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FIG. 1857. FRUITING BRANCH OF KEINE HORTENSE CHERRIES, ...

*Photo. by Miss Brodie.*

# THE CANADIAN HORTICULTURIST

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## CHERRIES IN 1900.

**T**HE first of the tree fruits to ripen is the cherry, and its comparatively small size renders its harvesting quite a serious consideration, especially if the acreage is large. A solid block of cherry trees planted for profit is not often seen for this very reason, but where plenty of pickers are obtainable in cherry season, there is no reason why such a block should not be planted.

Fig. 1858 shows a view in the experimental plot at Maplehurst five years planted. These trees are on dry sandy loam, have been given clean cultivation and fertilized with wood ashes. The result of this treatment proves the absurdity of the common notion that the proper place for cherry trees is the fence row, and that cultivation is unnecessary. They have grown with double the vigor of trees not cultivated, many of the sweet cherry class being over 14 feet in height and 4 inches in diameter of trunk; also at this early age many of them are well laden with fruit. One of the Early Purple trees, a variety not usually very productive, has so responded to our treatment that it has been fully loaded now for two years in suc-

cession, but, ripening early in June, it is usually harvested by birds and boys.

The total number of varieties under test at Maplehurst is 62, and the different habits of growth are an interesting study. For example, Fig. 1866 shows a Morello tree a good type of the habit also of the Kentish cherries, for these differ from each other more in fruit than in tree; this class of trees forms a round head with slender branches and never attains much height. These five-year-old trees are only about 9 feet in height and 3 inches in diameter of trunk. The Montmorency is a great favorite as a market cherry in New York State, and certainly is a productive kind of pie cherry, far less subject to Curculio than the old common red. It ripens about the 1st of July, while the Early Richmond can be used for pies about the middle of June. For pies, the Early Richmond, Montmorency and Wragg or English Morello, would cover the season completely. Fig. 1859 and 1860 shows the bearing habit of the Empress Eugenie and of the May Duke, two varieties of Dukes which so nearly resemble each other that they are not

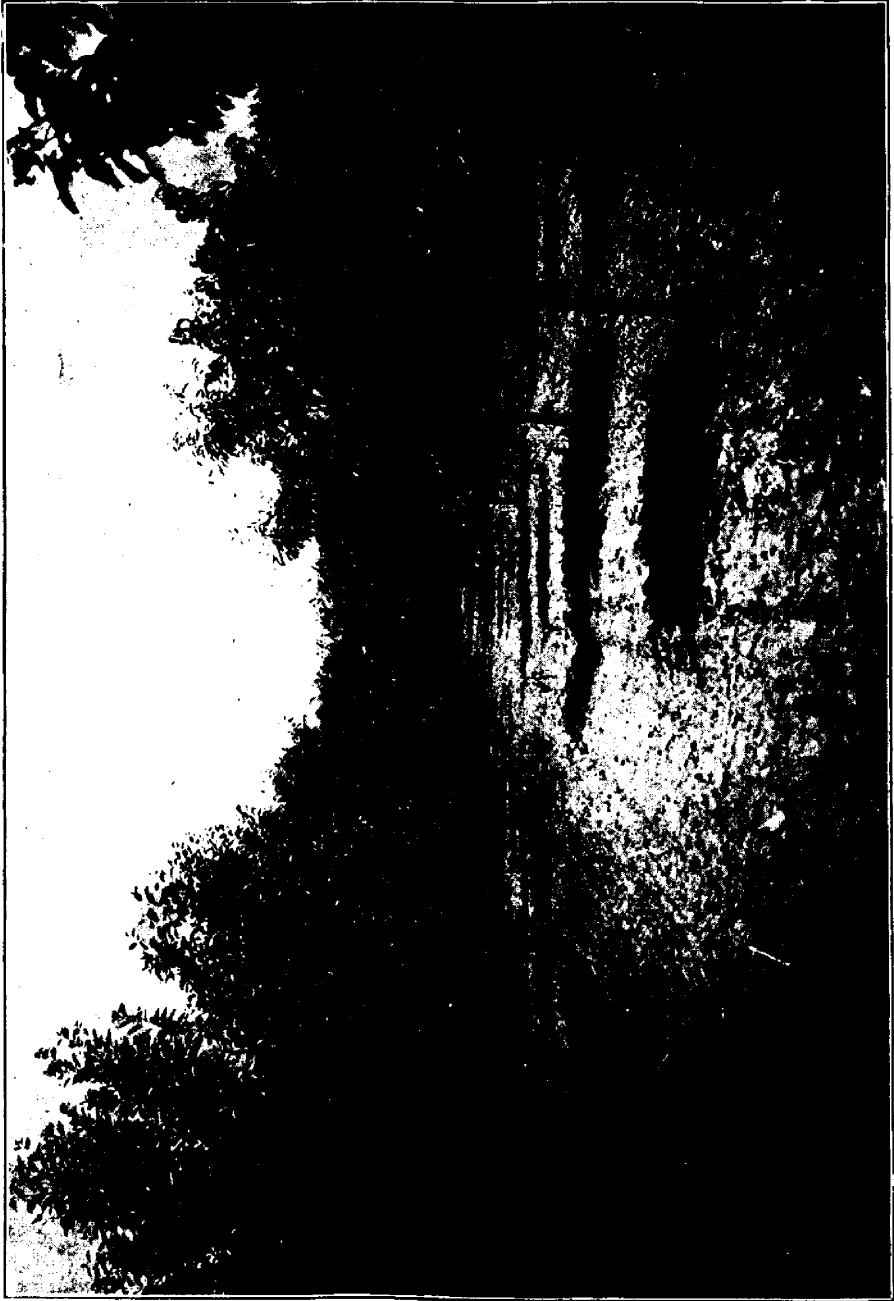


FIG. 1858. MAPLEHURST CHERRY PLOT, FIVE YEARS PLANTED.

*Photo. by Miss Brodie.*

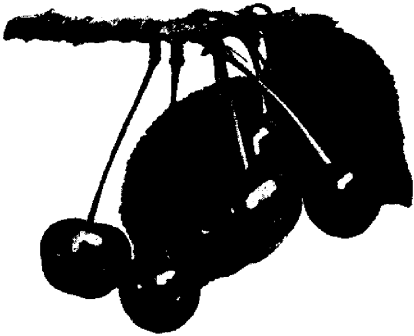


FIG. 1859. EMPRESS EUGENIE (REDUCED.)

easily distinguished. Both bear in thick clusters all along the branches, and their mild acid makes them more desirable for pies than the Kentish varieties, at least to the taste of many people. They have one fault,



FIG. 1862. BEARING HABIT OF ELTON.

well be classed separately from all others, and Fig. 1863 shows a good type of the tree. This is a May Duke in our experimental plot, but the Royal Duke, Late Duke and the Empress Eugenie are so similar in habit that one tree will well represent them all. They grow upright and attain a con-

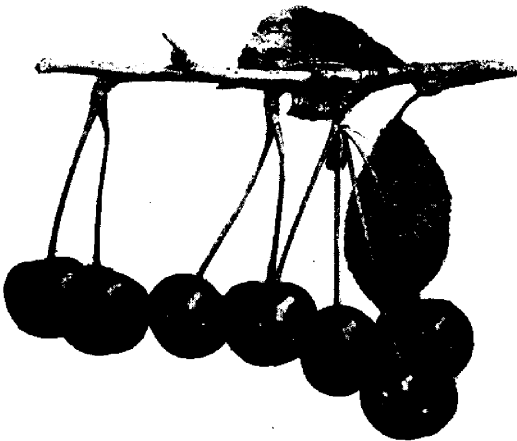


FIG 1860. MAY DUKE (REDUCED.)

viz., that of uneven ripening, often showing very green samples and very ripe ones on the same bunch. The Duke cherries may



FIG. 1863. MAY DUKE TREE AT MAPLEHURST.



FIG. 1861. BEARING HABIT OF CLEVELAND.



FIG. 1864 BEARING HABIT OF SWEET CHERRIES



FIG 1865. SWEET CHERRY TREE.



FIG. 1866. MORELLO TREE.

siderable height with little spread of branches. The leaves hang down in somewhat fastigate habit, and the fruit is borne all along the branches, well hidden among the leaves. The Reine Hortense is by far the finest Duke, but is so different in habit and so immensely superior in size and appearance to the others named, that it cannot be called a typical Duke; indeed all these divisions are more or less arbitrary and shade more or less into each other. Fig. 1857 shows the bearing

habit of this variety; the cherries do not hang in bunches, but in ones and twos, an excusable fault in a cherry so large and fine as this one is.

The members of the Board of Control of our fruit stations visited our Orchard on the 3rd of July, and the general verdict was that the Hortense with its load of fruit, was alone worth a journey to see. Our frontispiece, from a photograph by Miss Brodie on the 6th of July, well represents a fruiting branch

from one of these five year old trees, and will give our readers a good idea of its productiveness this season. The fruit is too soft for long shipments, but for the amateur we know of no equal to it for cooking purposes.

The bearing habit of the sweet cherries is shown in Fig. 1864, which is a photo of Governor Wood. These trees are very vigorous, upright and spreading in growth and form very large trees. (See fig. 1865.) Governor Wood and Cleveland very much resemble each other and are of the same origin, but of the two, we think the latter is the finer cherry, both in beauty and in flavor. Fig. 1862 shows a branch of Elton cherries from one of our five year old trees and for productiveness it certainly leaves nothing to be desired, while Fig. 1861 shows a bunch of Cleveland. Hearts and Bigarreaus are both included under the Sweet Cherry class, and the latter are much the more productive. The Black Tartarian well represents the former, while the Napoleon Bigarreau is a good example of the latter. These often overload and rot badly from contact with each other in wet seasons unless sprayed after every rain with Bordeaux mixture.



FIG. 1867. SHOWING THE BEARING HABIT OF ROYAL DUKE.

**PRUNING.**—In the pruning of pyramidal fruit trees of all sorts care should be taken to encourage the formation of natural fruit spurs in preference to artificial ones; this is the rock on which many a young gardener and amateur has split by following the orthodox system of summer-pinching, as it is called. If a free growth is allowed during the summer and the branches kept thin, admitting the free circulation of sun and air among them, the wood will ripen properly,

and at the base of every leaf a bud is formed which will ultimately become a natural fruit spur. In the case of some varieties, such as the Jargonelle and Williams' Bon Chretien Pears, it will be found that the terminal bud of one year's growth will be a fruit or bloom bud; in such a case it will be advisable to pinch it out, which will strengthen the side buds, and in the following year they will become natural fruit spurs.—*Journal of Horticulture.*



## A DOUBLE TRAGEDY.

Down from a twig on a Northern Spy tree  
A canker-worm swung in security ;  
He'd eaten all season since first he was hatched,  
As a ravenous glutton he couldn't be matched.  
He slipped inch by inch to the grass-covered  
ground,  
Where he thought safe concealment might surely  
be found  
In which he could pupate till autumn set in ;  
But a hen came that way and she gathered him in.  
Gathered — gathered — gathered — she gathered  
him in.

She gathered him in, and his final rest  
Was there, in there, in her well-filled chest ;  
And she strolled around in search for more,  
For it tasted better than aught before.  
But I thought of her end, her final act,  
When the farmer'd slice with a carver's tact,  
And remark, as each piece made him look less  
thin,  
" I gather her in, I gather her in.  
Gather—gather—gather—I gather her in."

—*Am. Agriculturist.*

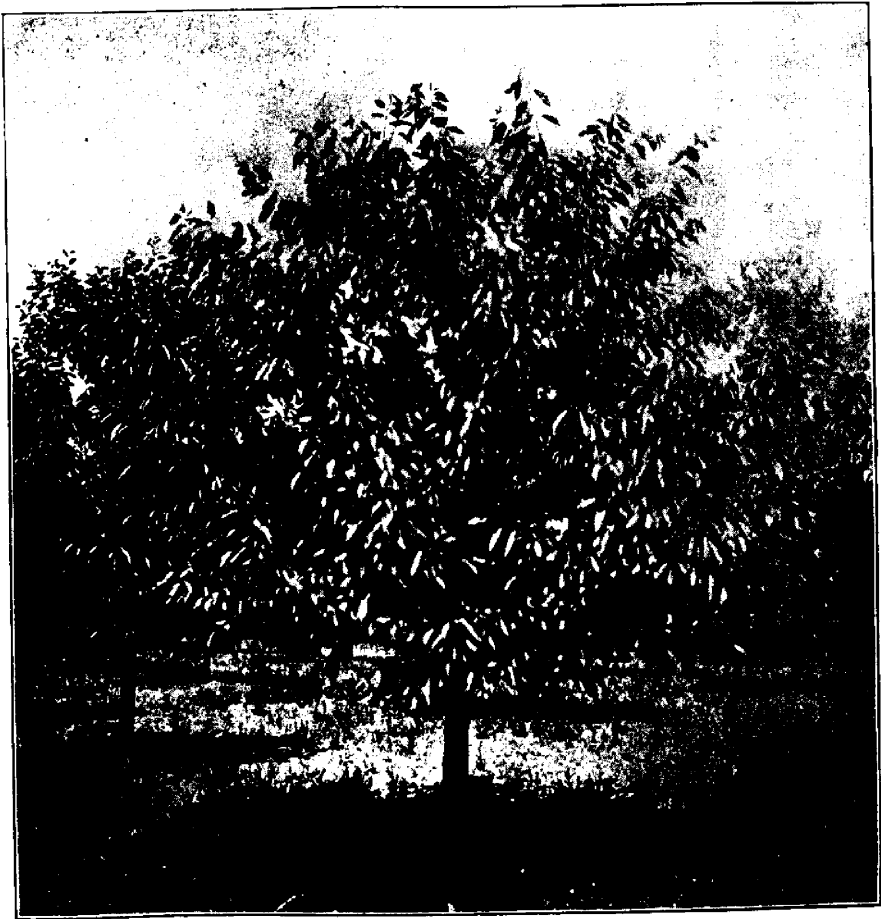


FIG. 1868. REINE HORTENSE TREE.

## UNIQUE FLOWER STANDS AND POTS.

**T**HE ordinary flower-pot has been taken so much as a matter of course that few persons think of using any other receptacles for the plant growths with which they adorn their homes. Yet it is possible to utilize various articles common to most households and at the same time produce something appropriate to the flowers or plants that are put in them.

These holders, which are easy of construction, may, to a certain extent, take the place of the jardiniere that is now so common.

The Japanese have devoted much time and shown great skill in the arrangement of plants and flowers. They offer good examples of what may be done with a single plant or a few flowers. The results they obtain are artistic and compel admiration. It is often desirable to move plants from one room to another, or to use a single plant for a decoration; the various devices shown in the drawings (with one exception) may be very easily moved.

