supplies unlimited choice for both necessities and extravagances, hobbies and conventions. Bulbs, native plants, special spring plants, clematis, shrubs on walls, propagation (which with soils crops out in any garden discussion, no matter what the original theme), prim-

roses, tulips, bring one to the closing chapter with its delicate perfume.

*The Book of Shrubs*, by A. C. Hottes. The A. T. De La Mare Company, Inc., New York, 1928. 371 pages. Illustrated. \$3.00.

This compact handbook is filled with useful information for those living north of Washington, D. C. The main portion of the book is an alphabetical arrangement of descriptions of the more familiar shrub. In addition are notes on uses, soil requirements, propagation and any special features peculiar to the individual. This type of information is inevitably brief and often smacks too much of the compiler's scissors and paste-pot methods. The present text, however, is very useful.

The first part of the book is given over to chapters on plantings, soils, planting and transplanting, fertilizers, pruning, insects and diseases, propagation, hedges, broad-leaved evergreens and lists of shrubs prepared for special purposes.

There are some curious inclusions. Curiosity will immediately prompt me to secure *Carpenteria californica*, which will be a delightful surprise if it survives in my Washington, D. C., garden. Probably more *Ceanothus* are hardy than is known. The variety Marie Simon does well here but is so dull a pink that it is not specially desirable. One wonders a little why *Cercidiphyllum* should be included with shrubs.

*Roadside Marketing*, by Gilbert S. Watts. Orange Judd Publishing Co., New York, 1928. 124 pages. Illustrated. \$1.25.

This book in the "Farm and Garden Library" reflects the experience of the author after seven years of farming and roadside selling. The text reflects this knowledge and gives a very interesting and informative discussion of the factors necessary for development of a successful roadside market and for the practice of this type of marketing

among the farmers of an adjacent district or State. The illustrations are particularly clear and informative.

*Handbook of Fertilizers*, by A. F. Gustafson. Orange Judd Publishing Co., New York, 1928. 119 pages, illustrated. \$1.25.

This book written by Dr. Gustafson, the Extension Professor of Soil Technology, Cornell University, is addressed to farmers and truck growers rather than to amateur gardeners. The home gardener can read it with profit, however, for when a garden must be maintained for long periods on the same soil, a thorough understanding of plant foods and feeding is essential.

The author discusses clearly and simply the requirements of plants, the materials used for furnishing the various elements needed, the effect of fertilizers on soils and crops, the purchase and use of fertilizers and the relation of liming to fertilization practice.

*Bush Fruit Production*, by R. A. Van Meter. Orange Judd Publishing Co., New York, 1928. 123 pages, illustrated. \$1.25.

The author's preface of this volume gives the key to the work: "The object of this little book is to place before the gardener in a simple and direct way the knowledge needed for success with bush fruits—strangers to too many gardens." This is admirably done in short chapters devoted to each of the principal berry crops, ending with the blueberry, which relatively is a newcomer among the cultivated bush fruits.

*Spraying, Dusting and Fumigating of Plants*, by A. Freeman Mason. The Macmillan Co., New York, 1928. 539 pages, illustrated. \$5.00.

This volume belongs in the series known as "The Rural Manuals" edited by Dr. L. H. Bailey. It is not a small handbook to be used and set aside but

rather a source book to which one may turn for information on all related subjects. The author has gathered his data from reliable sources and reports of modern methods. He is concerned chiefly with the problems which confront the farmer and orchardist. After opening chapters which outline the History of Spraying, Principles Underlying Spraying Practice, Spraying Materials, both Insecticide and Fungicide, Spray Machinery, Dusts, Fumigation, and Soil Sterilization, he turns to rather lengthy chapters related to various fruits and vegetable crops with discussion of the insects and diseases that may occur and the proper measures for control and prevention. The diseases and insect pests of ornamentals are not included.

*Pioneers of Plant Study*, by Ellison Hawks. Sheldon Press, London, 1928. American Agents: The Macmillan Company, New York. 288 pages, illustrated. \$4.00.

If a gardener is content merely to grow his plants, to bring them to successful fruition each year, this book will be of little interest. To the lover of plants who sees in his possessions, not only the actual plants in hand but the spoils of exploration, the subjects of legend and folk-lore, the actual talismans and charms of early witchcraft and medicine, this book will be of great interest and delight.

There are, to be sure, histories and histories, but few are written in which the developments of plant culture are the main theme, and yet the plants which we know and cherish have come from all quarters of the globe, from all civilizations and over many highways of commerce and exploration. To the plant lover these chapters are filled with data which invests his familiar garden plants with new interest.

