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Photo by Miss Brodie.

FIG. 1933. APPLE PACKING AT MAPLEHURST.

THE CANADIAN HORTICULTURIST



** NOVEMBER **

THE SALE OF OUR FRUITS.

HOW TO AVOID THE GLUT IN APPLES.

AS we have already stated in a previous number, we anticipate a much better apple season than that of 1896. No. 2 stock is yearly becoming less and less salable, but so few have learned the lesson that poor stuff should only be offered by itself, and never mixed with good, that it still helps to glut our markets. Such mixed stock is bound to rule low, both at home and abroad, and will be constantly lower in value, until our growers everywhere have awakened up to new ideas on this subject of fruit packing.

A few have awakened and have begun to select and grade their fruit properly. They pack them in three grades, $2\frac{1}{2}$, $2\frac{3}{4}$ and 3 inch diameter respectively, each in separate packages, so that a buyer a thousand miles away can buy with perfect confidence from the grade.

The writer sold a carload in 1899 in this way to a person in Leeds. This year the order is doubled, at prices which will warrant the extra care taken. Not only

that, but inquiries have come to hand from Newcastle, London and other points after these same graded apples, which show how rapidly the reputation is spreading abroad of these graded packages. Our method is as follows: We pack the ordinary grade apples in the orchard. The foreman takes out his packing table among the trees, and the gang of pickers empty the fruit upon this table, which is large enough to hold two or three barrels at a time. (See frontispiece.) With the aid of two assistants, he is able to sort the apples as fast as picked, and to pack the ordinary and No. 2 grade in barrels for immediate sale in near markets, throwing out the culls in heaps on the ground to wait until the season is over and then be sold for evaporating or for cider. While the packer is thus engaged, the two assistants are busy selecting out all the perfect apples into boxes to be sent into the packing house. Here the high grade stock is carefully sized and packed. First it is emptied upon the Wartman grader and sized. No apple is counted No. 1 which is below $2\frac{1}{2}$ inches in diameter, while those $2\frac{3}{4}$ inches or over

are called A No. 1, and those 3 inches upwards are called X A No. 1, or Extra. These are then wrapped in manilla tissue paper, which can be purchased at about 20 cents a thousand squares, ten inches by ten. The wrapping costs from 2 to 3 cents a bushel. As fast as wrapped they are passed over to the packers, who pack them in bushel boxes. The apples are placed in rows—4 layers deep, 4 wide and 8 long, except the very largest. We use either excelsior or sphagnum for packing material; the latter is a little mussy, otherwise it is excellent; while the excelsior is clean and attractive, but not so good a preservative.

Now these cases of red apples, uniform in size in each package, and of the finest varieties of Canadian apples cannot fail to command a ready sale at the tip top price in any market of the world, and when once known must result in sales f. o. b. in Canada, instead of the present disastrous method of consigning in barrels to auction rooms in Liverpool, London or Glasgow.

OUR PEACHES.

While lower prices have been realized in our Ontario markets for peaches than we had expected, considering the general advance in value of other fruit products, yet peach growing is generally conceded to be one of the most profitable branches of fruit growing. There was, it is true, but little money in the early clingstone varieties, peaches that are of little value for any purpose, and which come in our markets when much better kinds are coming in from the American side; but when the Triumph and the Yellow St. John came along there was a better price and much satisfaction. The first Early Crawfords, our finest variety, sold at splendid prices, but this most excellent variety has been overplanted in Ontario, considering its extremely perishable nature, and has caused a glut in the markets, at

the height of Crawford season, that was quite discouraging.

One carload of beautiful golden Crawfords from Grimsby, shipped on Saturday, was sacrificed on Monday at 10 cents a basket, a woeful waste. But soon the California shipments ceased, and late Crawford, Elberta, Stevens Rareripe, Crosby, Longhurst, Smock, and other late varieties, when graded to size, brought from 30 cents to 60 cents a basket, and this price is quite satisfactory with an abundant crop.

Our great hope for the future, however, is in the export trade, and we hope this year to pass out of the experimental into the business era. The first peaches we tried to export were the Early Crawford, for we considered it our best peach; but the cold storage system was not sufficiently perfected to carry such a tender variety. Last year we tried a few Elbertas, and this year, under the direction of the Provincial Minister of Agriculture, we forwarded twenty-five Wilson cases of Elberta; and several cases of early and late Crawford, Smock, Stevens, Rareripe, Willett, Centennial and Longhurst. Fine peaches are high priced in England, because they must all be ripened under glass; therefore, should we succeed in this venture the peach trade will enter upon an entirely new era. We have every confidence now in reaching the English market with our fruit in good condition, since Mr. Hanrahan's patent method of refrigeration is being applied by the Ontario Department of Agriculture both to the railway and steamboat storage.

In grading the peach for foreign shipment we have adopted $2\frac{1}{4}$ inches as No. 1, and $2\frac{1}{2}$ as A No. 1; smaller than $2\frac{1}{4}$ inches we sell at home. Indeed, we ought to cut down every tree that grows little peaches, or else so thin the crop that none of the small size would be produced, for they do not pay in any market.

CENTRAL EXPERIMENTAL FARM NOTES.—X.



FIG. 1934. VIEW AT CENTRAL EXPERIMENTAL FARM.

IN many ways this has been one of the most remarkable seasons which has been experienced since the Central Experimental Farm was established. There have been few summers when showers were so frequent and long continued rain so rare. The result is that practically nothing has been injured by rain this year, and everything was benefited by the showers to such an extent that fruit, ornamental trees, shrubs, flowers and lawns never looked better than they did this season. At this date, October 12th, little injury has been done to vegetation by frost. Even such tender things as tomatoes are still growing, as what frosts there were have been very light. Many of the trees, shrubs, and plants are as green and fresh looking as they were in midsummer, and no one would suspect, if they did not know, that this was the middle of October.

The strawberry season was much longer this year than usual, the first picking being made on the 20th of June, and the last on

the 20th of July. Raspberries also were a good crop, and the season for that fruit was prolonged.

American plums did particularly well this season, and a large number of trees were heavily loaded. There is a growing demand and paying prices for these plums on the Ottawa market, and local men are planting more trees every year. Although there have been a large number of varieties sent out by nurserymen, only a few of the very best should be planted. Cheney, Wolf, Hawkeye, New Ulm, and Stoddard, are five of the best varieties yet tested, and they cover the season from the last week of August until near the end of September. Aitkin is a little earlier than Cheney, but not so good in quality.

The crop of apples was good, much better than was anticipated, for it was observed in the spring that the fruit was not setting well. Although the fruit did not set as well as usual, the extra size made up for the smaller number. The trees were

thoroughly sprayed as usual. There was practically no scab, and the codling moth also was not very troublesome.

Of all the varieties of apples grown in the orchard this year the McIntosh Red was the finest to look at. This variety has not proved a shy bearer at the Experimental

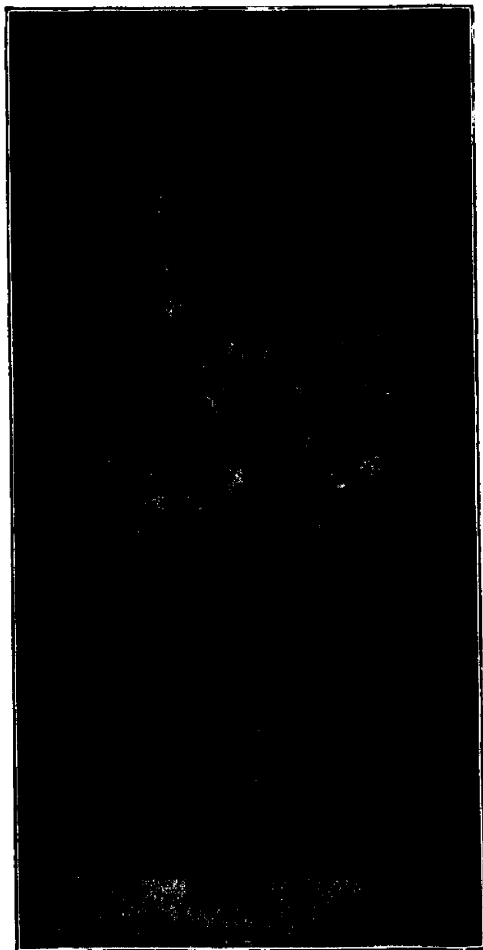


FIG. 1935. IRIS, JACQUESIANA (PURPLE).
Grown at C. E. F., Ottawa, Jan. 18th.

Farm. Our trees bear annually, and, although never heavily loaded, produce good crops of fruit of fine size, appearance and quality. After another year's experience the hardy varieties we should recommend are :

Summer—Yellow Transparent, Duchess.
Autumn—Wealthy.

Early Winter—McIntosh Red, and Fameuse in some localities.

Late Winter—Scott's Winter, Gano, Pewaukee, Salome. Milwaukee is a promising new winter apple, being an early and heavy bearer, and of fine appearance. We still require a hardy late-keeping dessert apple of good size and color. It will come in time.

Grapes did not do as well as usual this year. The showery weather caused the vines to make too much growth and also prevented the fruit from ripening well. Furthermore, the fruit did not set well at the outset. However, all the earlier varieties have ripened, and if severe frosts do not come soon many others will ripen also.

There is a very heavy crop of potatoes this year, free from both scab and rot. Among the best yielding varieties are Empire State, American Wonder, Rochester, Rose, and Carman No. 3. The yields per acre, however, of the different sorts have not yet been determined.

It is our intention to spray a considerable number of apple trees this autumn which are affected with the oyster shell bark louse. From experiments conducted here last winter, our conclusions are that two sprayings of lime and water, in the proportion of 2 lbs. of lime to one gallon of water, in the autumn, will remove nearly all the scales which are on the trees. It would appear that the lime loosens the scales, and during the winter they are either washed off by rain or broken off by ice becoming attached to them, the eggs which are underneath them being carried off also and so destroyed before hatching time, which is about the end of May. The lime spray is made by slaking the lime in water (only good lime should be used), stirring the mixture thoroughly and straining it before use. The tree should be thoroughly sprayed from

top to bottom, and when it becomes dry, the second spraying—which can be done the same day—should be made. The trees should then appear as white as snow. Our

spraying will be done in November, when the buds are thoroughly ripened and dormant.