A hanging arrangement for flowers is shown in Fig. 1869. It is odd and effective,



Fig. 1869.

and well worth the slight trouble and expense incurred in constructing it. A carpenter's assistance may be needed for this, and for some of the other designs, but all may be made at a trifling cost.

A child's hoop is used for the han-



Fig. 1870.

dle. It passes through two pieces of three-quarter-inch stuff cut two inches wide, that are in turn nailed to two wooden towel rings, one above the other, eight inches apart. A circular piece of wood is fitted into the lower ring, and light strips of wood are tacked on, the whole forming a basket in which the pot is placed. Vines are planted and trained up and around the hoops.

Fig. 1870 is intended as a substitute for the fern dishes of silver that grace the dinner-table. This is the ordinary round wooden spice box known to many housekeepers. It is painted a pale cream tint, and when filled with growing ferns is quite as good in effect as the silver dishes, which, to my mind, always seem a trifle cold and metallic for flowers and plants. A Japanese stand gives style to this arrangement, which might otherwise be deemed quite commonplace.

This stand may be stained a dark sienna or ebonized. It should not be over three inches in height, as the plant must not be

over three inches in height, as the plant must not be allowed to interfere with the view of one's neighbor across the table and thus form a decided hindrance to sociability.

The design in Fig. 1871 is easily constructed and is unique in effect. It consists of a deep wooden bowl, supported by a stand built of laths nailed to a hoop of the same circumference as the rim of the bowl. It is about two feet in height. A vine is allowed to fall over and twine in this frame, breaking somewhat the rigidity of its lines.

This idea may be used also for potted plants, which could then be removed at will. In constructing it for this purpose

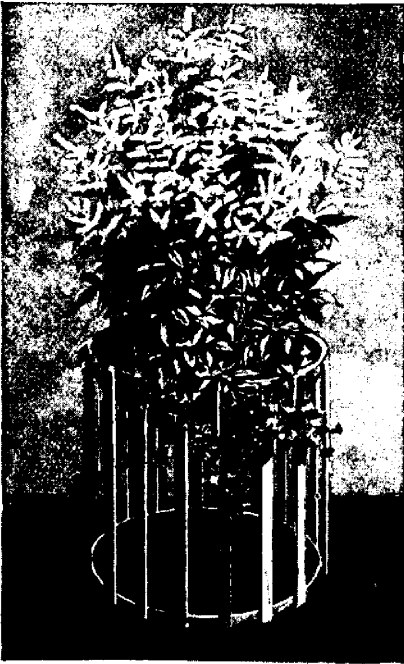


Fig. 1871.

omit the wooden bowl and simply use a hoop at the top like the one at the base, having it of a diameter a trifle less than that of the pot so that when placed in it the rim of the pot will project a trifle above it.

Another plan would be to again dispense with the bowl, and use a round, flat top of wood for the plants, thus producing a very convenient little low table which would prove especially attractive for the porch. It must, of course, be neatly finished and painted.

Fig. 1872 is designed as a receptacle for cut flowers rather than for growing plants. It consists simply of an ordinary tin biscuit-can, cut as indicated and painted. It may be partially filled with earth, or weighted in any other way to insure its stability. When in use it may stand on a tile or mirror.

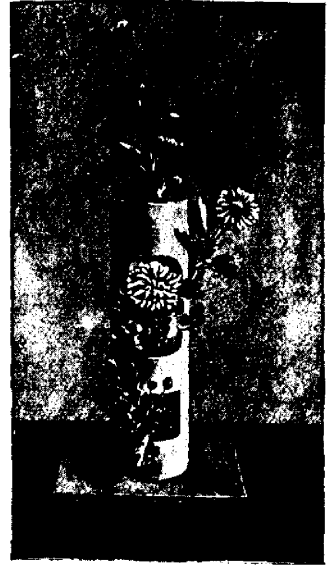


Fig. 1872.

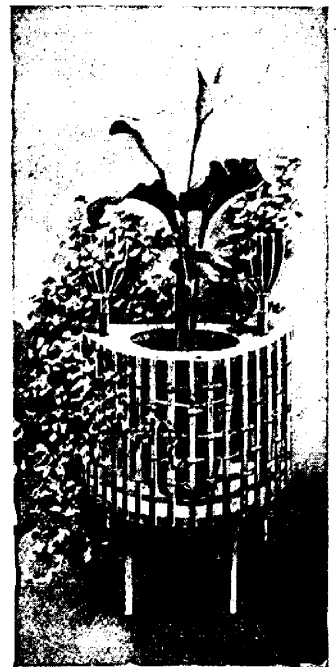


Fig. 1873.

It is Japanese in form, and if care is used in the arrangement of the flowers a rather quaint effect is produced. It is well to use sand at the bottom of the vase for inserting the stems of the flowers, as this will assist materially in arranging them. Such blossoms as the aster, daisy or chrysanthemum may thus be used.

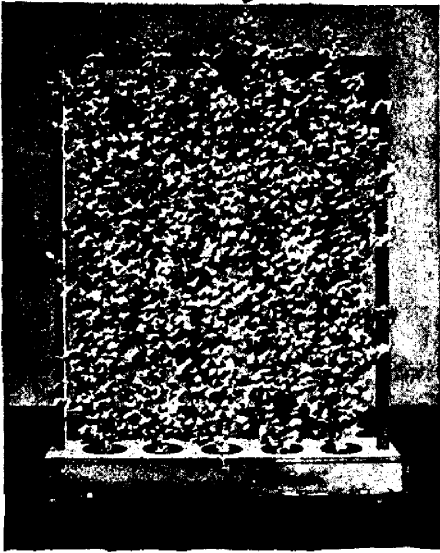


Fig. 1874.

The design shown in Fig. 1873 is intended to be bracketed against the wall. Two semi-circular pieces of wood, half an inch thick and fourteen inches on the diameter, are fastened together twelve inches apart by thin strips of wood woven in and out in basket effect. A circle is cut in the upper piece, allowing a flower-pot with growing plant to be set in.

Through these two pieces, on each side, are run fruit-pickers, used by farmers for gathering fruits. The handles are cut to the proper length. The wire cup is used to clasp a goblet from which the stem has been broken. A small flower-pot may be used if preferred. From these cups vines may be trained.

The screen in Fig. 1874 stands three feet six inches high and is three feet wide. The box in which the pots are placed measures eight inches from front to back and seven inches in depth. It stands on short legs, or it may be put upon casters for convenience in moving around. The front of the box opens on a hinge at the base, allowing for the removal of the plants when desired. Wires are stretched from top to bottom for

the vines to twine upon. The screen has a very charming effect. It stands firmly, as all the weight is at its base. It may be easily moved, thus allowing it to be used as a back-ground for brilliant blossoms. Several of these screens placed side by side would be very effective in banking up the side of the room when special floral decorations were needed for any festive occasion.

Of course it is not necessary to adhere strictly to the lines and dimensions of the screen illustrated. Several other forms less severe in outline suggest themselves. A curved top may easily be produced by carrying up a hoop from the top at either side. A hoop also may be hung inside of the frame with good effect, allowing the vines to climb around it. If one objects to the boxed-up pots at the base this objection may be easily overcome by substituting a board and cutting round holes in it a trifle less in diameter than the diameter of the pots. The board should be set on a frame sufficiently high to allow the pots to clear the floor.



Fig. 1875.

In Fig. 1875 is shown a simple fruit-basket smoothed up and treated to several coats of paint. A hoop of appropriate size is nailed securely to its rim. This is so bent to harmonize with the lines of the basket, and besides affording a decorative feature, is useful as a means of lifting the plant. In painting these holders select such colors as will not offend good taste. Warm tints are the best, as they afford a pleasing

contrast to the foliage of the plant. Rich dark browns, dull reds, or pale cream tints are good and effective, yet quiet and restful to the eye. The basket is set on a light stand of polished wood, quite Japanese in design. Though very simple in construction, it gives distinction to the plant, and is a protection to the carpet or table on which it rests.—*From the Ladies' Home Journal, copyrighted by the Curtis Pub. Co., Phila.*

## CARNIVOROUS PLANTS OF CANADA.

*Facilis descensus Averni,  
Sed revocare gradum.*—VIRGIL.



ALTHOUGH to the horticulturist as a commercial grower, flesh consuming plants may not be of special interest, yet as a student of plant life a brief account of how some plants obtain nitrogen may be to him both interesting and valuable.

Those that will be mentioned fall naturally into two groups, the one composed of those that capture by means of closed chambers or open pitfalls, so contrived that animals entering may not be able to get out. In some instances the pitfalls are made attractive by a display of brilliant color, and the downward way alluring by a spread of sweets. It is in a more enticing way the old story :

"Walk into my parlor said the spider to the fly,  
I've the prettiest little parlor ever you did spy."

The other group consists of those that perform certain movements specially designed to secure their prey.

There is a third group, to it belong plants the leaves of which are provided with glands that secrete a sticky substance to capture insects and fluids to digest them. Some Canadian plants have sticky foliage, but the writer is not aware that it has been ascer-

tained that any of them can digest the insects that may chance to adhere to the leaves.

The first group is represented in Canada by five species of bladderworts, which illustrate the closed chamber contrivance and one species of pitcher plant which uses the pitfall method. Of the bladderworts, four species live in ponds or pools in bogs, one roots in mud. The aquatic species have no roots, they float just below the surface of the water, throwing up only flower stalks with their yellow flowers into the air. See Fig. 1876, copied, as are all illustrations in this paper, from the National History of Plants by Anton Kerner, Professor of Botany in the University of Vienna.

The life story of these plants is as follows : In the autumn spherical buds are formed at the ends of the branches, the leaves and old parts die, become saturated with water, sink to the bottom, taking of necessity these buds with them, where they remain all winter. On the return of growing weather these buds increase in size, become separated from the old decaying branches, ascend to near the surface and soon develop into a plant similar to that shown in Fig. 1876 with leaves and bladders. In some

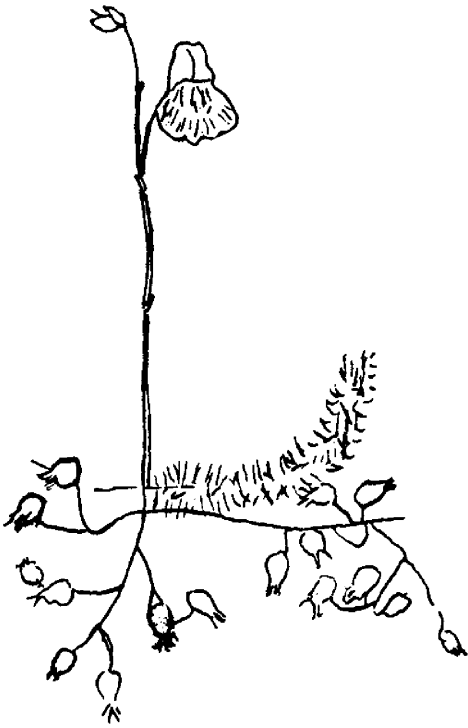


FIG. 1876.

of the species all of the branches are supplied with leaves, the bladders being distributed among them ; other species have the foliage and bladders on separate branches.

The bladders are constructed in such a manner that each is a trap specially designed to catch very small animals. Their form and general appearance is shown in Fig. 1877, considerably magnified. The opening into the bladder is at the base of the stiff tapering bristles, which are so placed around it as effectually to prevent any other than animals small enough to enter the orifice from even approaching. The entrance is formed with four rounded angles, nearly square in outline. The under side or threshold is strongly thickened, from which a solid cushion projects inward. To the upper side or lintel, is fastened a thin transparent valve which closes upon the cushion, completely shutting the aperture. The valve is so elastic that

it can be easily pushed up by the tiniest animal on the outside and so get within ; as soon as it has entered, the valve instantly springs back to its normal position, and the venturesome prisoner is a captive for life. Over the entrance might most truly be written,

‘ Who enters here leaves hope behind.’

See Fig. 1878 showing in outline the cushion and valve magnified. Sooner or later the captives die and decay. Lining the interior surface of this prison house are cells specially

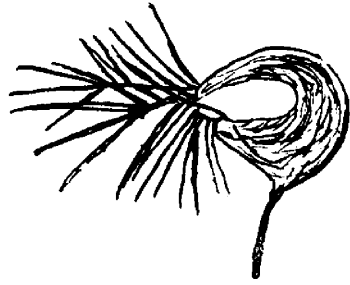


FIG. 1877.

designed to absorb the products of this decay, which thus become a source of nitrogen to the plant. We learn from Kerner that the number of animals thus captured is comparatively large, that most of them are small crustaceans, supplemented by larvæ of gnats and other small insects. That they must need be small, is evident from the fact that the bladders themselves do not exceed 5 millimeters in diameter, about one-fifth down to one-twelfth of an inch. What is it

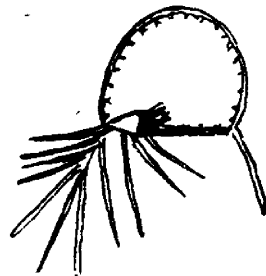


Fig. 1878.

that induces these tiny members of the animal kingdom to press open the door, as it were, force an entrance into this death trap, is as yet an unsolved riddle. Mr. Kerner suggests that it may be to escape being drowned by larger predaceous inhabitants of the pool. Certainly none ever come back to warn their fellows.

We give for those who may desire to examine these curious plants a brief account of the few species indigenous to Canada: flowers yellow, one petaled, two lipped.

*Utricularia vulgaris*, the greater bladderwort; bears numerous bladders interspersed among the leaves, from 3 to 20 flowers, found from the Atlantic to the Pacific.

*U. intermedia*, Flatleaved bladderwort; the bladders with rare exceptions are borne on leafless branches; flowers 1 to 5, reported from Newfoundland, New Zealand, Quebec, in Ontario, from Ottawa west to London and northward at Lake Huron, Lake Superior and Lake Nipigon, also in Manitoba and the Rocky Mountains.

*U. gibba*, Humped bladderwort produces few very small bladders scattered among the leaves, and only one or two flowers; found at the eastern end of Partridge Lake, Addington County, Ontario (Macoun), and near Westminster, London, Ontario (Dearness).

*U. clandestina*, Hidden fruited bladderwort; this species, like our wild violets, has two kinds of flowers, one kind like those of the other species, in number 3 to 5; the others very numerous and borne among the bladders under water, strictly cleistogamous, that is, fertilized in the bud, reported from Kent and Albert Counties, N. B.