The plants of ancient Egypt, Assyria, China, of the Old Testament, Phoenicia, Greece,—from Homer to Dioscorides,—are all recounted with more and more plant lore in the hands of the physicians. The Arab physi-

cians, the school of Salerno, the records from Charlemagne until Albertus Magnus, the first explorers and commercial travelers, the discovery of the New World, the development and dissemination of plant knowledge during the Renaissance, travels in India, the appearance of conspicuous botanical figures, on the continent and in Britain, bring one down finally to the early days of the Royal Society and the botanists in England connected with its development. The closing chapters discuss the Natural System in France, Kew, the times of Hill, Rose, Davison, Smith, Brown and plant collecting in

the tropics, with its return to travel and discovery.

Such books as this make plants live again in terms of adventure and romance rather than in terms of soil and pruning. Names once strange, undesirable, now become precious. *Bauhinia*, *Gesneriana*, *Broussonetia*, *Rudbeckia*, *Malpighia*, all are attached to plants which no longer seem uncouth or strange but interesting and related from all these early times while plant lore was slowly being sifted and arranged; resifted and rearranged until we have the still shifting systems of to-day.



L. A. Guernsey

Hybrid *Escallonia* "C. F. Ball"

[See page 157]

## The Gardener's Pocket-book

---

It has long been conceded that the planting of bulbs is one of the most delightful garden tasks, for no matter how cold or dull the day, the confident gardener sees the garden as it will be rather than feels it as it is.

When one comes to planting seedling bulbs it is another matter. With what unbelief I sifted out this fall the small white, almost pearl-like bulbs of *Allium karativiense* from their nursery pot and put them in the garden bed to grow to flowering! It seemed unreasonable to believe that these small globules should ever make the size to produce the huge metallic leaves that I saw so many years ago in the rock garden at Mr. Watson's home in Plymouth. Crocus, too, seem infinitesimally small, even at two years, but they are the exact counterpart of their mature form, in miniature, ruddy husks and all. Colchicum on the other hand are ridiculous little fellows with a tiny round base and a long papery nose from which grew their solitary yearling leaf. When older they begin to show the dropper-like formation that seedling narcissus show as they burrow their way down to the proper depths. Grape hyacinths are another story. If they germinate at all, and they usually come up well enough to seem double their number, promptly make nice round bulbs which grow in fatness each season to a prompt flowering, even before which they have often commenced to make their endless multiplication which soon puts them in a class with garlic for difficulty of eradication if that should ever be desired.

The late Rev. Joseph Jacob had a fondness for grape hyacinths and often wrote of them. Here in Maryland they are a permanent feature of many

gardens, and in my own self-sow with tireless abandon. Of late I have been hunting them in seed lists and other places and have run down thirteen or fourteen names which may or may not bring as many kinds of plants to flowering. If one consults Boissier's *Flora Orientalis* these fourteen names are as nothing compared with the list set out in prosaic Latin and German. Where are these now? Are they still considered good species or have they been combined into two or three?

There is the additional lottery in seedling raising that one may possibly have to evolve one's stock from a solitary seedling. Such is the case with the one bulb that has developed from the seed sown as *Muscari maweanus*. Perhaps it will flower this year, perhaps not. When it does bloom, it may not set seed and then there will be the still longer waiting for natural increase. And then of course there are the dreadful chances that it may prove homely or not be true to name!

This pioneering in plants does not come home to the gardener who orders his bulbs by the hundred or his perennials by the dozen. Recently in reading through the first volumes of the *Journal of The London Horticultural Society*, I was impressed again at the enthusiasms which greeted those first importations of plants to England that came from Robert Fortune. How momentous the task must have been to bring home safely from so long a journey, plants that now seem to us commonplace! And so I look at my solitary bulb, which I hope is *Muscari maweanus* and pray that it is indeed correctly named and beautiful to behold.



L. A. Guernsey

*Antholyza paniculata*

[See page 157]





*L. A. Guernsey*

*Iris hexagona*

[See page 157]



L. A. Guernsey

*Iris tingitana*

[See page 157]

*Antholyza paniculata* Klatt.  
(Page 154.)