W. T. MACOUN, Horticulturist.
Central Experimental Farm, Ottawa.

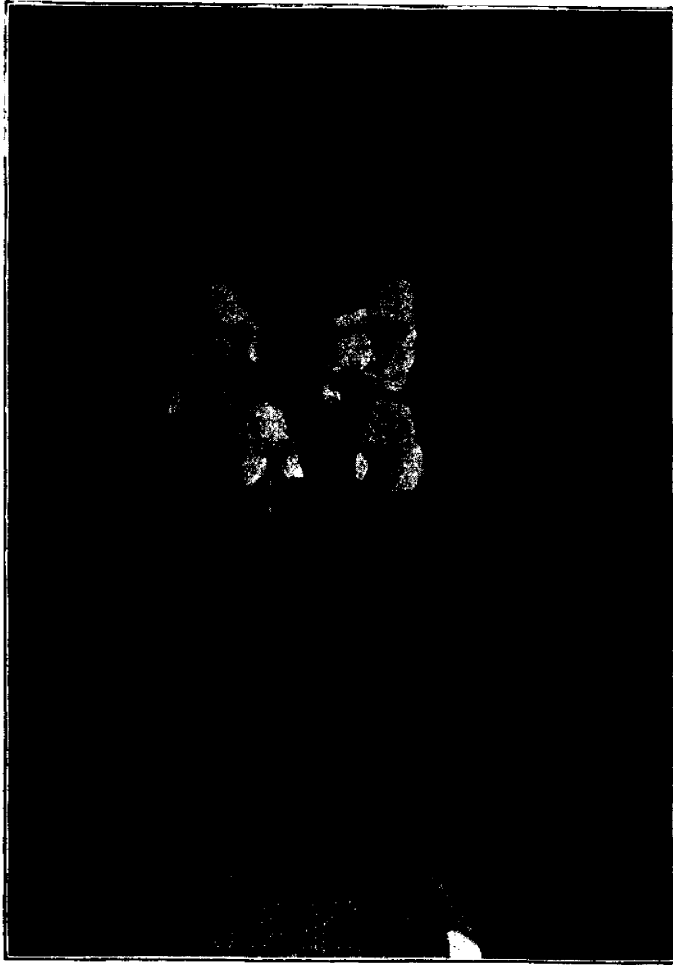
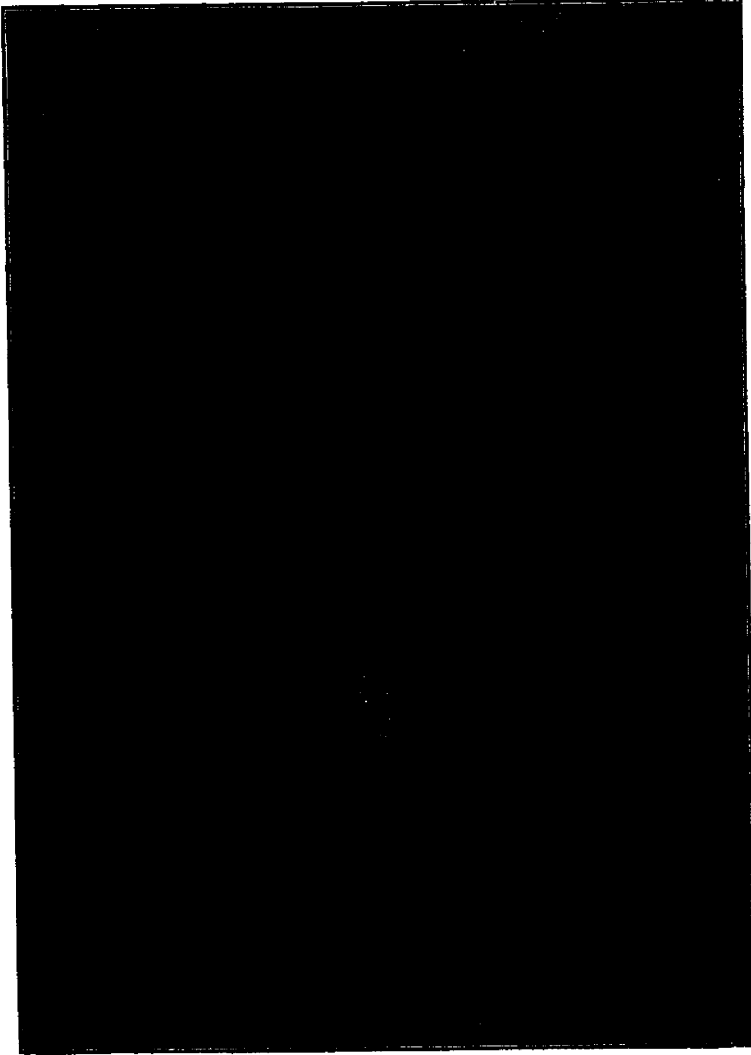


FIG. 1936. IRIS, MRS. H. DARWIN (WHITE).
Grown at C. E. F., Ottawa.

In France, Germany, Belgium and some other European countries, it is the practice to plant fruit trees along the public roads. The local governments plant the trees and cultivate them as a source of revenue, and

it is said that in Belgium there are 760,000 roadside fruit trees, which in one year produced \$2,000,000 worth of fruit. The walnut, cherry, chestnut, plum and apple are the favorite trees for roadside planting.

MUSHROOMS.



We have pleasure in introducing to our readers a new contributor to the pages of the *Canadian Horticulturist* in the person of Dr. J. J. Hare, Principal of the Ontario Ladies' College at Whitby. Many members of our Association will remember with pleasure his genial face, and warm greeting he extended to us on the occasion of our meeting at Whitby, nor the kind contributions of vocal and instrumental music made by the young lady students of Whitby Ladies' College.

Dr. Hare has an excellent record, having been Principal of the College since its inauguration in 1874, and under his care it has grown to be a most flourishing institution. The young ladies are prepared for first and second year examinations with honors of Toronto University. The departments of music, fine art, elocution, commercial branches and domestic economy, are all equally well provided for.

Dr. Hare is well known at Grimsby Park, having lectured therein all eighteen times on different scientific subjects.

FIG. 1937. DR. J. J. HARE.

AT the time of the meeting of the Fruit Growers' Association in Whitby last year I promised the worthy editor of this journal that I would write for him an article on Mushrooms. I have on different occasions since that time been courteously reminded of my promise, but have hitherto been unable to fulfil it. The

fact of the matter is, the subject is too extended and too important to be condensed into one article, and hence I feel obliged, if I undertake the work at all, to write a series of short articles descriptive not only of some of the more common edible mushrooms, but also of some of the poisonous species. In doing so I shall be guided largely by what



FIG. 1938. ONTARIO LADIES' COLLEGE.

has been found in the neighborhood of Whitby. Last week I received a basket of mushrooms from a friend, containing two specimens, in which I felt greatly interested. One of these was a white gilled mushroom called the *Lepiota nancinoides*, an edible species just about as highly prized as the well known pink gilled mushroom, *Agaricus campestris*, and yet so much alike in its gills and cap the deadly white *Amanita*, that it is desirable to devote at least one article to a clear and definite account of the well marked peculiarities of the whole *Amanita* class. I have been pleased to learn that the honored President of the Fruit Growers' Association has become an interested student of micology, and that he has had the good fortune of gathering a

large puff ball and practically testing its esculent properties, and that he has done me and the readers of this journal the favor of having this magnificent "fruit" photographed to illustrate this article. On this account I shall begin with the puff ball. Without attempting to discuss this subject in a thorough or exhaustive manner, I would say that the puff ball belongs to the large class of plants known as Fungi, to which also belong the rust, the smut, the mould, the yeast plant, the bacteria, etc. It belongs also to the division *Gasteromycetes*, or stomach fungi, so called because the hymenium or spore bearing surface is enclosed in a more or less spherical case called the peridium, which ruptures at maturity and expels the spores in the form

of dust. All mushrooms, of whatever kind, grow from spores. These produce fine threads in the soil known as the mycelium. Upon these threads or vines appear at first tiny knobs or conglomerations of cells about the size of a pin's head. These rapidly develop under favorable conditions of soil, combined with moisture and warmth, and soon lift their heads above the soil and appear as baby mushrooms, which quickly attain to maturity. That which we see is really the fructification or fruit of the mushroom. In the case of the puff ball, there is little difficulty in distinguishing it from all other kinds of mushroom fruit. The only possible mistake that can be made is in confounding a young *Amanita*, when just emerging from the ground, with one of the smaller species of puff balls. The *Amanitas* are our most poisonous mushrooms. Though gilled like the common meadow mushroom, they emerge from the ground enclosed in a spherical volva or sheath, and to a careless observer might be mistaken for a puff ball. The slightest examination of the internal structure will show the marked difference. The young *Amanita*, when broken open, will reveal the enfolded form of the mushroom within, whereas the puff ball will be found to be solid and homogeneous throughout. It is a comforting thought that no poisonous puff ball has been found in any part of the world. From time immemorial the small boy has kicked it aside as a useless and unsightly thing, little dreaming that it contained for him a supply of palatable and nutritious food. The Rev. Dr. Badham, an eminent British authority on mushrooms, expressed his regret that tons of wholesome food were rotting every year on the ground because no one had sufficient knowledge to take advantage of it. The same remark applies with equal force in this country, hence it is high time that something be done to disseminate information, and I know of no association

so likely to be interested in the subject, or so capable of understanding it, as the Fruit Growers' Association. I admit that many have been deterred from the study of mushrooms, or micology, by the fear that it was an abstruse subject that was beyond their grasp and fraught with terrible risks. I shall endeavor in this series of articles to show that a very little knowledge will enable the reader to add materially to his "fruit" supply, and with perfect safety to himself. The accompanying diagram is a representation of the internal structure of a puff ball and serves to explain some of the technical terms used in describing it.

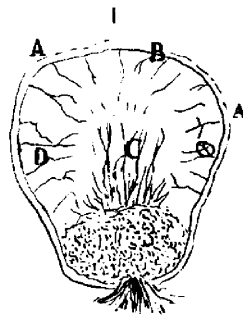


FIG. 1939.

A—Interior rind, bark or skin—peridium.
 B—Inner rind or true peridium.
 C—Filaments rising from base—columella.
 D—Cottony threads or hyphae producing spores—capillitium. The space they occupy is called the gleba.

E—Empty, sterile cells—space they occupy called the subgleba.

Most of the puff-balls belong to two genera—*Lycoperdon* and *Bovista*. Shall describe a few of the more common species.

Lycoperdon giganteum, or the Giant Puff-Ball. This is the one gathered by Mr. Orr, and of which the photograph is here given. Its great size will readily distinguish it from all other species. Its diameter is usually from eight to fifteen inches, though some have been found whose diameter was

twenty-five inches. Mr. Orr's specimen was an exceptionally fine one, and had a diameter of about sixteen inches. Dr. Curtis calls it the "Southdown of Mushrooms," and states that it has a delicacy of flavor that makes it superior to any omelette he ever tasted. He also claims that it is so easily digested as to adapt itself to the most

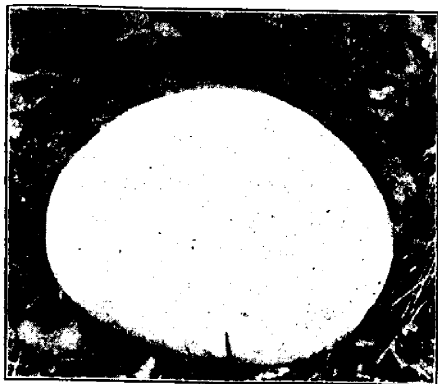


FIG. 1938. A GIANT PUFF BALL.

delicate stomach. I can corroborate this opinion by personal experience. Mrs. Hussey, of England, gives the following recipe for cooking: First remove the outer skin; cut in slices half an inch thick; have ready some chopped herbs, pepper and salt; dip the slices in the yolk of an egg and sprinkle the herbs upon them; fry in fresh butter and eat immediately.

Some mycologists have recommended cutting off a slice horizontally every day, using great care not to disturb the growth or induce decay. In this way it may last for a week.

Lycoperdon cyatheforme, or Cup Shaped Puff Ball. This is the next largest of the puff balls. Its diameter is ordinarily from three to six inches. It gets the name, *cyatheforme*, or cup-shaped, because the upper part of the peridium falls away when

mature, leaving a cup-shaped base with ragged margin, which may continue through the winter.

Lycoperdon pyriforme—Pear Shaped Puff Ball. This has a short stem-like base and is often found in dense clusters on the trunks of fallen trees.

Lycoperdon gemmatum—Warted Puff Ball. This is nearly spherical in shape, usually the basal portion is narrower than the upper. The surface is covered with small, irregular warts. When these fall off the peridium presents a dotted or reticulated appearance. This species is quite common in our college lawn. Sometimes several appear crowded together on the ground. The height is from one and a half to two inches.

Lycoperdon saccatum is smaller than preceding and without any semblance of stem.

The only species of the genus *Bovista* that I have time to describe is the little lead-colored *Bovista*, known as *Bovista plumbea*. This is quite common. It differs from the *Lycoperdon* in its more perfectly globular shape and in the more tough and smooth rind in the mature plant. The peridium opens by a small aperture at the top for the dissemination of the spores. When squeezed the spores will escape from the opening and appear like a little puff of smoke.

In conclusion I would say that the larger puff balls are much finer in quality than the smaller, and that no puff ball is fit to eat when it shows yellowish or brownish streaks through it or has become watery in the interior. It may be added that the dusty spores of the mature puff ball are often used to arrest hemorrhage from wounds.

J. J. HARE,

Ontario Ladies' College, Whitby, Ont.

NOTES FROM THE BIOLOGICAL DEPARTMENT, ONTARIO AGRICULTURAL COLLEGE.

THE following notes bearing on horticultural topics are based partly on the past season's observations, and partly on the experiences of previous seasons.

Our correspondence with fruit-growers from various parts of the Province has been unusually heavy this year, and there appears to be a growing demand for more information regarding spraying, and insect and fungous troubles.

FRUIT DISEASES.

It is acknowledged by nearly every fruit-grower that the fungous diseases which are usually so destructive have not been very severe this past season, and have given but little trouble. This happy circumstance has resulted from the peculiar seasonal conditions. The early summer was very dry, and the moist conditions which ordinarily surround the spores blown from one plant to another were absent, and germination became impossible. Mildews on the grape were rare, but in one or two localities the gooseberry mildew was difficult to control. Apple scab was not serious, and leaf-spots were not common.

The dryness of the season, which was so unfavorable for the germination of spores and the development of fungous diseases, produced some peculiar features in *tomatoes*, *pears* and *peaches*. Many of these fruits had peculiar indentations, as if made by the pressure of a strong finger. Sometimes three or four of these were found on single pears and peaches. These indentations were very common on the pear, and no doubt interfered with its sale on the market.