*U. minor*, Lesser bladderwort; the bladders of this species are very small, about one-twelfth of an inch in diameter and not numerous, sometimes not any; the flowers from 1 to 10, flower stalk from 2 to 6 inches high. In a marsh at Mount Stewart, Prince

Edward Island, (Macoun) Labrador to British Columbian (Britton).

*U. cornuta*, Horned bladderwort, grows in the mud at the margin of small lakes and ponds, flowers 1 to 6; very abundant along Gulf River, between Big and Little Bushkong Lakes; at Chicken Bay, Lake Huron, McIntyre's Bay, Lake Nipigon (Macoun); reported from Newfoundland, Nova Scotia, New Brunswick and Quebec. The writer has seen it in bloom on the borders of small lakes near Gravenhurst in the month of July, but could not find any bearing bladders.

*Pitcher Plants.* The pitfall contrivance is formed by the metamorphosis of the leaves of the pitcher plants into sacs. There is one member of this family common in Canada, from the Maritime Provinces to the Rocky Mountains, growing in mossy bogs and marshes, *Sarracenia purpurea*, Pitcher plant, Huntsman's Cup. See Fig. 1879, showing the rosette of leaves and flowers borne singly upon the upright stalk.

As will be seen by the engraving, the leaves, arranged in the form of a rosette



Fig. 1879.



Fig. 1880.

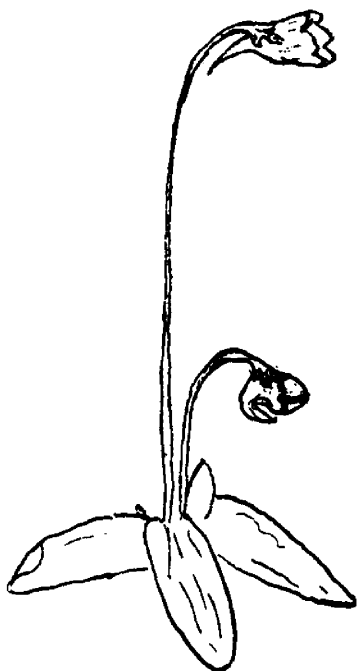


Fig. 1881.

upon the ground, instead of the usual flat leaf blade and narrow leaf stalk, have been changed, stalk and blade into lengthy sacs, resting upon their backs, inflated about the middle, somewhat contracted about the mouth, which is raised up from the ground and bordered with a collar or sort of hood. This hood is streaked with red veins, often of a vermilion brightness, and holds its concave surface in a position to catch the raindrops and conduct them into the cavity below. Near the mouth the pitcher is provided on the inside with glands which exude a sweet fluid that is spread thinly over what may be termed the throat. Below this the interior is lined with long, smooth, sharp-pointed bristles. See Fig. 1880, a section through the wall of the sac, showing the long spinous bristles greatly magnified. The bright colors and sweets allure the insects, many slide down over the smooth slippery spines; after vainly endeavoring to climb the bristle-lined wall they sink exhausted into

the water below and perish. When a number are decaying the water becomes turbid, resembling manure water. It is not yet known whether the fluid is mere rain water or whether the gland-like cells at the bottom exude a secretion which modifies its character. Will not some reader of the Canadian Horticulturist settle this question? It is in this way that Pitcher plants obtain more or less of their required nitrogen. These comprise all of the Canadian plants embraced in the first group.

Turning now to the consideration of the second group, those plants that exhibit movements in capturing their prey, we find that the Canadian members are confined to two plant families, one also belonging to the Bladderwort family and four to the Sundew family. This one, which is placed by botanists in Bladderwort family, has no bladders, does not live in water, captures insects by the involution of its leaf margins. It may be briefly described as follows—*Pinguicula vulgaris*, Butterwort. The leaves are entire, arranged in a rosette at the base of the leafless flower stalk, flower violet-purple, one petaled, two lipped, upper lip two cleft, under three cleft, nearly straight nectar bearing spur varying from one-sixth to one-third of an inch in length. Its range is from Newfoundland and Quebec through Ontario to the Rocky Mountains. In Ontario at Red Bay, Lake Huron, along the coast of Lake Superior from Michipicotin to Red Rock, on St. Ignace Island and on the east coast of Lake Nipigon (Macoun).

Fig. 1881 represents a flowering plant. The upper surface of the leaves is covered with numerous glands which secrete a sticky fluid that is poured out profusely whenever an insect or other nitrogenous body is brought continuously in contact with them; to this, at such times only, is added another fluid similar to the gastric juice of animals. When small insects alight upon the leaf they are detained by the sticky sub-





Fig. 1882.

stance always presented ; struggling to extricate themselves only makes matters worse by exciting the glands to a more abundant discharge. If they alight near the edge where the glands are less numerous, this part of the leaf gradually rolls inward to cover its prey. If the creature be too large to permit of that, it is pushed into the middle where the glands are abundant. The only movement is that made by the leaf margin, it is not rapid, it is slow ; if it folds over the insect it will remain in that position until its prey has been digested and absorbed, which is usually completed in 24 hours, when it forthwith moves back to its normal position.

There is something almost startling when told that a member of the vegetable king-

dom is endowed with sensation, a seemingly voluntary power of motion, and digestion through the secretion of a digestive fluid like that of animals. What becomes of the vanishing line between the animal and vegetable kingdom ? Doubtless our *Pinguicula vulgaris* received its name of Butterwort from being greasy to the touch ; but far more than a century ago its leaves were used in dairy farming to produce the same changes in milk that are now brought about by the use of rennet, so that its association with dairy products is more than fanciful.

The movements made by the members of the Sundew Family are more striking, especially those of the leaves of Venus Flytrap, *Dioncea Muscipula*, which is not found north of eastern North Carolina. Nevertheless, the process of capturing small animals by those members growing in Canada is very interesting. Upon the upper surface of the leaves of these plants are numerous delicate wine-red filaments, tipped with a tiny round knob, bearing a fluid droplet. These filaments are of unequal length, resembling a number of small pins thrust into a cushion to unequal depths, the shorter in the centre the longer at the margin. Each leaf is said to contain about 200. The ball-shaped knob is a gland that secretes the tiny droplet which is transparent and sticky, sufficiently cohesive to be easily drawn out into threads. This droplet glittering brightly in the sunlight much resembles a dewdrop, hence the name Sundew. When an insect or other organic nitrogenous body touches any of these glands they at once begin to discharge a true digesting fluid such as is secreted by the leaf-glands of the Butterwort, and having the same properties as the gastric juice of the animal stomach.

Doubtless, many insects are deceived by the glittering droplets, mistaking them for honey, become entangled among them by reason of their adhesiveness, and in endeavoring to escape cause the glands to give

out a more copious effusion and set the filaments in motion. The filaments to which the insects adheres begin to bend inward, much as we bend a finger into the palm of the hand. When this has bent down so that the prey is brought to the surface of the leaf, the filaments nearest to it will bend in the same manner, and when these touch the surface others adjoining follow, and this sort of movement by detachments is kept up until all the filaments are bent down.

Fig. 1883 shows a leaf with half of the filaments bent over the captive, and one where they are all inflexed towards the middle. These are both magnified, and illustrate the movement when the insect has been captured by one of the filaments on the margin of a leaf of the round leaved species, by which it is necessarily brought into the centre. It must often occur that the capture is made by a filament other than one on the margin, but, whatever the position, the incurving filaments never fail of their aim. If two are captured at the same time the filaments divide into two groups. Indeed all these movements vary according to the needs of the movement, so that the purpose to immerse the prey in an abundance of digesting fluid never fails of accomplishment. The filaments are also endowed with discrimination, for if grains of sand or other non-nitrogenous bodies come in contact with the glands, though secretion is increased, no pepsin is discharged and no bending takes place. As soon as the prey has been digested the filaments resume their former position, the time occupied in absorbing the nutrient portions varying with the size of the captive. It is surprising to find that they capture so many and so large insects, not midges only, but ants, flies, small butterflies, dragon flies, these larger being secured by the co-operation of two or more leaves. The remains of thirteen different insects have been found upon a single leaf.

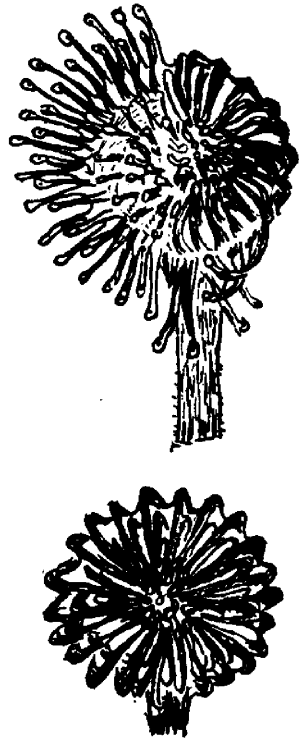


Fig. 1883.

A brief mention of the several Canadian species of Sundew will close this paper.

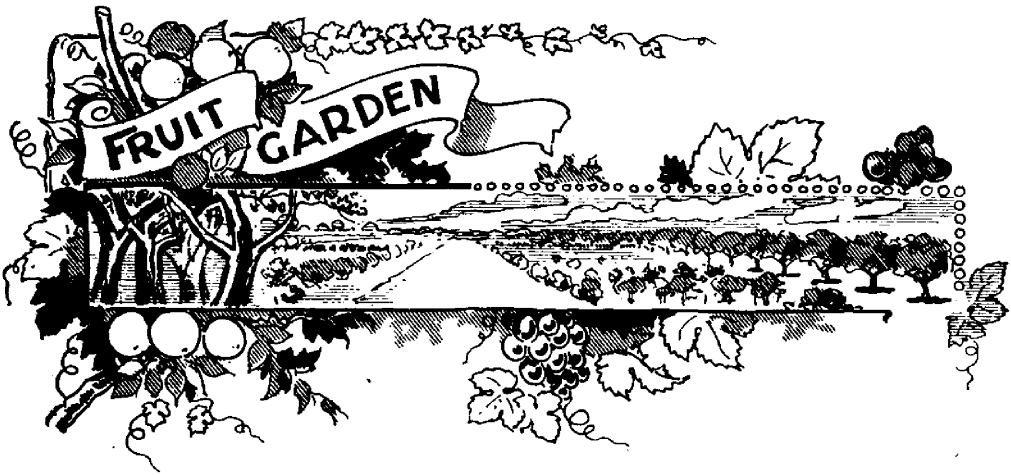
*Drosera rotundifolia*, Round-leaved Sundew, grows in bogs and marshes from the Atlantic to the Pacific. See Fig. 1882, natural size. *D. intermedia*, Spatulate Sundew, in bogs and margins of lakes throughout Quebec and northern Ontario to Manitoba. Both of these are abundant in mossy beds bordering Holland River west of Newmarket.

*D. longifolia*, Oblong-leaved Sundew, in boggy ground along the shores of Lake Huron, Bruce peninsula, Manitoba and British Columbia (Macoun).

*D. linearis*, Slender-leaved Sundew, in marshes of Lake Simcoe, Chicken Bay, McLeod's Harbor and Cockburn Island, Lake Huron to Manitoba and Rocky Mountains.

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## FRUIT CULTURE.—VI.

### THE CHERRY.

**T**HIS fruit has been receiving deserved attention in southern Ontario during the last few years, although its full value as an orchard crop has by no means been fully recognized. Broadly speaking, there are three types,—the sweet cherries, including Bigarreau and Heart varieties; the sour, including Morellos and the Kentish varieties; and the Duke class, the varieties of which comes half-way between the sour and sweet types, having a growth corresponding more to that of the sweet cherry, but fruit of an acid or sub-acid character. In southern Ontario, and where the tender varieties of the Dominion plums succeed, the sweet cherry and the Dukes will be satisfactorily cultivated. Outside the peach limit, however, it would be advisable to have a northern exposure. Most varieties of the Morello type will thrive with proper care over the larger part of Ontario.

**SOIL.**—While many of the fruits already treated of will succeed in a variety of soils, providing proper drainage is given, the cherry is particular about its location. A

warm, sandy or gravelly soil, rich and well drained, is the ideal spot. If planted on heavy or wet lands it may do fairly well with extra care for a short time; but real success cannot be achieved and the tree will not live many years.

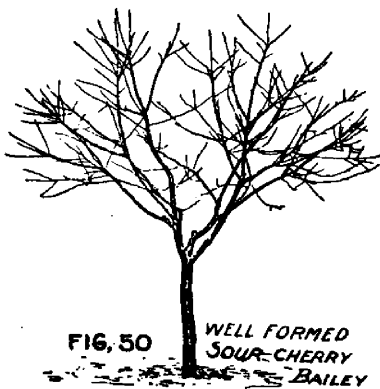
**PLANTING AND PRUNING.**—The sour cherries may be planted about eighteen feet apart, the Dukes twenty, and sweet cherries at least twenty-five. Even a sour variety, like the Early Richmond, would probably be better twenty feet apart. Fig 49 is from a photograph of an Early Richmond orchard ten years old, and sixteen feet apart, and it will be seen that the trees even now need room. The cherry, of all fruit trees, is the most difficult to transplant successfully. The general experience is that more losses occur than with the planting of any other kind of tree, and it will decidedly pay to buy one-year old trees. The method of pruning the first two years is much like that employed for the apple. The Duke cherries are very upright growers, and the young shoots should be pruned to an outside bud,



and the head somewhat opened up. The sour cherries, on the other hand, are inclined to be drooping and spreading in habit, and the tendency must be corrected as early as possible. See Fig. 50. The head once formed, little pruning of the cherry is required. In fact, the less the better, as a good deal of gum exudes from the pruned parts, and the wounds heal less easily than those of other trees. The sweet cherries may be headed slightly higher than the

Dukes or sours. Fig. 51 illustrates a crotch the evil of which will be remedied by removing the branch at A in Fig. 52.

**CULTIVATION AND MANURING.**—The general system of tillage and manuring advocated for other fruits will apply also in the case of the cherry. People who have been accustomed to grow the sour cherry in sod along their fences have little conception what this fruit will do when generously treated. The orchard in Fig. 49, comprising now about one hundred and forty bearing trees, commenced to fruit in the fourth year, and has not failed to produce a crop since. Since that time it has received one heavy coating of manure, a good crop of crimson clover plowed under, and two applications of unleached wood ashes at the rate of eighty bushels to the acre. No weeds have been allowed to grow. No plowing was done in the past spring, the disc harrow working the ground from the trees and a fine-toothed harrow doing the rest of the work, with the exception of a



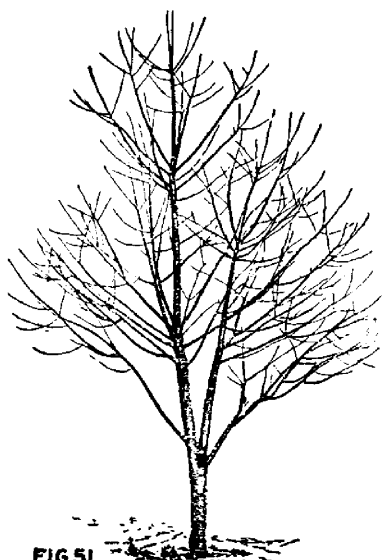


FIG 51  
Windsor cherry, four years set.