A plant of the Iris Family which comes from Natal has intrigued my interest because of the beautiful formation of its flower inflorescences. It resembles a gladiolus in the general habit of the plant throwing up tall fans of slender sword-like leaves and a central stalk of bloom. The corms themselves are beautifully made with the uppermost husk divided into segments as regular and symmetrical as if patterned artificially. The flowers are red with yellow lobes so that another pattern is made among the blooms. It is a little less hardy than the gladiolus and is really not very well suited to growth except in the South and in regions where the growing season is a little longer than in the District of Columbia. This can be overcome by starting the corms inside and planting out, but this is a labor hardly worth the effort except in the gardens of enthusiasts. Like gladiolus, it must be lifted and stored through the winter with a little warmer temperature than is given for gladiolus.

*Iris hexagona* Walt. (Page 155.)

This charming American iris is one of the group of water-loving iris from the southern part of our country. It has proven entirely hardy in Washington, D. C., and spread slowly into an open clump from which rise the slender stalks bearing their dull red purple flowers, resembling those of *Iris fulva* in carriage more than they do *Iris foliosa*, its other relative. As compared to the usual garden irises, it does not make the show of bloom from the clumps that we expect of garden flowers or that we get from such an iris as Dorothea K. Williamson, its cousin, a hybrid of *foliosa* and *fulva*. Now that other species have been discovered belonging to this section it is not unlikely that other hybrids among the members of the group will be made which will be better garden plants

than their parents. If *hexagona* will contribute its erect and stiff stalk to its seedlings, some should be secured which will be an improvement over Dorothea, for that lady has a weak stalk and prefers to lie down among her grassy leaves.

*Iris tingitana* Boiss. and Reut.  
(Page 156.)

This bulbous species from Tangiers is more robust in growth than many of its allies in the section of which the Spanish iris is the best known. It is not robust, however, in regard to cold and brings with it the tendency to autumn growth that one expects of bulbous plants from that region. It has proven a good plant for forcing and may often be seen in florist shops during the winter as its blooms carry well if shipped before the flower buds have opened, a commercial requisite that most iris do not possess.

*Escallonia* "C. F. Ball." (Page 152.)

This hybrid escallonia was originated at the Glasnevin Botanic Garden at Dublin, Ireland. Its parentage has not yet been reported in this country, but be that as it may, it has caused considerable interest at the U. S. Plant Introduction Garden at Bell, Md., as it is the only escallonia there which has proven even partially hardy. The foliage is evergreen, shining green in color and of a splendid texture, so that if the plant continues to endure our winters it will add an important new shrub to the flowering broad-leaved evergreens for this part of the world. In the winter of 1927-28 only the shoots that were produced late in the fall and imperfectly ripened were damaged, a state experienced in many other evergreens, as we had a season with low temperatures and considerable sunny weather. The uninjured shoots were well lined with the small rosy white flowers that resemble small apple blossoms in color and shape.

## WESTERN BULBS

Among the interesting plants from the Pacific Coast which will endure in the Eastern States, are the camassias and erythroniums.

The former are large, rather coarse, bulbous plants forming clumps of lush green leaves from which rise tall stalks of starry flowers, lavender white in the case of *Camassia esculenta* and deep lavender in *leichtlini*, though both species show the whole range of color variation, flowering here with the Darwin tulips and early iris. They are at their loveliest before the lower flowers commence to wither, a habit which mars the spikes of summer blooming tritomas or even gladiolus. Since the flowers are rather delicately tinted, the bulbs should be planted in good clumps which will make valuable accents in the early borders. They can be increased by division or very slowly from seed.

The erythroniums from the coast are a very different sort of plant. To the easterner who knows only the native *Erythronium americanum*, with its great sheets of handsome foliage and relatively few flowers, these western species are a revelation. With the exception of *E. Hartwegi* they do not make offshoots but increase only by seed. Their flower stems are far taller and the flowers even larger than our lovely yellow species. The colors are more varied and cover a greater range: *californicum*, creamy yellow, *citrinum*, light yellow to orange, *grandiflorum*, deep yellow, *Hartwegi*, light cream color, *Howelli*, pale yellow to pinkish, *Hendersoni*, pale rosy purple and *grandiflorum*, pink to pinkish purple. Of this last there are several varieties, mostly color selections. In many of the species there is a contrasting color in the center of the flower which makes a decided accent.

All the erythroniums like partial shade and a light, well-drained soil which must not be too dry in spite of the drainage—the type of soil used for rhododendrons. Leaf soils should be

dug into the earth and a light autumn mulch of granulated peat or well-decayed leaf soil should be given annually. Plantings will look best in ample clumps or drifts with the bulbs spaced rather closely together to accent the slender flower stalks. The bulbs should be covered with about two inches of soil above their noses. When the bulbs are not grouped under low shrubs, some interplanting of a low-growing perennial should be made to cover the earth after their leaves have died off. If the lovely partridge berry will consent to serve, it makes an excellent soil for the erythroniums.