On examination the tissue immediately beneath the indentation was found to be

drier than the remaining tissue, and unlike anything produced by fungi. As the spot increased in size the area of dry tissue also increased, so that the condition was simply one of drying up of tissue in certain localized spots.

In the case of the tomato the disturbed area was very plain, and resembled the early stages of the tomato rot (*Macrosporium*). There was a diseased, sunken, circular spot covered by a tough grey skin, beneath which the pulp was dry. As the area increased in size bacteria gained an entrance and a rotting took place.

It is difficult to state definitely the exact cause which led to such a disturbance, but probably the chief factor was a diminution of moisture supply to the grown fruit at a time when evaporation from the fruit was still active.

FALL ORCHARD CLEANING.

Much can be said in favor of an annual *fall orchard cleaning*, although many of our fruit-growers are indifferent in this matter. Aside from the fact that there is more leisure after the fruit has been gathered than in the rush of our early spring when so many odds and ends must be attended to, there are many urgent and convincing reasons why our orchards should be very carefully cleaned of rubbish and litter during late fall and early winter. Many insects and fungi pass their resting stages during the winter among the grass and fallen leaves. Hedges and fence-corners are favorite hiding places for many destructive insects, and whenever possible these places should be searched, and the collected rubbish burned. If this



FIG. 1941.
CANKER WORM.

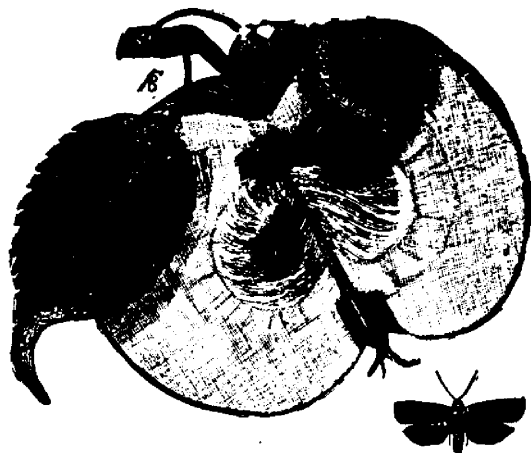


FIG. 1942. CODLING MOTH.

cleaning be left till the spring many of the insects will have left their winter-quarters, and got away, prepared to continue their depredations for another season. When the foliage falls from the trees many cocoons will reveal themselves, tucked away in crevices or crotches, and in folded leaves, which still cling to the branches. Egg clusters, too, will be readily seen if present. All these should be removed and burned. A little time spent at this season among the trees, searching for cocoons, folded leaves, and egg-clusters is money saved for the next season.

People often wonder how it happens that certain insects appear in such alarming numbers during the summer. A few careful observations during the fall and winter will show how these insects pass the cold period of the year. The egg masses of the tent caterpillars will be found encircling the smaller branches. If these bracelets of eggs be removed whenever seen much serious injury will be averted the following spring. The canker-worms pass the winter in the egg state, and these eggs are often to be seen in masses on branches. The codling-worm passes the winter in a cocoon, under bits of bark, boards, and in crevices, and a general clearing will get rid of many of these

troublesome pests. The grapevine flea-beetle and the plum curculio pass the winter in their full-grown beetle condition in sheltered spots, often near the base of the plant. Squash-bugs also winter over full-grown in sheltered spots, under boards, and in corners of outbuildings.

There is also a necessity for a thorough cleaning up of the orchard for the purpose of destroying many of the fungi which remains on the ground in diseased leaves and

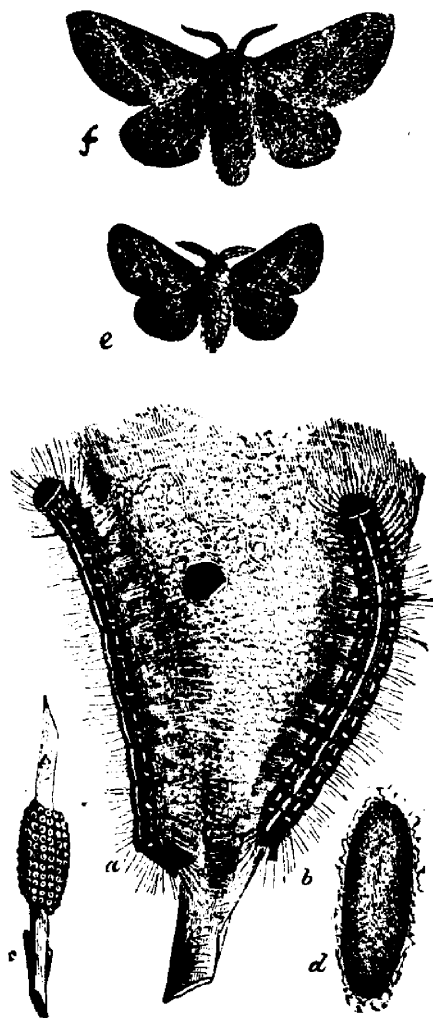


FIG. 1943. AMERICAN TENT CATERPILLAR—
a and b, caterpillars on nest; c, egg cluster;
d, cocoon; e, male moth; f, female moth.

fruit. It is a well-known fact that many injurious fungi produce winter spores, and though the leaves decay the spores do not. In early spring these will produce spores which will soon spread to the early leaves. The diseased fruit, plants and leaves, should be burned, not thrown on the manure pile, for then the spores will be able to survive the winter, and reproduce the disease the following season. Moreover, many fungi persist in the leaves as delicate threads, which develop rapidly in the spring and pro-

crop; but with the cooler weather of the last week of September and the first weeks of October, a decided change for the better has come over the crop, so that with careful handling fair results may be secured after all. According to a report issued by the Division of Vegetable Pathology at Washington shade is of very great importance in growing of celery free from this blight. When the soil is cool and moist, and the air humid, as at Kalamazoo, Michigan, the disease is unknown.

Experiments show that much advantage is derived if the rows are sprayed regularly every two weeks with ammonical carbonate of copper.

ASPARAGUS RUST.

From reports, and from observations made during a recent visit to the Niagara region, I am in a position to believe that the majority of asparagus beds of that district are in danger of being destroyed by the asparagus rust. At this season the black rust spots are plainly evident on the stems, branches and leaves, while the wilting and bleaching of the whole plant are still more plainly seen. Many of the owners are alarmed, and with the recent introduction of the asparagus beetles more than a few have decided to give up the culture entirely. This rust has done much mischief in many of the States, and a timely warning, I trust, will be appreciated.

Asparagus Rust (*Puccinia Asparagi*) is closely allied to the wheat rust, and like it produces several kinds of spores during the season, but unlike it forms all these different kinds of spores on the same plant. The early shoots of infested plants will bear yellow cluster cup-spores, and later shoots brown pustules of summer spores, followed later on by the black spots and streaks which are so common just now. The dark-brown spores which are set free from these spots are winter spores, and if left undisturbed will continue the crop of rust for next



FIG. 1944. FLEA BEETLE.

duce spores which are soon blown by the wind to the leaves where they germinate and produce disease.

It may safely be said that if all leaves, decaying fruits and diseased twigs be burned at the approach of winter the damage from fungous diseases would be lessened very materially.

THE CELERY BLIGHT.

Many celery plantations were seriously affected with a blight which caused the leaves to wilt and die. The pale spots increase in size and become yellow. It would appear that the celery which was most seriously attacked occupied high, dry land, fully exposed to the sun, and the plantations on low, moist grounds were exempt from the disease. During August and the greater part of September the rows of diseased celery showed very little growth, and every evidence pointed to a complete failure of the

season with still more damaging results. The early wilting of the asparagus plants this fall means a poor crop next season. All wilted and diseased plants should be cut and *burned* unless the owner wishes to have a very inferior, useless crop next season.

In view of the fact that the beetles are

active in many beds, it would be a wise thing to spray the beds several times with Bordeaux and Paris Green immediately after the spring crop is gathered. This spraying will keep both the rust and the beetle in check.

W. LOCHHEAD.

O. A. C., Guelph.

FRUIT EXHIBIT AT THE PAN-AMERICAN.

SIR,—There will probably be some very satisfactory results, and also some dearly bought experiences in making our exhibit of Canadian fruits at Paris, France, this year. It has not been my privilege to receive any detailed report as to what condition the fruit was found when required for the tables, but it is generally acknowledged that one of the greatest trials of the Horticultural Departments of previous Expositions has been that of providing fruits so that a good exhibit might be obtained from the opening time of the exhibitions.

For the World's Fair, Chicago, arrangements were made with Swift & Co. for the storage of 180 bbls. apples, consisting of 34 varieties.

A few weeks ago, Mr. F. W. Taylor, Supt. Horticultural Division, wrote Swift & Co., asking them to be kind enough to supply such information as would indicate what sort of storage was used, and results.

Reply as follows :

DEAR SIR,—Replying to your favor in reference to apples which were stored for the Nebraska State Horticultural Society on our plant here, will say that those apples were stored in warehouse, cooled by natural refrigeration temperature ranging from 36 to 42°, and was thoroughly dry.

For your information will state that we made tests on apples which were stored with us, and found apples packed in *waxed paper* kept better than those packed in brown, or than those which were not wrapped at all.

We are certain that any temperature ranging from 36 to 42° is a desirable temperature for storage of apples provided same is dry.

Trusting this is the information you desire, we remain yours, etc.,

(Signed) SWIFT & Co.

Mr. Youngers wrote a very full and complete report upon the subject of keeping apples which was read at the winter meeting of the Nebraska State Horticultural Society. This report is of such great interest to us at present that a copy is here given of a portion of the report giving results on the first 15 varieties, giving the percentages indicating the condition of the varieties named at the date mentioned :

	June 15	July 14	Aug. 2	Sept. 2	Oct. 2	Nov. 1
Ben Davis	10	10	10	10	10	10
Wine Sap	10	10	10	10	10	10
Juneating	10	10	10	10	10	10
W. W. Pearmain	10	7	6	6	4	3
Limbertwig	10	10	10	10	10	10
Allan's Choice	10	10	10	10	9	8
William Twig	10	10	10	10	10	10
Sweet Russet	10	10	9	9	8	8
Red Romanite	10	10	10	10	10	10
McIntosh Red	9	9	9	9	9	9
Salome	9	9	9	9	9	3
Dominie	9	8	8	8	7	6
Roman Beauty	8	8	8	7	6	5
Iowa Blush	8	8	8	8	7	5

Other varieties stored gave slightly lower percentages than the above.

Mr. Youngers, in compiling this report used the scale of 10. Those found in perfect condition were marked 10, and those more or less damaged marked accordingly.

The markings were made at time of taking from cold storage.

He was satisfied that wrapping first in waxed paper and then in any common paper and packed and pressed in barrels gave decidedly the best results.

In order to test this matter a few barrels were placed in storage without any wrappings—varieties, Ben Davis and Wine Sap. They were placed in the same storage room and received the same treatment as those wrapped, yet fully 70% of them were decayed when taken out June 1st; not only were they decayed, but those remaining in a firm condition were so badly discolored and so off-flavored as to make them unfit for show or market. A few of the same varieties were wrapped in newspapers, not using waxed sheets, and of these fully 30% were in poor condition June 1st, while the same varieties wrapped in a double wrapping of waxed sheets and common paper remained in almost perfect condition as late as November 1st.

I do not know what steps have been taken by either the Dominion or Ontario Governments or the Associations in the way of providing for a spring exhibit of fruit at the Pan American at Buffalo next spring, and I feel I should at least mention the subject to you and take the liberty of offering a suggestion,—that some competent man be appointed to correspond with a few

or limited number of our best fruit growers, and ask them to select and place in their cellars at once a number of barrels of apples, varieties that are to be named, and that the agent visit those growers, and re-select, wrap and pack the fruit and ship to cold storage, the agent to take the wrappers with him. In that way the fruit would be of more uniform quality and the packing correct. I hope this matter has received the attention of the executive.

The above letter is written with the idea of offering a few ideas, the fact of which you were probably aware of, and with your experience of recent years past methods may have been improved upon, but I am anxious to see Ontario hold her own at Buffalo.

Would you kindly let me know what has been done in the matter, and if the Government will give us a grant to meet this exhibit.

HAROLD JONES.

Maitland, Ont.