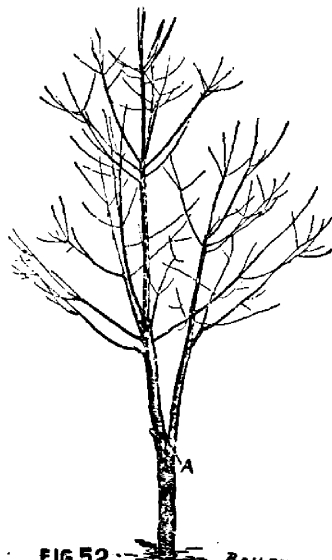


FIG 52  
The tree pruned.

little hoeing round the trees. Three hundred and forty baskets of fine fruit were taken off the last season, and practically no rot or wormy cherries in the whole orchard. The only poor row was the one next to the fence, where cultivation could only be given on one side of the row.

VARIETIES, IN ORDER OF RIPENING.—For the colder sections of the Province, *Early Richmond*, *Montmorency*, *Ostheim*, *English Morello*. All of these are sour and of high value for preserving and cooking purposes. *Montmorency* is a firm cherry, of good size, and of a more upright growth than the *Richmond*. (See Fig. 53.)

For districts where the thermometer seldom goes lower than  $15^{\circ}$  below zero, the above varieties for sour; and, in addition, *May Duke*, *Black Tartarian* and *Windsor*. Extensive planting of the sweet varieties is not recommended till more is known about their hardiness. Professor Hutt, of the Ontario Agricultural College, is now testing a large number of these varieties. For southern Ontario, *Early Richmond*, *Montmorency*, *English Morello*, *May Duke*; Sweet varieties, *Governor Wood*, *Black Tartarian*, *Yellow*

*Spanish*, *Knight's Early Black*, *Napoleon Bigarreau* and *Windsor*.

DISEASES.—Mildew, black-knot and rot (*Monilia*). Mildew of the leaf, (especially affecting the younger trees of the sour class). For this, spray with Bordeaux mixture. Black-knot, affecting sour cherries chiefly, systematic cutting out and burning. Rot, principally affecting the sweet cherries; this is the great drawback to the culture of the sweet cherry. One spraying with Bordeaux mixture before the blossoms open, and two or three after they have fallen, will generally keep the crop fairly free from rot. In a wet season it is impossible to prevent it altogether. *May Duke*, *Yellow Spanish* and *Napoleon Bigarreau* are especially liable to rot.

INSECTS.—Curculio, black aphid, and sometimes the peach borer. The best remedy for the black aphid is tobacco water, one pound to three gallons, and one quarter pound of whale oil soap added, or one pound whale oil soap to seven gallons water, mix hot. Kerosene emulsion, if used, should be strong—one to seven or eight. The applications must be early and thorough.



### THE QUINCE.

The history of the quince carries us back as far as the early days of Greece. An ancient, and always a highly-esteemed fruit. Judging from the prices of the last few years, the quince appears to have fallen from its high estate. The Greeks and Romans considered it to be possessed of special

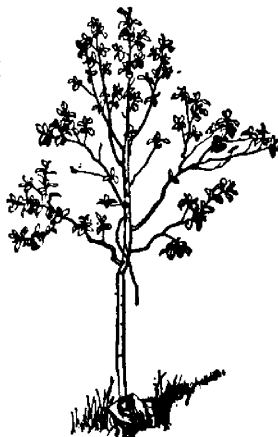
health-giving properties. The modern quince grower would doubtless like to persuade the public of the truth of this, and would gladly see a little of the money that is spent on patent medicines devoted to the purchase of quinces. At all events, there will always be a fair demand for good samples of this fruit, and every farmer should have a tree or two for his own use. For jellies, and for preserving with other fruits, it has a high value, and can be easily and cheaply grown.

**SOIL.**—The quince can stand more neglect than most fruits, and usually gets all it can stand. It is a popular belief that a low, wet corner, unfitted for anything else, will make an appropriate home for a quince tree. Nothing could be farther from the mark. It should have a rich, deep, mellow soil, and well drained at that.

**PLANTING, ETC.**—Two-year old trees should be planted, and at a



**FIG. 54**  
Neglected Quince-Tree.



**FIG 55** THOMAS  
Well-Pruned Quince-  
Tree



FIG 56

BAILEY  
New York quince trees.

distance of twelve feet apart. The tree should be shaped with a very low head, the pruning being merely the thinning out of the centre, the removal of all suckers and an occasional cutting back to keep the tree from getting a straggly appearance. Some people grow them in bush form. If this is done, only three or four main stems should be allowed to grow. The accompanying Figs. 54 and 55 will illustrate the matter. Where old trees have been neglected, they should be thoroughly pruned on the lines indicated, and have a good dressing of manure worked in around the roots in spring. When the trees are in full bearing, cultivation becomes difficult on account of the closeness of the trees and their spreading character. The quince orchard may then be seeded down, but pruning must not be neglected, and a top-dressing of manure should be given every second or third year.

VARIETIES.—*Champion*, *Meech's Prolific*

and *Orange* are good quinces of the large, round, orange type. The *Pear* quince, as its name indicates, is pear-shaped. It is a more solid fruit than the others, ripens later, and is somewhat smaller. If well manured and thinned it will give excellent results.

DISEASES.—Blight and "red rust" are the worst diseases affecting the quince. The latter is the same fungus that in the earlier stages is known as the "cedar-apple" of the red cedar. Spraying with Bordeaux mixture will assist in controlling it, but were practicable it would be advisable to cut down cedars near the quince orchard.

INSECTS.—The borer and quince curculio are sometimes injurious. The former is the round headed apple borer (*Saperda Candida*) and is referred to in the 1897 Institute Report, p. 180. The curculio can be trapped by the "jarring" method.

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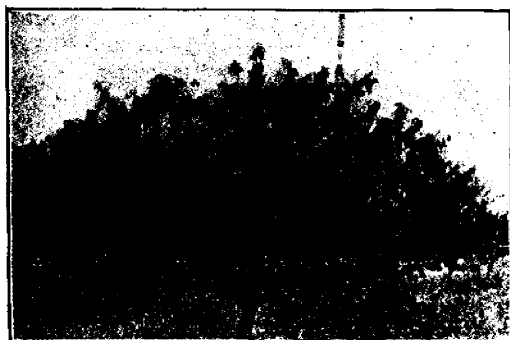


FIG. 1884

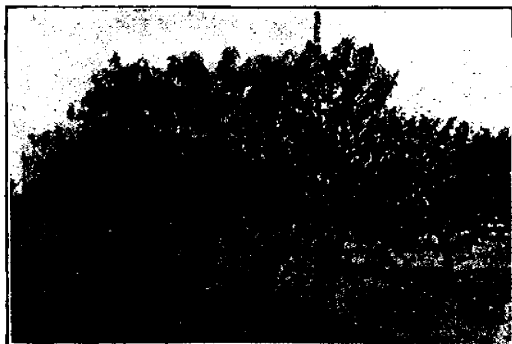


FIG. 1885.

## THE PREVENTION OF LEAF CURL.

CORNELL Bull., No. 180, gives results of experiments in trying to control this evil of the peach tree. These tests were made in 1899, and the varieties treated were Elberta, Crawford, Hill's Chili, Brigden, Mountain Rose, etc.

Murill, the experimenter, gives the following as his conclusions :

There is no good reason for giving up the Elberta or any other variety of peach sensitive to leaf-curl, as the disease can be controlled by spraying at trifling expense.

Of the three substances employed as fungicides in these experiments, the Bordeaux mixture is the most useful ; and, though several different strengths of this mixture have been found nearly equal in efficiency the past season, for the early spraying a strong solution is recommended. When Bordeaux of good strength is used early and a season of warm, dry weather follows, continued as late as the middle of May, a second spraying is not profitable ; but if the weather is cold and wet, it is well to spray again with Bordeaux after the petals fall, using only two pounds of copper sulphate (with excess of lime) to fifty gallons of water, for, notwithstanding some statements to the contrary, the foliage of the peach seems sensitive to stronger solutions.

The treatment, then for the prevention of peach-leaf curl based upon my own and other experiments is briefly as follows :

1. Spray with Bordeaux consisting of 6 lbs. of copper sulphate, 4 lbs. of good quick-lime, and 50 gals. of water about the first of April, when the buds are beginning to swell.
2. Spray again when the petals have

fallen with Bordeaux consisting of 2 lbs. of copper sulphate, 2 lbs. of good quick-lime, and 50 gals. of water. If the weather of April and early May is warm and dry, this second spraying may be omitted.

Lime or copper sulphate alone with water have been almost as effective as Bordeaux the past season when used for the first spraying and followed later by Bordeaux, but their effects are not so lasting ; particularly in rainy weather, and, whether the season is favorable or unfavorable, the second spraying with Bordeaux should not be omitted when lime or copper sulphate are used alone for the first.

At the Ohio Agricultural Experimental Station, investigations of plant diseases have been carried on since 1891, beginning with apple scab, and extending over various other fungi. Since 1895, experiments were tried with the object of checking the curl of the peach, and in 1897 a considerable portion of the foliage of the peach trees was saved, and in 1898 it was conclusively shown that Bordeaux mixture was most effective against leaf curl.

Our readers in Ontario who are peach growers will be especially interested in these two illustrations, because of the importance of the Elberta as a market peach, which has often shown itself so susceptible to leaf curl that the crop has been spoiled for the season. But if we can depend upon spraying to keep this fungus in check, we may continue planting this variety with confidence.



## PRUNING ORCHARDS.

**D**URING several years the Illinois Experimental Station has been conducting experiments in pruning fruit trees. These investigations show us that the pruning of apple trees is too little practiced by fruit growers generally. It seems well, therefore, to say a few words on the subject at the present time.

Pruning is the removal of superfluous branches, thus allowing a free circulation of air in the tree tops ; and admitting light to the remaining inner branches of the tree. Its object is simply that of securing more and better fruit. When trees are left to themselves the branches crowd one another and do not give sufficient room and sunlight and air for the developing of fruit on the inner branches. Moreover, fruit which is developed on unpruned trees can not be readily protected from apple scab and codling moth, as well as other diseases and insects. The cost of spraying is much less in point of time and material saved on trees which are judiciously pruned. Cultivation, too, is carried on with greater ease and effectiveness in the pruned orchard. Harvesting of fruit also is greatly facilitated in those trees which are properly pruned.

The ideal pruning is that which commences in the nursery rows when the trees are a year old and continued each year until the trees have served their usefulness in the orchard where they have borne fruit for many years. It is therefore an operation which commences with the nurseryman, and it is his office to see that the trees are symmetrical and with limbs at the proper distance from the ground. The best, and in fact the common way with the majority of nurserymen is to remove, just after they have started, the buds which are found below the point where the head of the tree is

to be and other undesirable places. This is readily and quickly done by rubbing off these young shoots or buds with the hands. It may be necessary to repeat this operation during the first one or two seasons. The second season when the trees are transplanted remove all superfluous limbs close to the body of the tree with a sharp knife, cutting back the remaining three to six fully one-half the previous year's growth. This is the time when the orchardist should receive the tree, yet it is common practice to wait until the plant has attained its second or third year. In any case, the year the trees are finally set in the orchard they should be well headed in, cutting to a bud, which on upright varieties will be left on the inside. This bud is to form the new limb and take its place with its fellows in forming the main branches of the tree. If one desires higher headed trees than those which the nurseryman has to furnish he simply needs to take up a leader, starting the head at the desired point and removing the lower branches. Each year after the trees are planted they should be gone over carefully, and a limb removed here or there, the object being to prevent rubbing of branches and to allow the top to be free and open. The best time to do this, all things considered, is during the months of March and April. The orchardist has more leisure at this time, the limbs can be clearly seen against the sky and the tree does not suffer as it does when wounded during the cold months.

As stated above, the best pruning is that which is done with the hand by rubbing off the buds before the undesirable limbs have had an opportunity to develop to any great extent. If the operation is repeated each year there will never be any large limbs to remove ; at least a saw will rarely be re-

quired. Wherever possible the pruning knife or pruning shears should be used instead of the saw. Try to make as smooth a cut as possible. After the orchard has been gone over with respect to pruning, all wounds left thereby should receive a coat of white lead paint which has been mixed with linseed oil. There are many other materials used for this purpose, but our experiments here seem to show that white lead paint is the most desirable from the point of expense and efficiency.

#### ORCHARD FERTILITY.

The notion prevails in the minds of many apple growers that apple trees do not require as much plant food proportionately as do other crops. That this notion is wholly erroneous is shown by the result of carefully conducted experiments of Roberts published in Cornell Bulletin 103. These show that the growing of thirty-five apple trees per acre, which makes the distances between trees thirty-five feet, in twenty years production of foliage and fruit, averaging ten bushels per tree, requires plant food in the form of nitrogen, potash, and phosphoric acid in value amounting to \$207.45. This twenty years commences with the time the trees are thirteen years of age, continuing until they are thirty-three years old and it is assumed that during the five years from thirteen to eighteen they would average five bushels per tree per year, ten bushels per tree per year during the next five and fifteen bushels per tree per year during the remaining ten years. This, however, does not take into account the enormous amount of fertility which was required to develop the great amount of wood represented by thirty-five trees per acre. Compare this with the amount of fertility removed by a wheat crop. In twenty years cropping with an average yield of fifteen bushels per acre and seven pounds of straw to three pounds of grain, the total value is \$128.23 removed in the

shape of nitrogen, potash, and phosphoric acid, or \$79.22 less than that required to supply the waste in fruit and leaves of the apple orchard.

No intelligent farmer would expect to grow wheat on the same area for twenty years without the best of cultivation and fertilizing; yet everywhere we find apple growers asking their soil to support a much greater drain than wheat would cause. It is known that some fruit growers are asking their land to support apple trees for forty years in addition to annual secondary crops, and this, too, without giving manures or even cultivation.