In one brookside planting in Maryland, the tiny native grasses and mosses which inhabit the gravelly flat serve well until the unfolding fronds of the New York fern (*Aspidium noveboracense*) unfurl to cover them all. Here several species have lived happily through several winters with the neighbors mentioned and such plants as the swamp-loving Japanese primroses.

## SUMMER GRAFTING

In the *Revue Horticole* for the sixteenth of June this year, is an interesting article by Monsieur Mottet of iris fame, on "Crown Grafting in Summer," in which he reported the practices of his fellow countryman, M. Maisonnier, and his own experiences after having seen the plants resulting from his colleague's work.

It is probable that this method will not affect the commercial practices current in this country, which relegate grafting to the winter with dormant stocks and scions and employ budding in the summer, a practice more economical of material, yielding more plants from each mother plant than grafting ever could.

The amateur, however, who is familiar in the various methods of propagation might be interested in this as it gives an immediate reaction and shows at once whether or not the work has been successful.

In M. Maisonnier's case the original work was done on lilacs. Some old plants of *Syringa vulgaris* were to be destroyed, but instead were grafted with scions of the improved double varieties. Within five days after the operation, which was on June eighth, the grafts showed growth and later in the season actually produced flowers. The old plants were cut down to about three feet. The scions were short, with only two eyes each, the leaves and petioles removed, of half-ripe wood, cut with one long slanting cut so that they could be slipped under a vertical cut in the bark of the stock at the very crown. Two or three scions were placed on each stub, the whole bound with raffia, and waxed as in any other graft.

It is said that this type of grafting produces a better union than a cleft graft where sometimes stocks and scions never grow together satisfactorily.

There are objections, however, chiefly the difficulty of imperfect ripening of the growth from the scion and its subsequent winterkilling, a difficulty which is sometimes met in premature growth of midsummer budding. The other limiting factor would be the knowledge that there is relatively small demand for the type of plant best produced by this method, the standard or half-standard. One would lament the increased production of the umbrella-headed catalpa or the weeping mulberry, but it might be a happy state if the weeping cherries could be so easily produced as to become cheaply available to the small gardener. We do not use, in this country, the standard roses, brooms, flowering plums, acacias and robinias that appear in the perennial borders in Europe, but it is possible that they might become more familiar if they were cheap and plentiful.

#### IRIS AND BROOM

Among the various combinations of bloom that appeared in the garden

this season was the simultaneous flowering of plants of Scotch broom and the tall bearded iris. The broom had been raised from seed of mixed varieties of the *scoparius* type and showed all the variations from the typical glowing yellows of *scoparius* itself to the forms with the ruddy brown and crimson wings of *andreasus*. The bushes are now about five feet high, irregular fountains of slender green branches covered at flowering time with brilliant pea-shaped blossoms. Against this background, lavender iris such as the familiar *pallida dalmatica*, Corrida, Mary Barnett, Horizon with a few yellows like Chalice of Shekinah, and a variegata or two like Flammenschwert or Rialgar, make a charming picture. Yellow Cottage tulips might precede them, with such daylilies as Florham and Lady Fermoy Hesketh for midsummer, and tritomas, heleniums, and chrysanthemums for the rest of the year.

Because they are difficult to transplant, nurserymen do not bother to carry broom in quantity. The gardener can easily raise what he wants from seed with some assurance of bloom the second year and abundant bloom thereafter. The seedlings, which offer no difficulty in germination, should be pricked out into thumb pots as soon as they can be handled and shifted into the next size when ready, taking care meantime that the tap root does not go directly through the pot and out the drainage hole. From these pots they can go into their final places. The difficulty in this plan is that there is no way of foretelling the colors nor the exact habit of the plants for some are far taller than others. A few will die the first winter and others will be affected by winter killing only to recover and flourish afterwards, but in spite of these difficulties the gardener who lives where there is a long hot summer and no extremes of winter cold should experiment with the Scotch brooms if he can give them a well-drained site.

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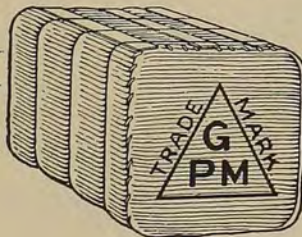
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