NOTE BY EDITOR.—We have already brought this subject under the notice of the Hon. John Dryden, who has authorized us to secure cold storage space for at least 100 bushels of prime Canadian apples, to be stored at Buffalo. In case Ontario proceeds to make a fruit exhibit, these will be in reserve to be drawn on from time to time for filling the tables. Already we have secured these apples from our various experiment stations and others, and we are having them wrapped first in waxed paper and then in manilla tissue, just as our correspondent proposes.

OUR APPLES WANTED IN UNITED STATES.—After all the great outcry about the enormous crop of apples on this continent, it is rather surprising to receive such a letter as the following from a neighboring city. Perhaps, after all, the United States will prove a competitor even this year for our excellent Canadian apples. It is Messrs. Armacost, Riley & Co., of Cincinnati, who write as follows, on the 28th September :

While winter apples appear plentiful, fall fruit is as scarce in our market as we have ever known. The demand for soft varieties, such as Colverts, Jennetings, Alexanders, Maiden Blush, etc., is enormous, and the few coming forward from the east sell at \$2.50 to \$2.75 per bbl., and we believe the large Canadian packages would bring \$3.00 quick. We have never known a better opportunity to make money on fall fruit, and if you are packing or can do so promptly, write or wire. The weather is now cool and ordinary box cars can be used in shipping.

CANADIAN FRUITS IN ENGLAND.

THE last parcel of Canadian fruit that was put upon the market this week was of an instructive nature, for it proved clearly that the fruits of the Dominion can be sent into England in the pink of perfection. Amongst the varieties put up for sale were some very fine Williams (or Bartletts, as they are called in Canada), Duchesse and Beurre D'Anjou, the last variety of which is a very dainty pear, and is sure to make headway in our markets. The shipment sent consisted of 1,000 cases of pears, and, in addition, there were some peaches and a few apples. The former consisted of Elberta and Crawfords.

The samples of pears were unusually large and fine. The Williams were grand, and it is clear that no competitor on the market from any outside centre can touch them, for as far as quality, size, flavor and color, are concerned they are as perfect as a market William pear can be. The other varieties are also of prime quality. It is thus evident that at last the whole export business has been put upon a proper basis, and that Canadian growers and shippers may rest

satisfied with the situation as far as methods of transit are concerned.

This highly satisfactory condition of things has been brought about under the auspices of the Hon. Sydney Fisher, M. P., Minister of Agriculture for Canada. In future, we now know that Canadian fruits of the most delicate nature can be shipped to the United Kingdom with the satisfaction that they will come to hand in a perfectly salable state, so that there is no reason why Canada, the premier fruit colony of the Empire, thanks to the fostering influence of its Minister of Agriculture, and the ably-led department over which he presides, should not develop a gigantic trade in fresh fruits, especially with this country.

We learn that other fruits are to follow, that 1,000 cases of grapes will soon be seen upon our markets in one shipment, and that they will be of equal quality to the pears. The fruit dealers, buyers, and consumers of our cities will appreciate these Canadian shipments, and as they are of the highest quality their popularity with the masses must be an increasing one.

SAMPSON MORGAN.

WINTERING APPLES, ROOTS, ETC.—I never had better, juicier, tenderer apples to eat in early spring than those taken out of a pit outdoors. For that reason I have always favored the plan of wintering at least a portion of my apples for home use in that way. This method seems to keep all the flavor and all the brittleness in the apple intact, and perhaps is the simplest and safest of all for ordinary uses. The apple is less susceptible to injury from freezing

than potatoes. It ranks about with mangels, beets, turnips and similar root-crops in this respect. Every farmer may be supposed to know how to pit potatoes. Apples can be handled in the same manner, only that a little less covering may be needed. Where the subsoil is porous we may dig a pit a foot or more in depth, otherwise we must select a well-drained spot, and put the apples on top of the ground, resting on a good layer of clean straw. Pile up the apples in a conical

heap, inserting a wisp of straw into the centre of each heap and letting it stick out of the top. This latter is for ventilation. Gases and heat must have a chance to escape. Next put on a generous covering of straw or marsh-hay. If it is a

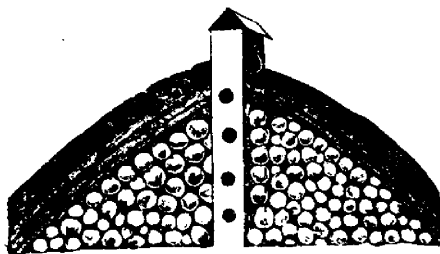


FIG. 1945.

foot or more in thickness it will do no harm. In place of a wisp of straw an upright box, say six inches square and long enough to reach from the ground to a few inches above the top of the heap when done, as shown, will supply the needed ventilation. The earth covering which comes over the straw all around need not be more than a few inches thick. The pit is thus to be left until freezing weather, when a further covering of straw and earth, or a very heavy covering of coarse manure, is to be placed upon the frozen earth of the first covering. Roots are pitted in the same manner.—*Farm and Fireside*.

FUMIGATION FOR SCALE.—Prof. Lochhead, of the O. A. C., Guelph, gives the following memo. for the guidance of nurserymen in the fumigation of nursery stock :

1. Formula for apple, pear, plum, cherry, quince, shrubs and vines : Cyanide, $\frac{25}{28}$ of an ounce ; sulphuric acid, $1\frac{1}{4}$ fluid ounces ; water, $1\frac{1}{8}$ fluid ounces for every 100 cubic feet in house or box.

2. Formula for peach, raspberry, gooseberry and currant : Cyanide, $\frac{2}{3}$ ounce, sulphuric acid, 1 fluid ounce ; water, $1\frac{1}{2}$ fluid ounces for every 100 cubic feet in house or box.

3. The following plants do not require fumigation : Evergreens, strawberry plants, bulbs and tubers, herbaceous perennials and bedding plants.

4. Damage may be done to stock (a) if fumigation takes place too early in the fall,

before the buds are set and the wood sufficiently dormant, and (b) if fumigation takes place late in spring after the buds have begun to swell.

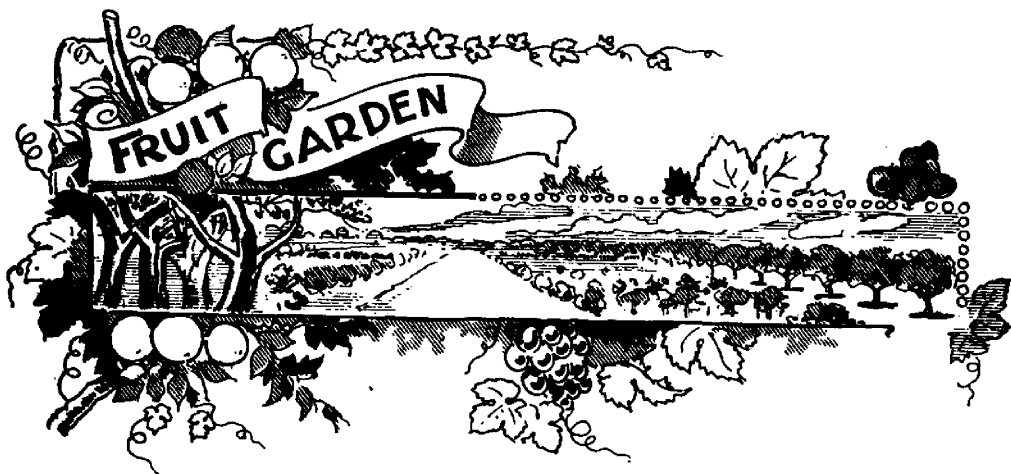
5. The roots of stock should be exposed for as short a time as possible, both before and after fumigation. Experience shows that much injury has resulted from such exposures.

6. No nurseryman shall use chemicals other than those sent from the Agricultural College, Guelph, except by special permission of the Inspector.

7. Nurserymen should bear in mind that a certificate of fumigation must be attached to every package of nursery stock sent from the nursery.

8. No fumigation house is to be used for fumigation purposes until sanction has been obtained from the Inspector.





FRUIT CULTURE—XIV.

THE STRAWBERRY.

THE earliest and possibly the most wholesome of all fruit, who would not grow strawberries? And yet many a farm home is without a supply of this fine fruit; and many others, owing to a lack of knowledge or a want of thought on the farmer's part, get samples that are but caricatures of this noble berry at its best. Like the other small fruits the strawberry imperatively demands a rich, well-drained and moist soil. Unlike the raspberry, it is a comparatively shallow feeder, and this fact must guide us to some extent in manuring and in tillage. Thorough preparation of the soil before planting will especially pay in the case of the strawberry. The ground should be thoroughly worked, and if underdrained or if subsoiled so much the better, as such soil will be drier in a wet season and moister in a dry season. As no fruit is looked for the first season, but only a good strong lot of plants, well-rotted barnyard manure is the most profitable as it is the most convenient of fertilizers. In the second year, when fruit is the object, the case is different. The berries take practically no nitrogen out of the soil, and as this

element is the important one in barnyard manure it is obvious that such manure could be better employed elsewhere. We have an ideal fertilizer for the berries in unleached wood ashes, which contain in well-balanced proportions the two elements required by the fruit—potash and phosphoric acid. This may be applied broadcast over the patch in the late fall or on light soils very early in the spring. Anywhere from 50 to 100 bushels to the acre may be profitably used, and, for preference, the larger amount. Spring planting is usually found best. Put out young, vigorous plants as early as possible so that they may get thoroughly established before dry weather comes. From three to four feet between the rows and eighteen inches in the row will be a suitable distance. In a large patch the rows may be marked with the corn-marker and the holes made by striking a spade in the ground and moving it backwards and forwards. A boy can follow and spread the roots of the plant fan-shaped in the cleft. Whatever method of planting is followed the important things are that the earth should be well firmed round the roots and the plant set the right depth.

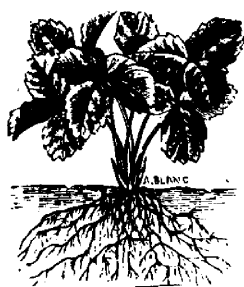


FIG. 71



FIG. 72



FIG. 73



FIG. 74

The above illustrations from Bulletin 27, Central Experimental Farm, show clearly how to do and how not to do it.

Fig. 71 is obviously all right. In Fig. 72 the root system has a poor chance to develop quickly. Fig. 73 shows a plant too deeply set. In such a case the crown would be smothered and the plant die. In Fig. 74 the reverse has happened and the plant would probably soon wither and die.

rows of varieties with imperfect blossoms will answer the purpose. Cut off all blossoms from the newly set plants. They will produce fruit at the expense of growth. Cultivate and hoe thoroughly and often. If possible do not let a single weed go to seed the first season and you will be well repaid

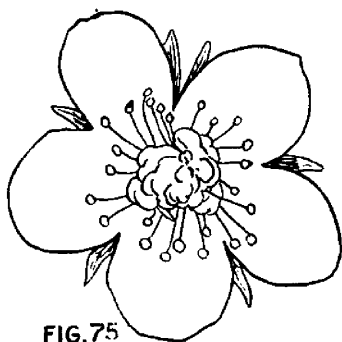


FIG. 75

Perfect Flower

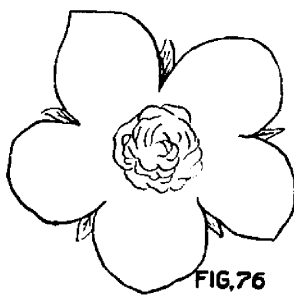


FIG. 76

Imperfect Flower

Strawberries may be practically divided into two classes, those with perfect and those with imperfect blossoms. The former has both stamens—male organs—and pistil—female organ. The latter only the pistil.

In Fig. 75 and 76 illustrations of each kind will be seen. As a pistillate variety cannot produce fruit unless fertilized by the pollen from a perfect flower, it is necessary to see that at least part of the patch is given up to varieties with a perfect flower. One row of "perfect" varieties to every three

the following year. On the whole the "matted row" system of growing is the best. Some growers cut off all runners for the first two months and then let them grow; others—and this is probably the better plan—allow a few runners to establish themselves from each plant and then cut off all subsequent runners. In this way a sufficient amount of strong, vigorous plants are ready for fruiting next year. In any case the mistake should not be made of getting a wide, densely matted row, where half the plant is producing little or no fruit, or fruit of an in-

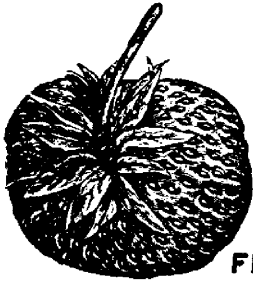


FIG. 77
Williams.