The question of the fertility of orchard soil is one which has hitherto received little or no attention from Illinois fruit growers. This is largely because of the fact that throughout a large portion of the state the soil is exceedingly rich in plant food. In fact, a considerable area, especially the central portion, is so rich in the elements of plant food as often to cause an excessive growth of the woody portion of the tree, thereby diminishing its fruit production. On this account few growers of orchard fruits in what is termed the corn belt of the state would think for a moment of applying fertilizers to their orchard soil. This, however, is no reason why the fruit growers in the southern third of the state or in parts of northern Illinois should think that their soil can be uniformly productive without the application of some of the elements of fertility either in the form of applied manures or by the growing of green crops. After a careful study of the question we are thoroughly convinced that there are hundreds of apple orchards in this state which are literally starved to death. In other words, these orchards are on soils whose fertility has either been exhausted or made unavailable by injudicious management.

At this point it is necessary to define what is meant by the word fertility. In its broad-

est sense fertility is a word used to designate the productive power of the soil. This productive power may be due in large measure to the physical condition of the soil rather than to a liberal supply of the chemical constituents necessary for great productivity. Or on the other hand a soil may be wholly unproductive yet contain excessive quantities of plant food, because of the poor physical condition of the soil. All this means that the plant food within the soil counts for nothing if the plant can not get it. We have already emphasized the importance of thorough tillage for making available what plant food there is within the soil. Yet as above stated, even with the best management of the soil in this particular, it may still lose so much plant food that it is necessary to supply commercial fertilizers or other manures.

Of the thirteen elements which the soil may contain and which may be used by plants, only three are ever lost in such quantities as to make their restoration necessary. These are nitrogen, potassium, and phosphorus. Of these three the one most readily lost is nitrogen. This element, which comprises four-fifths of the air, combined with other elements becomes available to the plant. It is the element which is responsible for the rapid development and early formation of our apple trees and other plants. Phosphorus, in the form of phosphoric acid, is necessary in order to give strength and firmness to plants and, next to nitrogen, is, all things considered, the most important element of plant food. While needed only in relatively small quantities by plants it is lacking in many soils. Potash comes next to phosphorus in importance and is the most important constituent for fruiting plants, at least those that are expending their energies in that direction.

*Nitrogen.*—The yellowing of the foliage and stunted appearance of the tree is a pretty sure indication that the soil is deficient in

nitrogen. An insufficient supply of nitrogen tends to dwarf plants. Good stable manure, if well taken care of, that is, not allowed to leach by rains, will supply to the soil liberal quantities of plant food.

*Other sources of nitrogen for plant compounds.*—Sodium nitrate is the most important commercial fertilizer containing nitrogen. A hundred and twenty-five pounds of this salt would probably be the minimum amount per acre. But its use is advisable only after other means have failed. This might also be said of barn-yard manure. By all means the cheapest way of securing nitrogen is by thorough tillage, which increases or hastens nitrification, and by green manuring. If these two latter methods are practiced there will rarely ever be occasion to resort to commercial fertilizers.

By green manuring is meant the growing of some crop in the orchard, especially those leguminous or nitrogen forming plants, which, when turned under and decomposed, add nitrogen and other food material to the soil. The greatest good, however, derived from this operation is the addition to the soil of large quantities of humus or decaying vegetable matter which greatly improves the physical condition of the soil, thereby increasing its power to hold plant food and moisture. What crops are most advisable for this purpose depends almost entirely upon soil and climatic conditions. They are usually confined to some of the clovers, peas, beans, vetches, or lupines. Wherever clovers or vetches succeed well they should be used.

These leguminous plants are enabled to take up the free nitrogen of the air by virtue of small nodules or tubercles formed on their roots as a result of the activity of microscopic forms of life known as bacteria. It is now clearly known that if these organisms are not present in the soil the leguminous plants are unable to use the nitrogen of

the air. As a result of this, soil inoculation is often resorted to. This simply consists of taking soil where these plants are found to grow luxuriantly, and have an abundance of the tubercles above referred to, and sowing the same on a new area, a few handfuls of soil often sufficing for an acre of ground. The exact physiological process gone through with by plants in securing this free nitrogen is not definitely known.

*Phosphorus.*—Phosphoric acid is applied to the soil as a direct fertilizer in the form of superphosphates, bone compounds, etc. Dissolved South Carolina rock is a common commercial form of this manure. Usually, however, if soils are well cared for this element will not be lacking.

*Potash.*—Potash may be secured in the form of muriate of potash, which is probably the most reliable. Kainit or German potash salts and wood ashes are other forms of this commercial fertilizer, for the bearing orchard at least. Five hundred to seven hundred pounds of muriate of potash, or

forty or fifty bushels of wood ashes, is a dressing per acre for orchards.

The following formula is suggested :

|                         |             |
|-------------------------|-------------|
| Ground bone .....       | 100 pounds. |
| Acid phosphate.....     | 100 pounds. |
| Muriate of potash ..... | 100 pounds. |
| Nitrate of soda.....    | 125 pounds. |

This amount per acre applied in the spring-time and either plowed under or disced into the soil will be found sufficient for those orchards bearing annual crops of fruit. The above formula, however, should be supplemented by special fertilizers or otherwise varied to suit any particular orchard whose soil conditions are peculiar to itself.

It should be understood that this discussion does not encourage the use of commercial fertilizers. There are instances, however, where these must be resorted to. Orchardists should largely confine themselves to cultivation and green manuring for supplying the necessary plant foods.—From Bulletin 55, Illinois Agric'l Exp'l S.

## RULES FOR JUDGING FRUITS, WITH A SCALE OF POINTS.

### GENERAL RULES.

1st. In all cases the judges are to be governed by the letter and spirit of the schedule under which exhibitors have made their entries, the general appearance of the fruit, care in its selection, and taste displayed in arrangement or grouping, each entry being distinctly separate from the rest. These are all elements of the highest importance, and should receive appropriate consideration by the committee.

2nd. In every group, whether the single plates, threes, fives, tens or larger collections of fruit, there should never be more than one plate of any variety in any one group. List of names of varieties contributed shall accompany each group, and must

be attached to the entry card, and have a corresponding number and designation, with or without exhibitor's name, according to rule.

3rd. The same plates of fruit cannot compete for different prizes, though the several entries for the best ten, five or other numbers, and the best plate, may embrace the same varieties, but not the same plates of specimens; in each case they must be duplicates, and in sweepstakes they will count a single variety.

4th. When the schedule prescribes the number of each kind, usually three or five, to be placed on exhibition, not less than the exact number must be presented.

5th. In general collections of fruits by

individuals, counties, or otherwise, when the several species of fruits are specified in the schedule, they must all be presented, or the collections may be passed by the committee.

6th. In all cases, but more especially in the display, or greatest and best collections, number of varieties is the prima facie test of superiority, other things being equal; but quality, relative value, their perfect condition and tasteful appearance, will be considered, and should rank thus, respectively: 1. Number. 2. Quality or Value. 3. Condition, approaching perfection. 4. Taste in the Display.

7th. Unless there are special rules to the contrary the general rules that govern the exhibition of fruit shall apply to the exhibition of flowers. For collections, viz.: Roses, palms, etc., not more than three of any one variety will be allowed in any one collection. In judging collections two plants of different varieties shall rank equal to three of one variety. To illustrate. On a scale of ten—

|  |    |
|--|----|
| No. 1 may have 100 plates, the largest collection..... | 10 |
| Quality, some inferior varieties.....                  | 5  |
| Condition of Fruit, rather poor.....                   | 5  |
| Taste in Display.....                                  | 5  |
| <hr/>  |    |
| Total .....  | 25 |
| No. 2 may have ninety plates.....                      | 8  |
| Quality, superior in most.....                         | 8  |
| Condition of Fruit, perfect.....                       | 10 |
| Taste in Arrangement, good.....                        | 8  |
| <hr/>  |    |
| Total .....  | 34 |

No. 2 would, in this case, take the premium.

In the case of single plates of the several kinds named, or in a competition for the best plate or basket of any kind of fruit, we may consider condition, form, size, color and texture, with flavor. On the same scale we have two entries to decide, thus:

No. 1.

|                                   |    |
|-----------------------------------|----|
| Condition, perfect.....           | 10 |
| Form, abnormal.....               | 8  |
| Size, overgrown.....              | 8  |
| Color, Perfect.....               | 10 |
| Texture and Flavor, superior..... | 10 |
| <hr/>                             |    |
| Total .....                       | 46 |

No. 2.

|                                  |    |
|----------------------------------|----|
| Condition, stem lost.....        | 8  |
| Form, perfect.....               | 10 |
| Size, uneven.....                | 6  |
| Color, too pale.....             | 6  |
| Texture and Flavor, insipid..... | 5  |
| <hr/>                            |    |
| Total .....                      | 35 |

This scale might be used in deciding between any number of single plates of designated varieties competing with one another for the best plate of any kind, or for the basket premium with assortment of single variety, according to the words of the schedule.

SPECIAL RULES.

The judges shall have an ideal standard of perfection in all cases, made up of the following particulars:

1st. The condition and general appearance of the fruit, which must be in its natural state, not rubbed or polished, specked, bruised, wormy, nor eroded; with all its parts, stem, and calyx-segments well preserved, not wilted or shriveled, clean.

2nd. The size, in apples and pears particularly, should be average, neither overgrown nor small. The specimens should be even in size.

3rd. The form should be regular, or normal to the variety, and the lot even.

4th. The color and markings, or the surface, to be in character, not blotched nor scabby.

5th. When comparing different varieties, and even the same kind grown on different

soils, the texture and flavor are important elements in coming to a decision. 5 points.

In the class Peaches, plums, etc., the important elements are size, form, color, flavor and condition. 5 points.

In Grapes we must consider and compare the form and size of the bunches, the size of the berries, their color, ripeness, and flavor and condition. 3 points.

In Currants we shall have to examine the perfection and size of the bunches, and of the berries, their flavor and condition. 3 points.

In Gooseberries we shall look at the size, color, flavor and condition. 4 points.

In judging Cherries we have as our guide the size and form, color, flavor and condition. 4 points.

In judging Strawberries we shall compare the size and form, color, flavor, firmness and condition. 5 points.

They shall be shown with stem and calyx.

Red Raspberries may be shown with or without the calyx. In this fruit we shall have to judge of the size, color, flavor and condition. 4 points.


Blackcap Raspberries must have size, color, flavor and condition. 4 points.

Blackberries must be tested according as they present size, color and form, flavor and texture, and condition. 4 points.

In all cases it is well to have a convenient scale of comparison, for which the number ten is found to be easily managed. The highest figure denotes perfection for the variety, and five is mediocre; below that is condemnatory. The total of the marks should exceed fifty per cent. of the possible number, or the entry must be passed as unworthy of reward.

Seedlings having once been presented and failing recognition under the rules of the Society, should not again be presented.—Report Nebraska State Horticultural Society.

## THE WESTERN NEW YORK FRUIT GROWERS.

 THE following questions and answers are from the report of the meeting of this body, which was held last January:

*Which are the most valuable Japan plums from a commercial standpoint?*

Mr. N. C. Smith—The best plums we have are the Burbank and Wickson for commercial purposes. Our experience has not been very broad with the Wickson—only three years. We find it produces an unusually good crop, provided it is thinned. We thin out to at least three-fourths. We have not determined whether it is a stand-by or not. The Burbank has proved very well, and we consider it one of the best. It is like growing Keiffer pears. We want to grow less in quantity and more in quality and get more for it. The Wickson is not so large and not so showy as the Burbank. A great many

who are growing the Wickson are not satisfied. I understand Mr. Willard is one.

Mr. Willard—I should say from my own experience that the Red June and Burbank are my most valuable varieties. The Red June, in consequence of its clear, cherry-red color, and of it ripening so early, (July 17th we had them this year), good size and fine appearance, sells extremely well. But, as Mr. Smith says, which is true of almost all, they need thinning. My experience with the Wickson has not been so flattering as Mr. Smith's, but the past year's was a little more in its favor. I know of no more productive variety, or one that pays so well as the Burbank. This year, where they were thin upon the tree, they grew so large that the canning factory didn't want them. Like the cherries I told you about, you could take several bites out of them. It is a very fine

canning plum, and sells well wherever I have put it, and it is the greatest producer in the way of Japan plum.

Prof. Van Deman—Do canners like Japan plums?

Yes, sir. I know of no plum equal to Burbank when canned.

Mr. Wood—Is the Burbank plum subject to the yellows?

Mr. Willard—We have never seen anything of it, and we have got probably 1500 trees of Burbank. We have them on both peach roots and plum. I would as soon have them on one as the other. Japan plums are not more exempt from curculio than other plums.

Prof. Van Deman—I think Japan plums will take yellows same as the peach, though not so badly.

Mr. Pillow—I expect the nurserymen to find fault with me, but speaking from the standpoint of the commercial fruit grower, in nine cases out of ten we don't want the Japan plum, because there are so many others better, like the Damson, German and French prune, and a long list of them, any of which are better than the Japan plum. They are tender and liable to be winter killed. You have got to thin them. We don't want them.

Mr. J. B. Collamer—I want the Burbank plum. I have a few of them and they have done well. From an acre and a quarter last year I picked and sold 223 bushels at a dollar a bushel. They are profitable enough for me.

Mr. Bogue—How is the Hudson River Purple doing in western New York?

Mr. Willard—It is subject to the black knot. We are grafting ours over.

*What encouragement is there for growing currants?*

Mr. Geo. T. Powell—I think the currant one of the most valuable small fruits that can be cultivated at the present time. There is only just one drawback to its cultivation.

Of late years it has been attacked by a number of insects. The currant worm I consider the least of the difficulties of currant culture, because that can be easily controlled. But there is an insect that has recently appeared, the tripeta. In some sections the fruit is absolutely worthless from the attacks of this insect. The stock-borer is another, but it can be controlled. There is a demand for currants since the legislation is looking towards the preservation of our pure foods from adulteration. The jellies that have so successfully imitated it are likely to be driven out. There have been years when the crop has not paid the cost of picking and shipping, but with the increased demand, except for the insect attacks recently coming, it stands to-day one of the most profitable for cultivation.

Mr. Willard—I grow a good many currants and concur with Mr. Powell in all that he said in regard to the profitableness of the fruit. I am sorry Mr. Barns is not in the room because he is one of the large currant growers, and I think he has found the business very satisfactory. My own impression is that a great deal lies in the growing of varieties especially productive and valuable on account of their market qualities. I doubt if some of the old varieties can be grown with a great deal of profit. I have been growing a variety known as the President Wilder, which I believe in every respect the most valuable we have ever grown. Its productiveness is double that of Fay's Prolific. Children picking by the quart at a cent a quart will double their wages on the President Wilder. Mr. Barns sold his crop in Boston at ten and twelve cents, while ordinary varieties brought five and six. The proof of the pudding is the chewing of the string.

A Member—What about the White Imperial?