FIG. 78
Bubach.

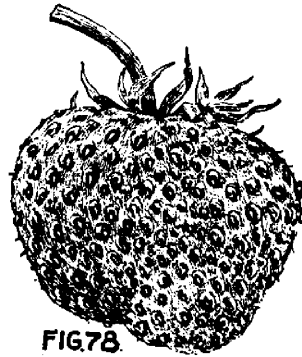


FIG. 79
Warfield.

ferior quality. The continual freezing and thawing that often takes place in the latter part of the winter is seriously injurious to

the plants and a winter covering is therefore generally advisable. The mulch should be put on when the ground first freezes up and



FIG. 80

CLYDE.

raked into the space between the rows directly spring growth commences, where it will conserve moisture and keep the berries clean. In a small way pine boughs and a layer of leaves answer admirably. On a large patch marsh hay or clean wheat straw will do. A manure mulch produces too many weeds, and any mulch that packs very closely will do more harm than good. The labor involved in keeping a patch in good shape for a second year's fruiting has made the practice of resetting every year very general. Certain varieties do so much better in one locality than another that no positive statements as to the value of varieties can be made. Let every man ascertain what kind does best under his local conditions.

The following list of well tried varieties is suggested :

Haverland. Pistillate, large, productive, rather soft.

Bubach. Pistillate, very large, not a good "runner."

Warfield. Pistillate, medium size, very productive.

Williams. Perfect blossom, large and firm, and good yielder, though tendency to show a green tip.

Van Deman. Perfect blossom, early.

Dominion. Perfect blossom, late.

Clyde. Perfect blossom, a new and very promising variety; large, vigorous, and productive.



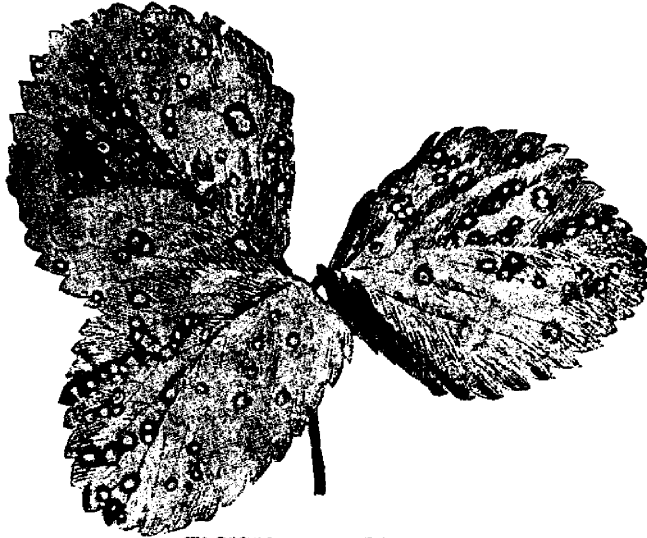


FIG. 82. Leaf Rust.

Diseases. The chief disease attacking the strawberry is the Rust fungus, Fig. 82. Where foliage is much injured by this disease it naturally affects the production of new plants and the subsequent crop of fruit.

One spraying of the Bordeaux mixture before fruiting, and two later on, if the patch is kept over, will do much to control the rust.

Grand Forks, B. C.

M. BURRELL.

STRAWBERRY CULTURE.

FALL PLANTING.

WHILE nearly all commercial growers plant their strawberries in the spring, a great majority of the skillful amateurs prefer to plant in the summer or fall. Peter Henderson said that if he were planting fifty acres he would use potted plants, and set them in the summer or fall. As we can do no more spring planting this year, we will consider the matter of fall planting. First, let us inquire into the habits of the plant. It is entirely different from nearly all other plants with which we have to deal. It is a stemless plant, and yet it produces neither bulbs, corms nor tubers. It consists of a crown from which roots extend into the soil and the leaves into the air. The crown is the im-

portant part of the plant, and contains within itself at the close of the growing season, much of the material that enters into the crop the following year. All the effort of the grower is directed towards surrounding the plant with the most favorable conditions so that it may build up a strong crown.

The strawberry plant is a perennial, and, under favorable conditions, will bear year after year, yet it will simplify matters and help us if we consider it a biennial. No part of the plant lives more than two years—not much over one indeed. The roots now being made by the earliest runners will turn back and die next summer, and a new lot will come out above them, and a new crown will be built up on top of the old one. The leaves

that go into winter quarters soon die in the spring, so that while the plant seems to be the same, it has new roots, new leaves and a new crown. This shows the importance of getting all the growth possible during the growing season, taking good care of the plants through the winter, and getting the new growth started as soon as possible after the crop is secured.

SOIL.

The best soil you have that is available will be found just right for the strawberry. The plant needs plant food and moisture, and if these be supplied it is immaterial whether the soil be light or heavy. If it be very sandy or gravelly it will be harder to keep it moist. If too low, there is more danger from late frost. If just south of a building or a tight board fence, the plants may get more reflected heat than is good for them, and if in the neighborhood of large trees their roots will run under the plants and deprive them of food and moisture. Many a strawberry bed has been ruined by the roots of trees from one to two hundred feet away.

PREPARATION OF THE SOIL.

Make it fine and firm. If the soil be deep it may be plowed or spaded to a good depth provided it is made fine and compact afterwards. It is much better not to plow at all than to leave lumps and cavities. Plants will not do their best in too loose a soil. They may make a good growth, but they will not bear well. A cavity of any size directly under a plant will prevent it blooming at all. I have set plants on ground that was trenched thirty inches deep, and on hard soil with only three inches of the surface made fine, and had good success in both casss. The soil loses its water mostly by evaporation, and I am unable to see why the plant can not get its water just as well within a few inches of the surface as a foot below, provided the ground is mulched.

The ground should be rich in potash and phosphoric acid. It is not best to apply too much nitrogen, as it causes a rank growth of foliage and runners, with little or no increase in the crop of fruit. If the intention is to plow up the bed after bearing, nitrogen may be applied liberally after the berries are formed. Stable manure may be applied during the winter with decided advantage. No lime should ever be put on land for strawberries.

PLANTING.

The time to plant in the summer and fall is just as soon as you can get plants and damp soil. Each day's growth adds to the crop. It is well to remember, however, that the hot and dry weather of July and August are very unfavorable for newly set plants, and the chances of having the plants make a steady growth from the start—which is very important—are much better if the planting be deferred until September, when we are likely to have more moisture in both the soil and the air. Very young runners planted any time in September will produce as large berries as if planted much earlier, but not so many of them. It is well to remember that any check to a strawberry plant during the growing season is quite serious. For this reason it is safer to plant later than to get the plants out early and have them remain at a standstill on account of heat and drouth.

After getting the ground prepared, it is worth considering what kind of plants to use. It is generally conceded that runners of the present year's growth should be used, but I have known several growers who preferred the old plants that have just fruited. I have used them myself with good success. A young runner is considered merchantable as soon as its roots are branched. These are the plants most generally used. A most excellent method is to take these young layers and transplant them into mellow soil a few inches apart, where they can be shaded and watered for a few days. In a week or

STRAWBERRY CULTURE.

ten days they may be taken up after a thorough watering, with the soil adhering, and set where they are to bear. They are equal to potted plants.

Potted plants have been exceedingly popular, and are sold in very large numbers. Very much may be said in their favor, and this we hear. There are some serious objections to them, and these are seldom spoken of. The chief advantage is that they may be transplanted, even by inexperienced persons, and receive little or no check. The pot is sunk in the soil near the runner that is to be potted, filled with earth and the young runner placed in it and held in place with a small stone. In two weeks it may be cut from the parent plant and removed to a frame where it is to be watered and possibly shaded for a few days. Potted plants are costly, especially if shipped far by express. If they remain in the pots too long they become pot-bound and, worst of all, the larvæ of the crown-borer and other enemies may be carried to the new bed in the pots.

If one wants potted plants without the expense of transportation, he can buy layers and pot them himself. Many of the potted plants sold are quite unsatisfactory. I usually report all that come to me. A good potted plant is a prize, but not all are good.

The conditions of success in transplanting are that the plant be kept from drying while out of the ground, that the roots be put in close contact with the soil, that the crown be level with the surface, and that shade and moisture be supplied until the plant has recovered from the effects of removal. This is where potted plants have the advantage; they are not taken out of the soil in which they rooted.

Almost as soon as the plants are transplanted cultivation should commence. The object is not to kill weeds—although it does this incidentally—but to keep a loose surface so that the water coming up from the subsoil by capillary attraction may be prevented from

reaching the surface and escaping, but may be held underneath the loose soil where it is utilized by the plants. When we consider that all the food taken up by the roots of plants must be dissolved in water, and that for every pound of dry matter deposited in a plant, 300 lbs. of water must be evaporated from its leaves, we get some idea of the importance of conserving the soil moisture. Within certain limitations, our crops are in proportion to the supply of water.

ENEMIES.

In cultivating the strawberry we are likely to have to do with some insect enemies. The white grub is conceded to be one of the worst. It is liable to be found in sod, and the safe way is to avoid sod land, and plant where cultivated crops have been grown for two years at least. When the crown borer or strawberry root worm gets into a bed, it should be plowed up as soon as the crop is secured, and a new bed should be coming on at some distance from the infested one. Enemies of the strawberry seem to be on the increase, and the plan of taking but a single crop and then plowing up the bed has much to recommend it.

Fungous diseases sometimes claim our attention. The most common is the rust. Every variety is subject to it, but some more than others. Some claim to be able to keep it in check by using the Bordeaux mixture. If plants are kept growing vigorously they are seldom injured to any great extent by the rust. It is however, unsafe to plant a new bed where a rusty one has been plowed under within a year.

WINTER PROTECTION.

After carrying the bed through safely till the end of the growing season, there is one more precaution to take lest the plants be injured by alternate freezing and thawing. The injury comes in this way: soil expands more or less by freezing in proportion to the amount of water it contains. This expansion

only takes place in an upward direction. As the frost penetrates deeper and deeper, the soil rises, carrying in its grasp whatever it is able to lift, whether it is a strawberry plant, a clover root, a garden stake or a fence post. The first thaw allows the earth to settle back in its place, but the plant does not. It may be only one-eighth of an inch, but if repeated often enough the plant will be lifted out of the ground. We have all seen this. Now, if we cover the ground between the plants with an inch or two of manure or a litter of any kind, in October, before the freezing weather comes, the frost will be unable to penetrate the soil so readily. And if it does somewhat, the covering of litter will prevent the thawing of the soil for a time, and the water will settle, leaving the surface so dry that there will be no expansion even if the frost enters the soil. We know that plants are not lifted out of sandy or gravelly soil if

the drainage is good. This freezing of the soil does the plants no good, although they may live in spite of it, and if we can prevent it we should do so. It is generally recommended to strawberries when the ground is frozen hard enough to hold up a team and loaded wagon. This is a mistake. In most cases great damage is done before severe freezing weather comes. My advice is to cover the ground between plants soon after the first frost, then when winter comes, cover the foliage until it is entirely hidden. There is no danger of putting on too much covering if it be taken off before growth commences in the spring. The damage comes from leaving the covering on until the plant starts, and then removing it. The white, tender growth that is made under a mulch is easily destroyed by either heat or cold.

M. CRAWFORD.

CUYAHOGA FALLS, O.

THE BOSC PEAR.

The Bosc pear will never be a glut in the market, for the reason that the tree grows so crooked and slowly that the nurserymen will not grow it, says Edwin Hoyt in Rural New Yorker. Those who buy trees do not understand that there is as much difference in the habit of growth of trees as there is in animals, and are not willing to pay any more for one tree than another of the same species. If a nurseryman were to bud 1,000 stocks to Bartlett, he would, no doubt, get 900 good trees, while if 1,000 stocks were budded to Bosc, he might not get more than 100 good salable trees, and many of these might have to be staked while growing to get the body up straight so as to make a tree a customer would receive if sent to him. Many nurserymen grow a few Bosc by top working them, that is, by budding the Bosc in the top of some strong growing variety like Clapp,

Buffum or Anjou. To raise the trees in this way, the nurseryman has to charge more for them to pay him for his extra trouble.

If one wishes to obtain a Bosc pear orchard the best way to get it is to set Clapp or some strong growing variety. Let it grow two years, then top-graft it. This, of course, is some trouble and expense to do, yet the one who does it will get a good paying pear orchard, for this variety will never be over-produced. It is a fine pear, a heavy bearer and usually grows smooth and fair with good feeding and cultivation, such as any orchard should have for profit. The Winter Nelis is one of the best of winter pears, but the tree is like the Bosc, so poor and crooked a grower that few trees are raised by the nurserymen. To succeed with this variety, it must be top-grafted as above directed for the Bosc.

PEACHES.



FIG. 1945. THE MAGNIFICENT PEACHES.

SIR,—I take the liberty of sending you a photo of peaches grown in my garden (61 Glengarry avenue, this city), if you think it worthy of notice use it.

A Californian peach stone was sown in the fall of 1896, and the fruit shown in the photo is the result. The Peach is almost perfect, with red blush ; cut open the flesh is a rich,

amber color ; stone small, surrounded by a deep red color ; peach very juicy and exceedingly fine flavored. You will see the weight of the three peaches is 21 ounces, and measure almost nine inches. The peaches were picked October 1st. Yours very truly,

GEO. CHEYNE.

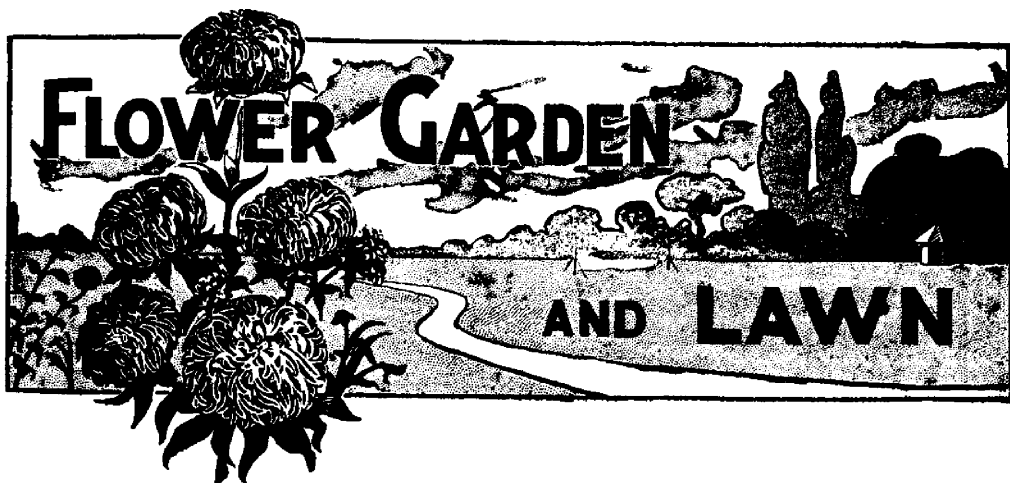
Windsor, October 3rd, 1900.

PEDIGREED FRUIT TREES.—Professor G. Harold Hall, of the Delaware Agricultural College, gave an address on the importance of the plant individual in horticultural operations at the semi-centennial of the American Pomological Society. He said: Three Wine-sap apple trees in the same orchard showed a difference of from 30 to 60 per cent. in the yield of apples. This seems to show that there are strong inherent qualities in fruit trees. I think these strains of light and heavy bearing are generally found in orch-

ards. Are the qualities hereditary, and can they be transmitted through the buds and scions from the most productive trees? Can we establish pedigree in fruit trees, and obtain the results of a selection that extends through several generations? From experiments made along these lines, I think the individuality of fruit trees can be, to a large extent, transmitted and preserved. I advise all fruit growers to propagate fruit from the most productive trees.



FIG. 1946. SOME FINE BECONIAS. (See page 485.)



TIMELY TOPICS FOR THE AMATEUR.—IX.

THE more frequent and intense visitations of frost that usually occur during November, accompanied perhaps by rain or snowstorms, will make work in the garden less pleasant and enjoyable than during the earlier days of autumn. That delightful, but decidedly fickle and uncertain period of late autumn weather—Indian summer—does not always materialize, especially in Southern Ontario. Advantage must therefore be taken of every fine day to straighten up all odds and ends of out-door operations in the garden previous to winter setting in in earnest.

The protection of tender plants, etc., will be one of the most important items requiring attention at this season of the year. The too common method of applying a heavy covering of perhaps almost rotten manure indiscriminately to all kinds of plants cannot be too strongly condemned. This method is, generally speaking, very successful in smothering and killing out entirely many of the more tender varieties of perennials and biennials, especially those that are not strictly herbaceous in character. Pæonies, Holland bulbs, lilies, etc., that have little or no top growth to preserve, do not object to a good heavy mulch of manure

during winter. Japan lilies, such as *L. auratum*, *L. speciosum*, and other varieties even more tender than those mentioned, are distinctly benefitted in winter by a good heavy mulching. The hardier varieties of lilies, such as *L. candidum* and *L. tigrinum* (Tiger Lily), will also appreciate a slight protection of this kind during severe weather. Most of the border perennials and biennials, a majority of which may be very properly termed only semi-herbaceous in character, would, however, oftentimes succeed far better if left exposed fully to the vagaries of winter weather without any protection at all, than to have the life smothered out of them by a too liberal covering of heavy mulching material. Perennial border plants, such as dianthus, gaillardias, campanulas, aquilegias (Columbines), perennial phlox, or more especially biennial plants, such as holly hocks, campanula pyramidalis, etc., would certainly suffer very materially by the above mentioned treatment. Many fine collections of the two last mentioned biennial flowering plants have been killed out entirely in winter, by a too liberal application of unsuitable mulching material. This latter evil, combined with attacks of the fungous

disease that has of recent years been so disastrous to hollyhocks, has almost banished this grand old-fashioned flower from our gardens. The *Campanula pyramidalis*, however, seems to be quite proof against either disease or attacks of insects, a little extra care in winter, beyond ordinary culture, being about all it requires to give profuse returns of its handsome spikes of bright colored, showy flowers during the summer months.

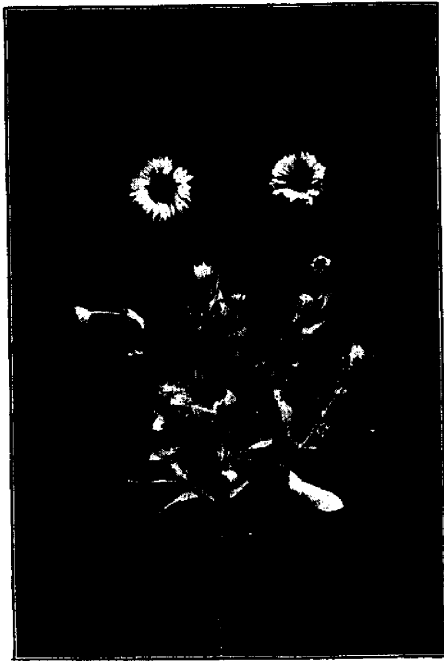


FIG. 1947.
SPRAY OF *GAILLARDIA GRANDIFLORA*.

A good covering of snow is undoubtedly a splendid protection to plant life in winter, especially if sufficient of it could be retained in its natural light fleecy form to cover the plants the entire winter through. Experience has taught us, however, that snow cannot always be depended on for a winter covering for plants, especially towards spring-time, when the heat of the sun, or perhaps a warm rainfall with sharp frosts immediately following, converts the cover-

ing of half-melted snow into a thick sheeting of ice over and around the plants. This accumulation of ice is as injurious to plant life as the heavy covering of manure before mentioned, as it often hermetically seals the plants under its icy grasp, entirely excluding air from them, without which very necessary element plant life cannot possibly exist. Alternate periods of freezing and thawing are also very disastrous to unprotected plants.

The great point to be gained in successfully protecting semi-herbaceous border plants in winter is to provide a covering that will exclude to a great degree extremes of frost, as well as the rays of the sun, without excluding air altogether from the plants. Keeping the covering next to the plants as dry as possible is another very essential point in the protection of plants in winter.

There is no better and easier obtained covering for the class of plants mentioned than fresh fallen autumn leaves. Sufficient of these should be first placed about the plants to cover them. Strong wire, or tough pliant twigs, should then be bent over the leaves so as to form an arch. This support of wire or twigs should be strong enough to support any additional covering that may be afterwards thought necessary, so that the extra weight does not bear down on the plants. This second or outer covering should consist of long sedge grass, straw, or long strawy manure, placed over the supports in such a way so as to form a rough thatch, to throw off any moisture and keep the underneath covering as dry as possible. Boards can be used to answer the same purpose as the wire or twigs; these, however, must be well supported, so as to keep them from pressing on the plants. Stone or blocks of wood can be used for this purpose. If the supports are strong, additional covering can be added at any time if required, but as a rule a light cover-

ing of the materials mentioned, with the assistance of a covering of snow, will be found to produce better results than too heavy an artificial covering. Many border plants will often come through the winter splendidly, without any protection, but a light covering, if properly applied, is certainly an additional security.

For roses, tender shrubs, or plants that

covering for young tender trees or plants in winter. The brush or shrub to be protected should first be tied or bunched up in as close a compass as possible. Commence putting on the material at the base of the plant first, allowing each successive layer to slightly overlap the one below it. This method effectually throws off all moisture, thereby lessening to a great extent the

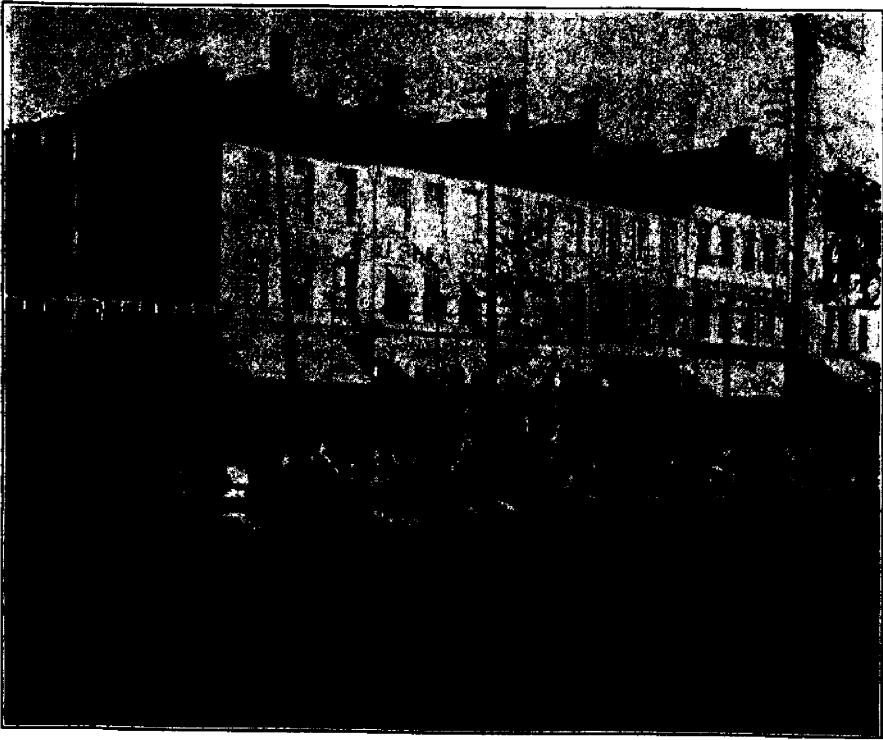


FIG. 1948. BED OF CANNAS AT GORE PARK, HAMILTON, OCT. 12, 1900.

cannot be laid on the ground and protected, no better covering can be found than two or three thicknesses of bass matting. The dried grass mats, used for an outer covering of tea chests that are imported from China, makes a splendid covering for this class of plants. An inner lining of straw, or some similar material, may in some cases be necessary in addition to the matting. Long sedge grass, or even the long leaves or husks of corn, are also useful for a

serious effects of severe frosts. Vines that can be laid down near the ground can easily be protected with leaves, long strawy manure, or sedge grass. None of these coverings that have been mentioned should be put on until quite late in the season, especially in the case of covering up grape vines, as mice and rats may perhaps mistake your protecting material as having been prepared for their especial benefit, to furnish comfortable quarters for them to winter in.

This is more particularly to be taken into consideration where leaves are used as a winter covering for roots or vegetables, as these destructive little nibblers are very partial to snug, warm quarters in winter, especially with a plentifully supplied larder close at hand. If the covering is not applied until after the first fall of snow, these little pests are seldom troublesome.

of bloom standing erect above their handsome foliage, as perfect in form and rich in coloring as it is possible for them to be. Foliage beds of *caladium esculentum*, *coleus*, *ricinus* and *acalyphas*—to say nothing of beds of *geraniums*, *begonias*, etc.—can be seen on almost every lawn, resplendent in all their summer beauty of foliage and flower. Verily this, the last



FIG. 1949. BED OF *RICINUS*, *CALADIUM ESCULENTUM* AND *COLEUS*,
GORE PARK, HAMILTON.