Mr. Willard—We are speaking of commercial fruit. In point of quality I under-

take to say there is no currant can equal White Imperial as a table fruit.

Mr. Powell—I can indorse that statement, but I want to take exception to Mr. Willard's remark about the Fay. I think it varies in different localities and different soils. With me it is one of the finest and most productive on my place, and I have the President Wilder by the side of it. I have on some special test bushes had sixteen quarts of Fay Prolific on a single bush, and I would like to ask Mr. Willard if he can beat that?

Mr. Willard—No; I take in my horns.

Prof. S. A. Beach being called for, said—I am not prepared to speak on the question of currants from a commercial standpoint. I believe the White Imperial very excellent. The President Wilder is late; doesn't have to be marketed in a hurry. It is not quite as productive as the Cherry and the Fay, but a good grower. We have only a limited quantity on the Experiment Station grounds, and would not like to estimate it in a commercial way.

Mr. W. D. Barns being called for said—I hardly feel competent to answer the question, though we have grown currants largely along the Hudson river for twenty years. Fay's has been the standard for a number of years. It is weak in wood and falls early, and unless kept freely pruned they are apt to lie on the ground and become dirty. It is not a long-lived bush. The Cherry currant does not branch enough. The Versailles is smaller, and on the whole we consider it better for market. May's Victoria has been so far very profitable; not as large as either of the others, but later in the season. The bushes are hardier and it is a good grower. Of the old Victoria we have picked as high as eight quarts from a single bush in a favorable location. In regard to the Wilder and Prince Albert would say that the latter is the latest one to color of any; is different in habit and foliage, vigorous and productive, light color, but has been a good market

variety. The President Wilder we were among the first to set out, and from the first hundred plants we have received better returns than from any other. It is a strong grower; colors almost as early as Fay, will hold on longer, and is fit for market longer than any other variety. The North Star, Pomona and Red Cross we have not tested. The Wilder has averaged from one to two cents a quart more than the Fay or any other currant. We are now pruning our plantations for another year. Although the crop last year was heavy and prices were better than for three or four years, the promise now is as good as last year.

*The Windsor Cherry: What of its value as an orchard sort?*

President Barry—I will call upon my old friend Mr. Willard to open the discussion.

Mr. Willard—I am very glad for one that this question has been brought up in the form that it has. It may not be known to you all that to Ellwanger & Barry should be given the credit of having introduced this most valuable sweet cherry that has ever been given to the orchardist. I want to say to you that as a market fruit (we are talking of these things upon commercial lines), as a sweet cherry, there has never been one introduced that equals the Windsor. I believe I was one of the first to market this fruit, and wish to say I have a little row of them in front of my orchard that has been bearing three or four years; and assessed as high as that property is, which is far too high, that row of cherry trees has produced sufficient to pay the entire tax on that property—county, state, school, everything.

A member—How many trees?

Mr. Willard—Probably fifty. I said to my wife they were put out there for a purpose. The man who doesn't do things for a purpose cannot tell "where he is at." The purpose of my planting them was to pay the taxes, and they have done so. The



market demands a dark-colored cherry ; its value is higher than any sweet white cherry. The Windsor ripens at the time people want cherries. It is large in size, hard in flesh. Take a large one and you can take three or four bites out of it before you digest it. In 1898 the net price received per pound was ten cents, and in 1899 twelve cents a pound. I undertake to say that there is no cherry, as a market cherry, at the present time, that equals the Windsor.

Mr. Geo. T. Powell—Mr. Willard has left out one of the most valuable features of this of this fruit. He speaks of the value of the fruit, all of which I indorse, but he has not mentioned the exceedingly valuable quality of the tree. It is one possessing unusual resistance to disease. It is a very strong tree, constitutionally. Some of our cherries, the Black Tartarian or Black Eagle, are difficult to raise ; it is impossible to get an orchard to stand. They will grow two or three years and then are attacked by disease, and by five or six years you have a badly broken orchard. The Windsor cherry will stand side by side with the Black Tartarian, and when that goes out the Windsor shows no evidence of disease. Therefore, I prize in the Windsor cherry its ability to resist disease.

A member—What time does it ripen ?

Mr. Powell—In eastern New York it begins to ripen about the sixth to the tenth of July ; perhaps a little later in western New York.

*Is there any other new cherry of promise, commercially ?*

Pres. Barry—The Bing is a new one. Has any one tried it ?

Mr. Willard—Yes, sir ; I have tried it. The cions were sent to me from Oregon. I

have had it for three years, and it is one of the most beautiful and excellent cherries in every respect. It resembles the Windsor, but is a little larger. Some of them had a circumference of three to three and one-half inches, by actual measurement. I was so interested in fruiting the cherry that I referred to some works I had from the state of Oregon, and found it noted as one of the most promising new cherries they had seen, and I think it will bear out everything said about it there. I think a man who has that and the Windsor ought to be happy.

Prof. Van Deman—What is the best sour cherry ?

Mr. Willard—I think the Montmorency Ordinaire the best and most profitable sour cherry we have at the present time. The English Morello is also good.

*Are there any new peaches of special value for the orchardist ?*

FITZGERALD.

Mr. Anderson—I have a few trees ; got the buds in Canada. Last year we picked the first fruit, which proved to be insignificant. This year the same trees fruited finely.

Q. How does its size compare with the Early Crawford ?

A. It is not quite as long, but is a good, fine-sized peach.

Q. What is its season for ripening ?


A. I think a little later than the Crawford.

Mr. Willard—I saw it on Mr. Morrill's place, in Michigan, and it was very satisfactory. I have it growing, but have not yet fruited it. In hardiness of bud it is excellent.

Mr. C. K. Scoon—As to quality, I would say that it is more than good, it is superb, and equal to Late Crawford.

(To be continued.)

## HARDY CHERRIES.

T the recent meeting of the American Association of Nurserymen at Chicago, on the 13th and 14th of June, an interesting discussion took place on the most productive and hardiest of the Kentish and Morello cherries, from which we give the following extract :

Mr. N. H. Albaugh : In my opinion there are only three really A No. 1 sort of cherries that have been tested in all this western country and that will stand the cold and bear a crop even though the thermometer goes to 25 or 30 below zero, and those are the ordinary Early Richmond, the Dyehouse and the Montmorency. There is the advantage, too, that these three cherries come in succession, the Dyehouse coming first, then the Early Richmond, and then a week or so later the Montmorency, and the Montmorency is a cherry worthy indeed of planting.

Mr. Silas Wilson : A great many people are being misled, mixing up the Large Montmorency with the Montmorency Ordinaire and the Dyehouse. The Large Montmorency with me is an upright grower, rather stocky limb, very different from the Montmorency Ordinaire, which forms a head very similar to that of the Early Richmond, the fruit being much larger, but it does not come into bearing quite as early as the Richmond does. I can tell a Montmorency by its habit of growth, either in the nursery or in the orchard ; it has a larger and longer leaf and more pointed than the Montmorency Ordinaire. In regard to the ripening of the Dyehouse, I have fruited them for a number of years, as well as the Early Richmond, and it is safe to say that they ripened as much as four days earlier than the Early Richmond.

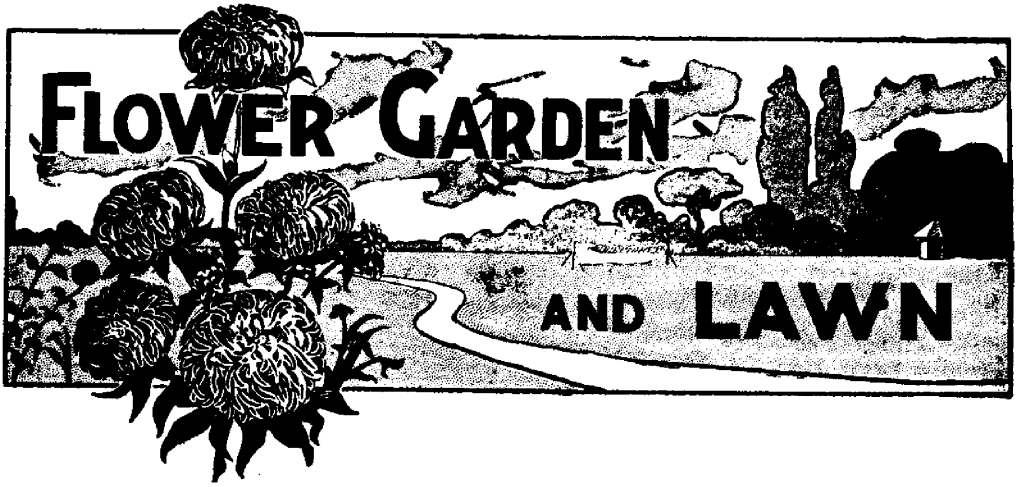
Being asked whether he considered the Dyehouse worth anything, Mr. Wilson said he did not consider it as valuable as the Early Richmond and the English Morello, and on the whole was not inclined to regard it as a great acquisition.

President Peters stated that in his section of the state the English Morello was considered of very little value, it being too slow about coming into bearing, and more likely to suffer from severe winters and curculio than most any other variety of cherry.

Mr. Augustine, of Illinois, stated that his objection to the English Morello was that during a warm, wet season the fruit was apt to become wormy before it ripened. The Large Montmorency, in his opinion, is the most valuable of the sour cherries in the west ; it is a much meatier cherry and the tree is a more vigorous grower than that of the Early Richmond and the cherry will bring one-third more in almost any market than the Early Richmond.

Mr. A. L. Brooke, of Kansas, said that in his state the sour cherry business is a very important business, and the Early Richmond has never been known to fail there. The Dyehouse is not considered to be of much account, as the tree is not hardy. The English Morello in Kansas bears itself almost to death, but it is not a hardy tree, the winters hurt it ; on the bottoms, especially, it will kill out in a very few winters.

Mr. Irving Rouse, of New York, said that the Montmorency cherry is the cherry for the canning factory and it will sell for more money than the Richmond or the Morello.



## TIMELY TOPICS FOR THE AMATEUR—VI.

**T**HE flower garden and lawn, especially the latter, usually presents a burnt up, rusty looking appearance during the month of August that is very discouraging to those who take a pride in having their gardens and lawns looking fresh and bright throughout the entire summer. Constant and copious waterings may keep the grass looking comparatively fresh and green, and relieve somewhat the general dried up appearance prevailing around; but the deficiency in color of foliage, and lack of flower on tree and shrub, is very noticeable on most lawns, at this the ripening season of the year.

The last sprays of bloom of the late flowering *Spireas*, such as *Spirea Douglasii*, *S. aurifolia*, *S. Bumalda*, and a few other varieties that are so useful in helping to brighten up the lawn during July, are now rusty and dingy looking. Even the useful purple leaved plum (*Prunus Pissardii*), and the purple leaved *Berberis* cannot retain the deep rich coloring of their foliage, if fully exposed to the burning rays of the sun. Many other of our colored and variegated leaved shrubs, also show the effect of the continuous hot-sun, and are unable to retain the beautiful color and markings of their foliage, that make them so attractive during spring, and early summer. When planting any of

these variegated or colored foliage shrubs, give them a place, if possible, where they are partially shaded from the mid-day sun,



FIG. 1886. SPIREA DOUGLASII.

as very few of them give the best results possible when fully exposed to the sun during the entire day.

The shrubby Hibiscus or Altheas are, without doubt, the most valuable flowering shrubs for lawn decoration during August, as they retain the rich, glossy emerald green of their foliage, and produce in profusion their large showy flowers during the hottest weather in August. Nothing but a severe and long continued season of drought seems to have any ill effect on these sun-proof hybrids and descendants of the Syrian Hibis-

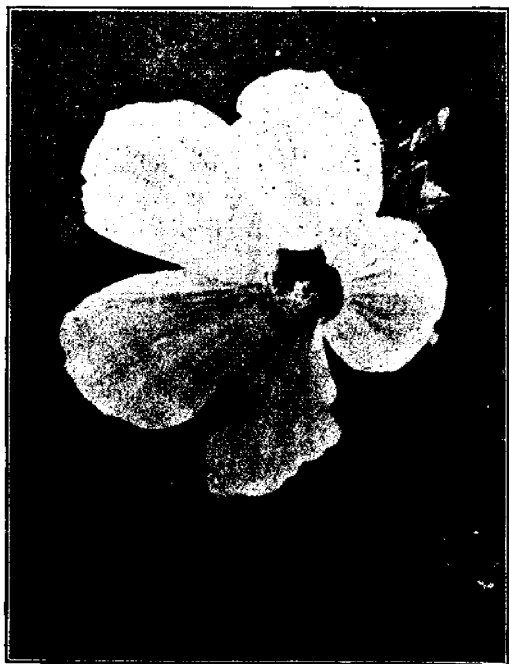


FIG. 1887. HIBISCUS INCANUS.

cus. These useful and beautiful shrubs will continue in flower well into September if given an occasional watering during very dry weather. Unfortunately, the different varieties of this Hibiscus, so far introduced, are not as proof against severe frosts, as they are sun-resisting in their character; as even in this locality they are sometimes partially killed back in winter, but soon recover, and make new growth very rapidly. As they flower almost entirely on the young growth made earlier in the season, this par-

tial frost killing does not materially injure them. Possibly, varieties may yet be introduced that will be sufficiently hardy to resist the severity of the weather in winter as successfully as the beautiful single and double flowering varieties we now have are in resisting the hot sun in summer.

The herbaceous species of the Hibiscus are of Californian origin, and are of special value, as they also produce their large funnel shaped flowers during the month of August. The variety Hibiscus Californicus, and *H. incanus*, the latter producing an almost pure white flower, are probably the best of the few varieties offered in catalogues at the present time.

Some of the dwarf growing Thuyas or Arbor Vitae are suitable for planting on small lawns; I do not consider them sufficiently bright and attractive for summer decoration, but they have a much better effect in winter when the ground is covered with snow, and the deciduous trees and shrubs are devoid of foliage. The beautiful dwarf golden tipped Cyperus (*Retinospora's*) from Japan, that are seen in such perfection on lawns in the south of England, are, unfortunately, not hardy in this section. None of the Abies or Pine family are really suited for planting on small lawns, as the annual and disfiguring clipping process they have to undergo to keep them sufficiently under control, entirely spoils the beautiful symmetrical appearance that most of these trees present, when planted out singly, and left to grow unmolested.

The *Aristolochia siphon* or Dutchman's pipe plant is a hardy useful climber for covering arbors, fences, rustic arches, etc., in summer, as its large glossy green foliage retains its beauty all through the summer. A strong point also in its favor is, that no insect injures to any extent its dense, closely overlapping foliage. In localities farther north, where this climber is of questionable hardiness it could be trained on wires dur-

ing the summer, the wires and vines could then be removed both together, laid down and covered up during the winter with leaves or straw. This method is also useful for shading windows, etc., in summer, as no time is lost waiting for the plants to make growth.