Photo taken Oct. 12, 1900.

It seems decidedly out of place and unreasonable, at this date (October 15th) to be writing an article on the protection of plants from severe frosts, as up to the present there has not been the slightest frost in this locality to even dim the rich summer coloring, or check in the slightest degree the luxuriant growth and flower of the most tender exotic plants. Masses of *cannas* can be seen with their large showy trusses

autumn of the 19th century, must be recorded as being exceptionally fine and beautiful in this section of Ontario. Possibly before this reaches the eyes of our readers a decided change will have come over this scene of summer beauty in late autumn. The accompanying photographs of two of the many fine beds of flowering and foliage plants to be seen in Gore Park, as well as the other parks in the city, will give our

readers an idea of the almost tropical weather experienced in Southern Ontario during the past few weeks. On the 6th of October at 2 p. m. the mercury registered 86° in the shade, at 6 a. m. it was 72°. These were about the highest points reached, although the temperature for the whole of October to the present date has been very much higher than is generally experienced. It cannot, however, be reasonably expected that the summer weather we are enjoying can last very much longer, and it is quite possible that many of our semi-hardy plants will require even better protection during winter than usual. Tropical weather in autumn is not reasonable, and certainly not suited to prepare plant life to withstand a rigorous, severe winter which it is possible we may experience.

THE GREENHOUSE.—This department will now require close attention. Increasing the amount of fire-heat will develop a rapid increase in insect pests, especially green fly or aphid. Give these latter a dose of tobacco smoke, or tobacco water, before they injure the plants. Frequent fumigations, and not of too severe a nature, are much better than heavy fumigations at long intervals.

Chrysanthemums will be in the height of their beauty now. The earlier varieties, such as Midge, Pride of Pacific, etc., will be about over their best. Overhead syringing of these plants should not be indulged in when they are in flower. Give all the air possible without risking the safety of other plants. A little liquid manure will help the late flowering chrysanthemums to swell their buds and produce finer blooms. "Fostite" will check rust on chrysanthemums, as well as on carnations, but will not apparently eradicate this troublesome disease entirely from these plants. Flour of sulphur and dry air-slacked lime mixed together in equal parts and dusted carefully on the under side of the foliage of

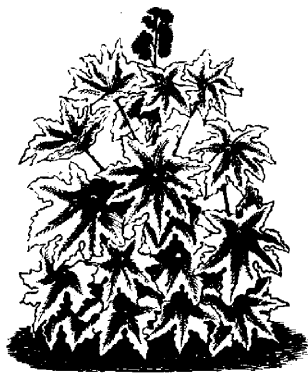


FIG. 1950. RICINUS.

chrysanthemums will partially check this disease. Red spider will be almost certain to make his appearance about this time. Keep the atmosphere of the greenhouse or conservatory as moist and humid as possible and springle well on the underneath side of the foliage, especially that of roses. Cinerarias must be potted into larger pots as required; don't allow the plants to become pot-bound with roots. Thrip often attacks these plants. If the foliage does not look healthy and the leaves are blotched with dull white specks or spots, the minute little pest, "the thrip," is causing the trouble. Dipping the foliage of the plants in moderately strong tobacco water is the best remedy for these almost invisible pests. The underneath side of the leaf is the part of the plant they usually attack, a microscope being often needed to locate them at their work of destruction. The fumes of tobacco takes no effect on these minute little pests, but raw tobacco stems placed around and underneath the pots will check their ravages to a great extent. Cuttings of geraniums, etc., that are rooted in the cutting bed, or in boxes or pots, must be kept fairly moist at the roots, but should not be syringed overhead, as this induces "damping off" of the foliage.

Spiraeas that have started growth will require plenty of water at the roots. Remember when fumigating to lift these plants

down on to the floor, as tobacco smoke is very injurious to the tender foliage of *Spiraeas*. The last batch of freesia bulbs should be potted; if kept later, small and inferior flowers are generally the result. How few of the tuberous rooted *tropaeolums* are seen in greenhouses. They make an ideal and unique plant for amateurs. *Tropaeolum tricolorum* is about the best variety, *T. jarratti* coming next in point of value. Light, fairly rich soil, with plenty of drainage, in a good sized pot and a moist atmosphere suits these pretty little greenhouse climbing plants admirably. A light wire frame or a small plant ladder about 2 ft. high, made of slats of thin wood, will make a suitable support for these delicate little climbers. The bulbs must be kept quite dry during summer, after the flowering period is over and the foliage shows signs of decay. Close ventilators in the greenhouse early in the day if ventilation is given at all.

WINDOW PLANTS.—Watering the plants and keeping them free of insects will be the principal features in the care of window plants. The leaves of *Ficus elastica* (India rubber) plants, and even the older leaves of *Calla lilies* and similar plants, will benefit by a sponging with clean tepid water once a week. Water of a temperature of about 50° is best both for watering at the roots as well as for applying to the foliage of plants. Keep as moist an atmosphere as possible prevailing in the room where the plants are. A steaming kettle, or open pot of water, will benefit the plants, and not jeopardize the health of the inmates of the house. Water the plants at the roots thoroughly, but only when needed. The latter very essential point in the care of plants can only be learned by close observation and experience—two of the best tutors for plant growers. Experience is sometimes costly, but its lessons are generally of an effective and lasting nature.

FLOWER GARDEN.—Finish preparing the

beds and borders ready for an early start in spring.

Spring flowering bulbs should be planted out at once if not already done. A good mulch of half-rotten strawy manure should be placed over the ground where bulbs are planted. This mulch need not be applied until frosts set in for good.

Protect all tender plants as required. Avoid handling or tramping on plants when they are in a frozen condition.

FRUIT AND VEGETABLE GARDEN.—There will be little to do in the fruit and vegetable garden now, except to finish up any arrears of work, such as digging, etc., and securing any late crops that are not as yet properly stored for winter. Additional covering for vegetables in pits will probably be needed. Avoid putting on too much covering, as the exclusion of air altogether, and the heat caused by over-covering vegetables, often cause a greater quantity to spoil and rot than if left comparatively open and unprotected. Cover up spinach that is to stand out all winter, with the trimmings of the raspberry patch. Fine brushwood, young suckers cut from fruit trees, or the coarse trimmings from border plants, such as perennial phlox, zinnias, etc., make a splendid winter protection for spinach. Manure or any close heavy material should not be used for covering spinach in winter, as it is certain to rot if covered up too closely.

Take up a few roots of parsley, cut off all the large outside leaves, and plant the roots thickly in soil in a large pot or deep box. Place the pot or box in the window or greenhouse and keep the roots well watered. Rows or beds of parsley left outside during winter should be protected as recommended for border plants.

Asparagus beds should have a good coating of well rotted manure for a winter covering.

HORTUS.

Hamilton.

CULTURE AND ADAPTATION OF THE DAFFODIL OUTDOORS.

OIL.—The daffodil will thrive in any ordinary garden soil, but prefers a deep, rather moist loam. When the soil is of a dry sandy nature, it should be deeply dug, rotten stable manure should be added, and a potato or other crop taken off before planting. If this is not convenient, then place the manure at least twelve inches deep, so as to be out of the reach of the bulbs; the manure is used not as a stimulant but as a sponge to hold moisture in the soil. The ammoniacal properties of manure are injurious to the daffodil, hence great care is necessary in the use of it.

Freshly dug soil should be allowed to stand vacant two to three weeks before planting, to allow the ground to settle down, otherwise the freshly planted bulbs are often drawn under considerably below their proper depth, and the bloom in consequence is weakened and retarded.

Best and safest manure to use is crushed bones or basic slag. This should be applied at planting time, and may be mixed with the soil and placed next the bulbs; the crushed bones may be applied at the rate of 4 cwt. to the acre, or $1\frac{1}{2}$ oz. to the square yard, and basic slag may be applied in the same manner at the rate of 1 ton to the acre, or $7\frac{1}{2}$ oz. to the square yard. We recommend the basic slag in preference to the crushed bones, it being more reliable, and a good manure for all lands; on very poor and dry sandy soils we recommend in addition sulphate of potash to be sprinkled annually in the autumn over the surface of the ground, or after planting, at the rate of 2 cwt. to the acre, or about $\frac{3}{4}$ oz. to the square yard. The potash not only increases the depth of color in the flowers, but also helps to hold the moisture in the soil, a con-

dition so essential to the perfect development of the daffodil.

In early spring, as soon as the daffodils begin to show above ground, the surface should be well broken with a hoe, to sweeten it after the heavy winter rains.

Planting and Lifting.—The best time to plant to obtain the finest flowers is from end of August and during September, although bulbs may be planted as late as Christmas with very satisfactory results. They may be left undisturbed for three years in ordinary good loamy soils, but on poor and light soils they are better lifted every two years, as soon as the foliage has died down, and replanted as early as is convenient. Never plant when the ground is wet and sticky, wait until it is dry or friable. Do not put silver sand around the bulbs of Narcissi except in the case of *N. corbularia*.

Depth to Plant.—The average depth to plant is from 2 to 3 inches, that is to say, a covering of two to three inches of soil, but not more. As the bulbs vary considerably in size, according to the relative varieties, the best rule to go by is the bulb itself, which should be covered with soil once and a half its own depth, measuring the bulb from the collar of its neck to its actual base.

Position and Grouping for Effect.—All daffodils prefer partial shade, although most of them will grow equally well in the open. In the flower border, to obtain the best effect, daffodils should be planted in large groups of irregular outline, each group or clump to contain one variety only; avoid straight lines, circles and symmetrical designs. Masses of daffodils should always appear in the hardy flower border, where irregular and effective sweeps can be planted between the clumps of herbaceous plants which in their turn grow up and hide

as well as shelter the daffodil foliage while it is going to rest. In grouping, the season of flowering should be borne in mind, as the varieties bloom in succession from the end of February to the end of May, during which period a constant succession of flower is obtainable by a judicious arrangement.

Varieties specially suitable for naturalising in grass, woodlands, etc.—These are all free seeders, and will therefore spread naturally; they are mostly natural hybrids—*Abscissus*, *Achilles*, *Countess of Annesley*, *Golden Spur*, *Henry Irving*, *Obvallaria*, *Spurius*, *Thomas Moore*, *English Lent Lily*, *Princeps*, *Scoticus*, *Variformus*, *Albicans*, *Pallidus*, *Præcox*, *Moschatus of Haworth*, (very pretty in grass), and *Poeticus* of the Pyrenees. The varieties italicised we do not recommend for the cultivated border, as they deteriorate the second year, while in grass or meadowland they flourish.

Hints on Naturalising in Grass.—All daffodils may be planted in grass with perfect success. To produce the best effect the three groups should be kept separate; thus the *Star Narcissi* should not be mixed with the *Great Trumpets*, nor the *Poet's Narcissi* with the *Star Narcissi*. In arranging, make the breaks large and bold, scattering the bulbs over the ground broadcast with the hand, and dibbling into the ground where they fall. Avoid symmetrical lines or formal circles as far as possible, as these are never found in nature.

Method of Planting in Grass.—Take a stout wooden dibber (like a potato dibber) with a strong tread; make the hole in the ground about six or seven inches deep, and fill up with a good mixture of prepared soil consisting of two-thirds loam and one-third old leaf sod; into this press the bulb, and cover up the hole with some compost; this will give the bulbs a fair start, and success is sure to follow. In planting under trees, avoid places where the drip from the

branches is greatest, also where the main roots come close to the surface.

CULTURE INDOORS IN POTS, ETC.

Of the stronger growing sorts use three to six bulbs, according to size of bulb for a 4½ to 6-in. pot; of the small growing kinds, such as *N. Minimus*, *Nanus*, *Minor*, *Cyclamineus*, *Triandrus*, *Juncifolius*, and *Corbularias*, use twelve to eighteen bulbs for a 4½ to 6-inch pot. These small-flowered dwarf-growing species are most charming in pots or little shallow pans. The following may easily be had in bloom in January—*N. minimus*, *minor*, *nanus*, and *Cyclamineus*, and these may be mingled with *Chionodoxas*, as both bloom at the same period and produce a charming contrast. The *White Hoop Petticoat Narcissus* should be potted in almost pure sand kept well moist, and may be had in bloom shortly after Christmas.