The *Ampelopsis quinquefolia*, or common Virginian creeper, is another useful hardy trailing plant that is often overlooked for something far less pretty and effective. The small white insect, the thrip, that attacks the outdoor roses earlier in the season, often attacks the Virginia creeper and other plants during the hot weather. A syringing once or twice a week with strong tobacco water, or a weak solution of Paris green water, will keep down these numerous and voracious little pests. The exotic climber, *Cobea scandens*, can also be used very effectively in various ways around and about the lawn during summer. Seeds or cuttings of this plant must be started in heat in April, or early in May, and kept safe from frost until June, when they can be planted out in rich, light soil and kept well watered. This plant stands the sun well, and has a decidedly tropical appearance, especially when covered with its large purple cup-shaped flowers.

There are many other plants that are sun resisting in their nature, many of them being natives of countries where tropical or sub-tropical climates prevail. Those persons having the advantage of a greenhouse to winter their plants in, have no difficulty with these natives of warmer climates; many of them can, however, be wintered successfully in the dwelling house, or even in a warm cellar.

The numerous family of Agaves, most of which are natives of the southern part of North America, chiefly Mexico, are very useful for outdoor decoration in summer. A few of these plants stood out in large pots or tubs, give a lawn a decidedly bright and

sub-tropical appearance. The two varieties mostly seen on lawns are the *Agave Americanus* that has plain, pale green leaves, and the variegated variety of the same species. Most of the Agaves are of very slow growth, but do not, as many suppose, take a century to reach maturity and produce their immense spikes, as many specimens of these so-called century plants have been known to flower many years before their age had reached the century mark. Some varieties of the Agaves flower annually for years in succession, but most of them, like the two varieties mentioned, produce their blossom and then die. Agaves like a light, fairly rich sandy loam to grow in, with plenty of drainage at the bottom of the tub or pot. Keep the roots moist, but not saturated with water in summer; in winter they require very little if any water. Our watering is often responsible for many failures with Agaves and similar plants of a succulent nature. No amount of sun has any bad effect on the heavy massive foliage of these natives of the south, when once they have become hardened, after having been kept perhaps in close, dark quarters during the winter.

Many varieties of the *Yucca* and *Aloe* family are easy to grow, and make very desirable plants for outdoor use in summer. They require similar treatment to the Agaves.

*Cannas* can also be used very effectively in different ways on the lawn in summer, their beautiful foliage, ranging in color from pale green in some varieties to dark purple in others, and their curiously marked orchid like spikes of flowers, entitle them to a prominent position amongst our sun-resisting, summer decorative plants. On small lawns where beds or mixed borders of foliage plants cannot be used, groups of *cannas* grown in pots or tubs, placed in suitable positions on the lawn, have a particularly pleasing effect. The roots of the *cannas*

should be started in April in small pots in the hot bed, or even in the dwelling house. In June, after all danger of frost is over, they can be transferred to the large pots or tubs and placed on the lawn. Cannas like rich soil and plenty of water in summer, for this reason the pots or tubs can be sunk to the rim in the soil; they will require less water treated in this way. In autumn, after the first frost, the roots can be packed in



FIG. 1888. MADAME CROZY.

earth in boxes and stood away in a dry, warm place until the following spring. The holes where the pots or tubs have been plunged during the summer can be filled up with earth, and spring flowering bulbs, or early spring flowering plants, such as pansies, myosotis (forget-me-not), or the hardy white arabis can be planted to brighten of the lawn in spring and early summer before the cannas can be stood outside safely.

Many other plants, such as the Ricinus, Caladium Esculentum, large plants of Geraniums, or some of the strong growing varieties of the annual Amaranthus can also be used in the same way as recommended for Cannas, but few of them will be found as effective or as easy to grow as are the Cannas.

Masses and beds of foliage and other plants are bright and pleasing features on lawns, but are not always obtainable, and are besides very expensive.

Groups and single specimens of Palms, Cordylines, Oleanders, Agapanthus (African Lily), and Japanese Lilies, etc., look very pretty on lawns in summer, but few of them, except perhaps the Oleander, can stand the burning rays of the sun during July and August, requiring partial shade at mid-day to be successful in growing them.

There are numerous other methods of utilizing plants for brightening up the lawn and surroundings, such as the use of rustic stands, window boxes, etc. To be successful with these the adaptability of the plants used for the different positions they are to occupy must be considered, so as to prevent failure and disappointment. Care in the selection of plants suitable for sunny or shaded positions is quite as necessary as it is to provide good rich soil for the plants to grow in.

**THE GREENHOUSE.**—There is very little routine work in the greenhouse, differing materially from that of July. Watering and syringing will have to be closely attended to, both with plants in the greenhouse and those outside in their summer quarters. Calla Lilies should be re-potted if they require it. Freesia bulbs may also be potted; five or six bulbs can be put into a 4-inch pot. Stand the pots outside for five or six weeks in a shady place, give only sufficient water to keep the soil moist; when growth commences more water can be given them. Easter Lily bulbs can be

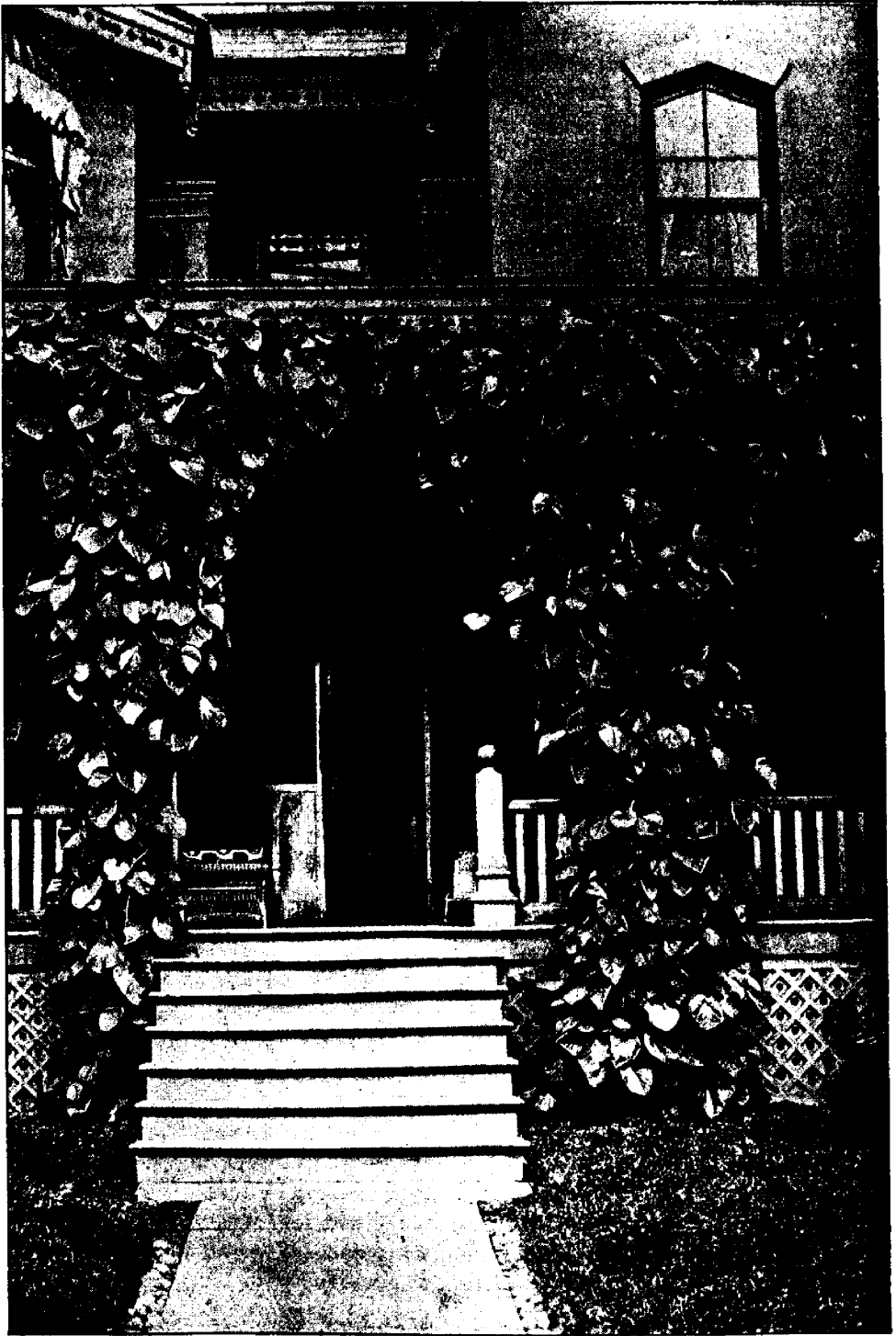


FIG. 1889. ARISTOLOCHIA.

potted now to ensure early flowering. Stand these outside and give them the same treatment as the Freesia. Pelargoniums should be cut back to within an inch of the old wood. After the plants show signs of growth shake them out from the old soil and re-pot them into smaller pots in rather sandy soil. Give them very little water until well established after re-potting.

Gloxinias that are out of flower may be gradually dried off. Bunch roses must be kept well syringed and the buds picked off.

FLOWER GARDEN. Watering and keeping down the weeds will be the principal work this month. Attend to staking and tying tall growing plants.

VEGETABLE GARDEN.—Celery and late

Cabbage will require plenty of water. Celery may still be planted for late winter use. A row or two of Beets may perhaps give better results if sown now than will those sown in July. Spinach sown now often comes in for use in fall, and will sometimes stand through the winter as well as later sown seed. The end of August or early in September is about the best time to sow Spinach that is wanted for early spring use. Clear off all plants from which the crop has been taken; the ground will be useful for Spinach, Celery, Radishes, etc. Keep down the weeds and draw a loose mulch of earth up to the roots of growing plants where possible; it helps them through the dry weather.

HORTUS, Hamilton.

## PREPARATION OF PLANTS FOR WINTER.

**P**LANTS intended for Winter flowering should be grown for that especial purpose. It is a mistake to think that plants not grown during the summer with this end in view can be made to do satisfactory work in the winter. As a general thing, plants flower best in summer, and if we let them have their way, they will bloom freely then and take their rest later on, when if we had our way they would be full of flowers. It will be seen, therefore, that we have to reverse the natural order of things, to a great extent, and oblige the plants intended for winter flowering to take what rest they receive during the season at the time when they would be producing flowers if left to themselves. This we must do, with most plants, if we expect them to make the window-garden attractive. We must look ahead—anticipate—and so treat our plants that they conform to our opinion of what is best for them. This they will do if we give them to understand that we expect them to be governed by us, for plants are generally tractable, but this they will not

do unless we hold fast to the treatment we set out with. Plants are like children. They are obedient when they know that we "mean it," but if our government of them is half-hearted and vacillating, they are pretty sure to take advantage of our lapses from authority and insist on having their own way.

Some persons tell me that they do not understand why a plant should not bloom in winter after having been allowed to bloom all summer. These persons have given the subject but little thought, or the reason would be apparent to them with but little effort. It is not natural for a plant to keep on growing and flowering the year round, any more than it would be for us to keep on working from week to week, without stopping to sleep or rest. True, we might get along with less sleep than we are inclined to take—indeed, we might accustom ourselves to get along with but very little, but such a practice would result in the lowering of the vitality of the system to such an extent that we would be utterly unable to do good



work, or a great deal of it. It is a law of nature that action must be followed by rest. After exhaustion, resulting from work, there must be an opportunity for recuperation, and this rest, this recuperation, can only take place under favorable conditions. If we try to rest amid noise and bustle, we only half rest. If a plant tries to rest amid conditions which prevail when growth goes on, it is never able to attain to that degree of relaxation which must accompany the phenomenon of perfect rest. In this respect men and plants are alike. "All work and no play make Jack a dull boy," they used to say, and the truth of the saying is just as pertinent to-day as it was years ago, and it applies to all animate things. Overwork prevents full development. It interferes with good work. Every expenditure of vital force must be made up for by a period of rest, in which the system is given a chance to get back to the condition it was in before the effort was made which brought on exhaustion. This law cannot be ignored without disastrous results in any line of life. But this law we constantly violate, and the result is debility, if not positive disease, and it is but a question of time, if the violation goes on, when positive disease must set in.

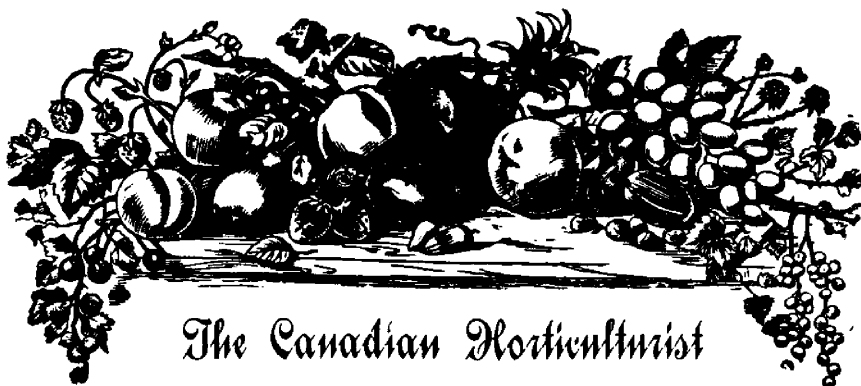
Hundreds of complaints similar to this one come to me during the year. "What can be the matter with my geraniums? They have hardly had a blossom on them this winter. They are growing, but I want flowers instead of leaves. They are good flowering kinds I know, because they bloom profusely all summer." Such a complaint answers the question asked in it, but the questioner does not know this. The fact that the plants bloomed all summer explains fully why they failed to bloom in winter. They exhausted themselves then, and they are obliged to take the winter to rest in. If the owner had kept them from blooming in summer, and had given just

enough water to keep them from drying up and no fertilizer to excite growth, and all buds had been removed as soon as discovered, the plants would have been nearly dormant and would have remained so until giving more water started them into more active growth. Then some good fertilizer could have been given, or they could have been repotted into fresh, rich soil, and by Winter they would have been strong and vigorous and anxious to flower. This is the treatment all plants intended for winter flowering should have. Keep them as nearly at a standstill during the summer as possible. Of course they will grow some. But whatever growth is made will be sturdy and strong, if slow, and they will come to their winter's work in the best possible condition. Most amateurs will see that this is almost opposite to the treatment they give their plants in summer.

The production of flowers exhausts a plant much more than the production of leaves. Therefore, it is very important that all buds should be removed at once, that all the strength of the plant may go into its branches. The ends of new branches should be nipped off from time to time during the season, to force the plants to branch, and thus become bushy and compact. The more branches there are the greater the number of blossoming points. Geraniums will need especial attention of this kind, because they have a tendency, if let alone, to grow up, up, up, and form tall, leggy specimens with few branches. Such a plant is never very pleasing, and it will have few flowers. But a properly trained plant will be compact and symmetrical, and often it will have a dozen or twenty clusters of flowers on it at a time. The superiority of such a specimen will be readily apparent to any one seeing it alongside a specimen of the untrained geranium.

E. E. REXFORD,  
in *How to Grow Flowers.*

*(To be continued.)*



## The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.  
SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

### NOTES AND COMMENTS.

THE CLYDE STRAWBERRY is said by some of our readers to be a poor shipper. They give it great credit as producer of fine large berries, but say that they are not firm enough to carry far in good condition. Is this a general complaint?

GILLETT'S LYE must be applied to the foliage of fruit trees with caution. At Maplehurst it was used early in June to destroy the cherry aphid, in proportion of one ten cent package to five gallons of water, and while it killed the aphid it also destroyed a great deal of the foliage.

CUMBERLAND RASPBERRY.—This raspberry fruited last year for the first time at the Michigan Experimental Station, and the report says of it: The plants are vigorous in growth and very productive. Berries large, firm, juicy and of a sweet rich flavor. This variety possesses such a combination of

good qualities as seem likely to make it a popular home and market berry.

ENGLISH GOOSEBERRIES may possibly be raised with success if carefully sprayed. Bulletin 77, Mich., says that all the English varieties, except Orange and Champion, bore good crops, having been sprayed twice with Bordeaux, and in June with potassium sulphide, three ounces to ten gallons of water. Those English gooseberries sold in Chicago at from \$1.25 and \$1.50 per sixteen quart case, which was about double the amount received for American berries shipped at the same time.

SOIL CULTURE, CEREALS AND FRUITS, is the title of a pamphlet recently published by the Department of Agriculture at Ottawa, and prepared by Dr. Wm. Saunders. In this he refers to the work of cross fertilization in progress, and points out special

characteristics of several new varieties raised by crossing Wealthy and Tetofsky on *Pyrus baccata*. These will endure the climate of Manitoba, and be of great value in that province.

**BEST VARIETIES.**—Mr. W. Warnock recently read a paper before the Goderich Horticultural Society on this subject. He commended the following list, viz. : *Apples*, Transparent, Primate, Duchess, Gravenstein, King, Spy. *Pears*, Bartlett, Louise, Duchess, Anjou, Clairgeau, Druard. *Plums*, Saunders, Washington, Bradshaw, Yellow Egg, Lombard, Reine Claude. *Grapes*, Green Mountain, Diamond, Brighton, Worden, Wilder, Vergennes.

**HORTICULTURAL SOCIETY EXHIBITS AT THE INDUSTRIAL.**—It does not seem generally known that there are special prizes offered at this fair for General Collection of Fruit shown by any Electoral District Society, Horticultural Society, Fruit Growers' Association or Farmers' Institute. Mr. W. E. Wellington, our representative on the Board of the Industrial Fair, has exerted himself very much in the interests of fruit and flower growers, and has not only secured liberal prizes in these departments generally, but for the Society's exhibits above mentioned in particular he has secured for this year an exceptionally good offer of \$50 for the 1st prize and \$35 for the 2nd. Hitherto the Burlington and Louth Societies have been almost the only ones who have made exhibits, but we hope that this year some of our affiliated societies will be represented.

**EXPERIMENTAL WORK.**—The following experiments are proposed by Prof. Lochhead, of the O. A. C., Guelph, and we hope many of our readers will try them and report to him :

*Cucumber Beetle.*—Experiment—Mix an

ounce or so of turpentine in a gallon of ashes and stir thoroughly. Drop a tablespoonful on each melon hill.

*Cabbage Root Maggot.*—Experiment 1—Put a tablespoonful of carbon bisulphide in a hole at the base of young transplanted cabbage, and cover up the hole, so that the fumes will not escape. Experiment 2—Spray forcibly some carbolic acid emulsion (made by dissolving 1 lb. hard soap in one gallon boiling water and adding 1 pint crude carbolic acid, emulsify by agitation), about the base of the plant, some of the earth having been first removed. Replace the earth. Repeat once a week.

*Onion Maggot.*—Try experiment outlined in 2.

*Codling Worm.*—Try "Burlap" or "sacking," as outlined in March Canadian Horticulturist, p. 88, to prevent the attacks of the second brood. Be careful to spray well with Paris Green and Bordeaux right after bloom to kill as many of the first brood as possible.

**THE ROSE BEETLE.**—This insect is very destructive to apple foliage and young fruit about Grimsby this season. About the middle of June a box of these beetles were sent into this office, gathered from an apple tree which was "alive with them," feeding upon both foliage and fruit. They are considered so difficult to destroy that handpick, an endless job, is often suggested. Durham tried Paris green on these at Grimsby with great success, using eight pounds to forty gallons of water, and says he routed the enemy completely without damage to the foliage. Dr. Fletcher says : Handpicking would be a rather tedious practice to clear vines and apple trees from this pest. It is claimed by Prof. Webster that if the beetles can be touched with a spray of whale-oil soap it destroys them. This would be much better than handpicking. Beating might be useful, but they are so extremely active that

I fear few would fall on to the sheet placed beneath the trees to be beaten. Single rose bushes, or vines, can of course be covered

with mosquito netting, but this is impracticable on a large scale. The injury to apples is much less common than to grapes.

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## QUESTION DRAWER.

### Excrescence on Elm Twig.

1171.—SIR.—Enclosed I send you a cutting from one of my American Elms planted 12 or 14 years ago; I also notice a red, juicy matter exuding from some of them, with a large knotty substance growing on the trunk of the tree.

Port Hope.

J. HELM.

The excrescence on the small elm twig from Mr. Helm, Port Hope, is merely an effort of the elm tree to overcome a former injury which may have originally been caused by the Woolly Aphis of the elm. These woody nodular growths are frequently found on the Canadian ash and apple.

Ottawa.

J. FLETCHER.

1172. SIR.—Kindly advise me in the Horticulturist what is the best variety for size and flavor to be planted in clay soil for home consumption.

A SUBSCRIBER.

I presume the Subscriber means by "*for home consumption*" for his own table, and asking for flavor he wants a berry of quality. If am right in my surmise, I would name the "Annie Laurie" as such a berry. It is a staminate, a seeding of Mr. Beaver's, of

Ohio; bright, shining scarlet in color, gold seeds on the outside; very much resembling the Jersey Queen in appearance. It is of the very finest quality, in fact you might take it for a standard of quality; it is medium to late in season; it is fairly productive; the very finest table variety, and is a fine one for canning; it is a staminate variety. But if the subscriber means by home consumption the home market and wants to know the best market variety, I have no hesitation in naming the Clyde as the best for such purposes. A strong grower, staminate, plant very healthy, fruit very large, firm, good flavored and a wonderful producer of the largest berries; stands dry weather among the best. The Clyde has done well the past season. It seems to have succeeded well in clay, as well as on the lighter soils. It is highly spoken of wherever grown. Stands easily first among strawberries for all purposes.

Port Rowan.

E. B. STEVENSON.

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## Open Letters.

### Fruit Prospects About Goderich.

SIR.—The prospects for fruit are not what was expected earlier in the season in this district. There are no plums scarcely, cherries were very few; the birds left us the pits of the early ones, the few there were. We had a fair crop of Rockport. This is the best variety I know of in this neighborhood. It is a fine meaty cherry with a small pit. Pears with us are also scarce, except the Bartlett, which is good. Apples—some trees b ossomed freely, but the fruit is very thin on the

trees. What there is looks very well. On the whole there will be a very light crop.

We are not much troubled with the tent caterpillar in this section, I am glad to say. The Duchess seems to be the heaviest yielder with us. The small fruit, as strawberries and raspberries, is a fair crop. Gooseberries rather light; currants good. I find during haying that the grasshoppers are very scarce this year.

Goderich.

WALTER HICK.

(Draft)

DEAR SIRs,—I am directed by the Honourable the Minister of Agriculture to state that representations have been made to the Department of Agriculture by many of the chief shippers and receivers of Canadian apples and cheese that it is desirable that the holds and other parts of the steamships in which apples and cheese are carried to Great Britain should be ventilated by forced circulation of air during the voyage.

It is well known that cheese and apples generate heat during the process of curing and ripening. Unless provision is made for the removal of the heat thus generated, the places where the apples and cheese are carried become heated, to the damage of the flavor and other qualities of these products.

The shippers of these products have represented to this Department that it would be greatly to the benefit of all these connected with the trade in these products—producers, merchants and the steamship owners—to have ventilated accommodation for them on all the steamships. Similar representations have been made to the Department from importers of these products in Great Britain.

I am directed to say to you that, to encourage the equipment of steamships which are in the trade to carry cheese and apples with the ventilating shafts and fans which are necessary for the purpose indicated, the Minister has authorized the payment of \$100 toward the initial expense of fitting up each approved steamship, to be paid after such ventilating equipment has been kept in use for at least three voyages.

A blue print illustrating the provision that can be made for such ventilation, is sent to you under another cover. A number of the steamships sailing between Canadian ports and Great Britain have already been fitted up in accordance with these plans, and the results have been satisfactory.

Two or more agents of this Department will be at Montreal to observe how cheese and apples are loaded in the various steamships in order that the Department may be able to make recommendations to the producers and shippers of these products, looking towards improvement of their quality and the condition of the packages. It is intended to have agents of this Department also in at least four of the cities of Great Britain to observe the condition in which cheese, butter and apples particularly are discharged from the various steamships.

The names of the steamships, together with a statement of the facts as to whether they are properly ventilated, will be published from time to time by the Department, in accordance with the reports received from these inspectors, in Canada and Great Britain.



FIG. 1890. CLIMBING HYDRANGEA.

As the safe carriage of these products will be to the benefit of all concerned, the Department ventures to expect that as on former occasions it will have the hearty co-operation of the steamship owners and agents.

Yours truly,  
JAS. N. ROBERTSON, Commissioner.

#### Is the Love for Flowers Diminishing in the City of Hamilton?

On the 21st June the Directors of the Horticultural Society held their annual flower show, which was certainly a very fine show of cut flowers, and was very creditable to the untiring efforts put forth by the President and Directors. The display of roses and herbaceous cut blooms was particularly good, and some of the specimens not often seen in this country, such as the Rhododendrous, Ghent and Mollis varieties of hardy azalias grown out of doors. There was a large display of roses by a number of exhibitors; the peonies were also very fine. We noticed also very fine blooms of the following: *Digitalis* or Fox Glove, *Campanulas* (Canterbury bells), *Iris*, *Poppies*, *Pyrethums*, *Lychnus*, *Hemerocalus*, *Herbaceous Spireas*, etc. Mr. Wild exhibited the best samples



FIG. 1891. FLOWERING CYME  
OF HYDRANGEA.

of strawberries and gooseberries to be seen this year. Mr. Knox had a basket of cut blooms of his climbing hydrangea, from Japan, the only one of its kind in Canada. It clings like an ivy against his residence.

We reproduce from page 300, 1899, a photograph of this rare climber growing on the house of Mr. John Knox, which Mr. Robertson considers is valuable. We now add a photo of one of the flower cymes, which are from six to ten inches across, and are composed mostly of fertile flowers, which however do not fruit.

Mr. Knox also exhibited some fine roses, of which he had taken great precautions to keep shaded with cotton from the fierce sun, when under such conditions the blooms lasted much longer.

Mr. Ogilvie had made a good display of roses, and as for the genial President, Mr. A. Alexander, he carried off the most of the prizes, of which he may well be proud; his grounds are a credit to himself and the city, and are well worthy of a visit by the majority of professionals; the cleanliness, taste and care there resorted to is wonderful in a busy business man. He is certainly one that loves flowers, and the term pot-hunter does not apply to him; in other words he does not work up his flowers so as to catch on to a few cent prizes; it is all love with him for the beautiful.

We cannot go further without asking what has become of the gentlemen's gardeners about Hamilton. Can it be that they, themselves, or their masters are unwilling to help along the amateurs, and to instil into the young citizens a love for flowers. The city florists also were not well repre-

sented. I think they could not be looking out for their own interest, for above all others they should try to stimulate a love for flowers, from which they make their living. Again, is it not surprising how few ministers take any interest in flowers. I often thought they should advise the young of their congregations to visit such places as flower shows, and be there themselves to give and receive pointers. It is certainly encouraging to see that we are not all alike in this respect. The City of Hamilton has done a good work on the Gore. Her aldermen must be flower-lovers, for there are great improvements in this line within the past few years. Ontario Government grants are liberal towards such work; City Councils are likewise in beautifying parks and squares. Let us then get the wealthy gentlemen to take an interest, and the clergymen also, and then we will all be good citizens and admire one another's flowers without envious eyes.

Niagara Falls.

R. CAMERON.

### Fruit Prospects.

SIR,—Our prospects for an abundant crop of apples and pears and cherries are very promising. The fruit is larger than usual at this season of the year, and seems perfectly free from Black Spot. After two hours' search I did not find a wormy apple. The Codling Moth does not seem so plentiful as last year, although we catch a few occasionally. There are quite a number of new varieties, both in apples and pears, that have fruited this season of which I will report more fully on when the fruit is gathered. According to present appearances our fruit crop will excel any former years both in quantity and quality. A very decided difference is seen between sprayed and unsprayed orchards, both in fruit and foliage. The wood growth on most varieties is healthy and vigorous. The late rains have made all orchards look brighter, and the outlook for a full crop of fruit of all kinds, except plums, is all that can be desired. Grapes currants, gooseberries and blackberries are quite forward and heavily loaded. We are thinning a number of Keiffer and Bartlett pears in order to keep them from breaking down. The pears received from France are all making good growth and several of the first lot have fruit on them.

Whitby, 12th July, 1900. R. L. HUGGARD.

### Lawns and Walks.

SIR,—Under above heading in July issue of your valuable paper, I notice it is recommended that weeds in gravel walks be pulled up or rough salt or crude carboic acid be used to kill them. A much simpler and very effective way is to use a solution made with Gillett's Lye. This method is also the correct thing to prevent weeds and grass growing through slat walks, care being taken not to allow the Lye solution to touch the slats of woodwork or the edgings or lawn grass. Gillett's Lye, besides being useful for spraying purposes, can be used to advantage in hundreds of ways around both country and town houses.

Toronto, July 9th, 1900.

SUBSCRIBER.