If daffodils are wanted in quantity for cutting early in the season, plant thickly in boxes five or six inches deep, and only just cover the bulbs with soil, using ordinary potting soil. The pots or boxes should then be placed out of doors on a firm bottom such as a bed of ashes or a gravel path and be covered with six inches of ashes or cocoa-nut fibre. When the bulbs have filled the pots or boxes with roots and made an inch or two of top growth, portions should be removed indoors in succession, selecting first those which flower naturally early. First place in a cold frame or cool greenhouse, and when the flower buds are well advanced shift to a slow forcing house when they should have abundance of water and plenty of air. The plants should be kept as near to the glass as possible, and not allowed to get down from an insufficient supply of light or air. On no account should bottom heat be given.

A charming effect is obtained by growing daffodils in fancy bowls, simply using cocoa

fibre. Fill the bowls one-third up with fibre, then insert the bulbs and fill up nearly to the top with fibre. Give sufficient water to make the whole damp, and after that simply keep the fibre moderately damp. Should the material and bulbs lift owing to root action, simply press them down gently and evenly into the bowl. Daffodils may be grown successfully this way in a cool greenhouse or sitting-room window (by preference a room without a fire). They

should be grown cool, and not brought into warmth until the flower buds are coloring.

To obtain very fine blooms daffodils should be cut in a young state, just when the bud has well broken and is expanding from the spathe. Place in water and allow the flowers to open in a cool greenhouse or sitting-room. The blooms opened in this way are larger than those which develop out of doors.

—*Barr's Catalogue.*

THE FREESIA FOR WINTER BLOOMING.



FIG. 1951. GIANT BERMUDA FREESIA.

Pike, in *American Agriculturist*, give the following pointers for success with the freesia :

A rich, sandy potting soil is preferable, and a five or six-inch pot will accommodate half a dozen bulbs—one in the centre and the remainder in a circle about an inch from the side of the pot. Cover about an inch deep, water thoroughly and set out of doors

in some cool, shaded spot protected from rain. Cover over with straw or mulch of some kind to keep dark and cool while roots are forming, and examine frequently, giving water when the soil appears dry on top. As soon as the shoots begin to prick through the soil remove the mulch and gradually accustom to sunlight. Keep them out of doors and in full sunlight until there is actual danger of freezing, taking them into the house nights when necessary. They are not a tender plant and prefer a cool temperature.

When no longer safe to keep them outdoors during the day, place them in a sunny window of a fireless room and keep them there as long as the temperature does not go down to actual freezing. If necessary, they may be removed over night to a room having a fire, but during the day give a sunny, but cool window if possible. Water freely and as often as needed, and when the buds begin to show among the sword-like leaves, a light application of some liquid fertilizer may be given once a week. When the fruit flowers begin to open give an hour or two only of morning sun, then remove to a shaded location which will make the flowers more lasting.

BEAUTIFUL BULBOUS FLOWERS

BY ELMER E. SUMMEY.

COMPARED with the almost universal use of our ordinary flowering plants, it is remarkable that the bulbous class should be so little appreciated. It is true that there is a constantly growing interest manifest, but this is not so great as the merit of this class deserves.

I wish to incite the reader to a greater degree of familiarity with these worthy plants. With them, the season of flowers may be extended from the first warm days of spring to the sharp frosts of autumn. The earlier flowers, modest though they are, from their welcome contrast to the winter's bareness, are more enjoyable than many of the gorgeous blooms of summer, when all nature is clothed in beautiful array.

Even now is none too early to begin the consideration of which to use, and the effects for which to aim. The bed should be designed and prepared in readiness for planting, by the last of September, or the first week of October at the latest. Where the Easter Lily (*Lilium Candidum*), are used, efforts should be made to get them planted during August.

With these bulbous flowers as with nearly everything else, the greater the care and preparation bestowed upon the soil in which they are to grow, the more satisfactory will be the return, although it is also true that many bulbs will do fairly well in the most neglected of situations.

With the combination of taste and ingenuity many pleasing effects may be produced by the use of the various brilliant hues, and taking advantage of the difference in habit of growth of the many desirable forms. Where one has grounds of sufficient extent, a good sized bed could be devoted solely to bulbous subjects, as a proper selection

would produce flowers almost continuously throughout the season. Such a bed should be arranged to present at different seasons certain particular effects; for instance, with the first signs of spring, the bed should appear as though wholly planted to crocuses in their various colors, together with snow-drops. The first should be planted in fancy outline designs all over the bed, the latter being used in several places for filling in the design.

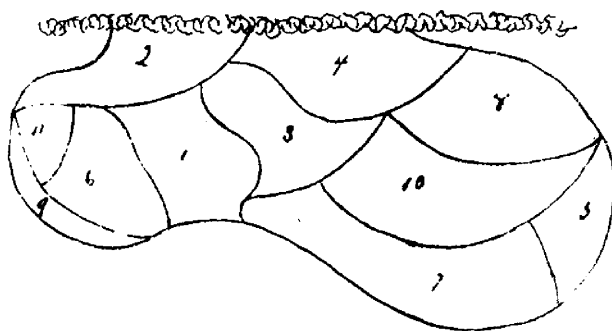


FIG. 1952. PLAN FOR LILY BED.

The crocuses begin to bloom in March and April if the season is forward, and continue until the Hyacinth come to the front. The colors are white, blue, striped and yellow, and present a gay appearance. The bulbs should be planted about two inches deep and about four inches apart, when a thick line of foliage and flowers will be formed.

The Snowdrop (*Galanthus*) are delightful pure white flowers, both double and single, which are frequently in bloom before the snow is gone. Plant the bulbs about three inches deep and about the same distance apart, in clumps a foot or more across. Every three years they should be taken up and replanted.

After these earliest flowers are nearly

past, Narcissus, Hyacinths and Tulips of various colors should be coming on; the bulbs having been planted to harmoniously fill out the design formed by the crocuses, care should be taken to use the latter as well as the early sorts in order that the season may be lengthened until into June.

At this time Iris, of the various sections, English, German and Spanish, will be coming into bloom, while the Japan Iris will prolong the season with its gorgeous orchid-like flowers. The hardier and more robust of the Lilies should be distributed over the bed.

To furnish bloom through the later summer months, gladioluses and perhaps a few dahlias tubers might be used for the sake of variety. Then to close up a long season of bloom there should be set all over the bed, about a foot and a-half apart, plants of the Japan anemones, using both the red and white varieties; although they are not of a bulbous nature their low habit of growth through the summer renders them eminently fitted for such use, as they shade the ground somewhat, for the bulbs are not yet in the way of their well doing; late in the fall after nearly all other flowers are gone, the ane-

mones and dahlias should be staked while in bloom, then it will be an easy matter to find the bulb when they should be taken up in the fall, care being of course taken to disturb the other bulbs as little as possible.

Where it is not practicable to have such a bed as above outlined, a judicious planting of many bulbs may be made in the shrubbery border, in any open spaces. If even this is not allowable from the lack of space, the earlier blooming kinds, including tulips and hyacinths, can be used in the same beds that summer-grown plants are grown. The bulbs can be dug up as soon as the flowers have gone, and planted in some out-of-the-way place for ripening until planting time in the fall, after the first hard frost.

In the formation of such a bed it is of course necessary that the soil should be deeply dug and well fertilized with old and well rotted manure. Early in the winter, after the ground is frozen, a good top dressing of manure should be given the bed, both for protection of the bulbs, hardy though they are, and the continued fertilizing of the bed, as this manure is dug into the surface the following spring.—*Our Country Home.*

SOME FINE BEGONIAS.

SIR,—I enclose you a photograph* of a group of Begonias in bloom, the size of the plants, and the amount and size of the bloom I think is seldom seen.

My reason for sending you the photograph is two-fold. First, I consider this variety of begonia the Queen of the family, and the readers of your journal will do well to secure a plant of this variety, which requires very little more care than a geranium, only it is not so hardy.

I wish to say here that I do not sell plants but the variety can be secured from the florists about here, and the next thing is to know the name, since it goes under four or five names, and I am not sure which is the

right one, and this my second reason for sending you the photo, thinking that some one of your readers might be able to give it its proper name.

I secured the cuttings under the name of *Pictaviensis*. I have been told that it came from the United States under two names, as follows,—*Velutena* and *B. Cuprea*. I see a cut resembling this one in English journals under the name of *Haegeana*. I also noticed a cut in the *Horticulturist* in the spring, by Webster Bros., Hamilton, resembling this variety. The question is, are they all one variety under different names, or are the varieties all different.

Niagara Falls South. R. CAMERON.

* See page 474.



The Canadian Horticulturist

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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.

A GOLD MEDAL was awarded the Secretary of the Ontario Fruit Growers' Association for a collection of choice apples and pears forwarded by him to the Paris Exposition.

ELBERTA PEACHES FOR ENGLAND.—The steamer Trader, sailing October 5th, was rather late to carry Elbertas, which were just over. Nevertheless Mr. J. Wesley Smith, of Winona, put up twenty-five Wilson (bushel) cases of this variety for us to experiment with, and we sent them forward to Manchester. We have a good deal of confidence in the future of this variety.

A FINE SEEDLING PEACH.—To-day, Oct. 6th, we received from Mr. W. E. Wellington, Toronto, a very fine sample of a seedling peach grown in Toronto. It measures $3\frac{1}{4}$ inches in diameter and weighs over half a pound. The flesh is yellow, juicy and

excellent, and quite free from the pits. We know of no peach of its season to compare with it. We have finished Elberta, Late Crawford, Steven's Rareripe and Longhurst, and are now gathering Smock and Winter, but these latter are small compared with this fine sample.

A GRAND PRIZE for Ontario fruit, which was collected and forwarded by the writer to the Paris Exhibition, has been awarded the Dominion of Canada.

We have just received the following communication from Mr. Auguste Dupries, Secretary of the Canadian Commission, dated Paris, September 1st, 1900:

DEAR SIR,—I have much pleasure, by order of the Canadian Commission, to advise you that the International Jury at the Paris Universal Exhibition has awarded the Dominion of Canada for a collective exhibit of Horticulture, of which your exhibit of peaches, etc., formed an important part—a GRAND PRIZE DIPLOMA, and you will be entitled to receive a copy of the award.

The collection included all the fruit varie-

ties of fall and winter apples and pears, the following varieties of peaches: Elberta, Late Crawford, Wonderful, Lord Palmerston and Pride of Canada; and a set of bound volumes of the Canadian Horticulturist and Reports of the Ontario Fruit Growers' Association.

MESSRS. SIMONS, SHUTTLEWORTH & Co., Liverpool, cable: No fresh Canadians up in time for sale to-day. The market opened steady and continued so throughout the day. Good apples meeting with a strong demand.

Shipments last week from all parts will aggregate 48,000 bbls. to Liverpool, 20,000 bbls. to Glasgow, 22,000 bbls. to London (mostly from Nova Scotia), 300 bbls. to Hamburg, a total of 90,300 bbls., against 89,173 bbls. corresponding week last year.

YEAR 1900 APPLES AT PARIS.—At the request of the Hon. Sidney Fisher we undertook to forward two collections of Ontario apples to Paris. The first lot, consisting of thirty cases of summer and fall apples, with a few pears, went forward about September 15th, in cold storage as far as Manchester. In this collection were such varieties as Blenheim Orange, Alexander, Snow, Swazie, Cranberry, King, Wealthy, Maiden's Blush, St. Lawrence, Red Russet, Louise, etc. Our readers will be pleased to read the following cablegram, dated Paris, October 15th, from Commissioner Dupuis, one of Canada's representatives at the Exposition:

Fresh fruit in splendid condition. Four additional gold medals awarded Canada on Thursday. Prof. Drummond, from London, warns the department at Washington to wake up, as Canada leads in quality and quantity of products.

(Signed) Dupuis.

A FINE SEEDLING APPLE.—On the 6th October we received two fine seedling apples from Orillia, which originated on the farm

of Alex. McPhie, three miles out of town. Mr. J. Ryerson, who sends the apples, writes: "These apples average about the size of the samples, 3 inches in diameter, are entirely free from scab, not inclined to drop from the tree, bear a full crop alternate years, and a half crop the other years. The fruit keeps till about January. The tree is a chance seedling."

This is certainly a most attractive looking apple, almost equal to the Gravenstein in appearance, and of a season to continue in use from the time that variety is over in October, throughout November and December. In form it is oblate, with deep russeted cavity and large deep basin. The skin is straw colored background, almost covered with stripes and splashes of bright red. The flesh is white, fine grained, moderately juicy, of an agreeable, aromatic flavor.

This apple appears worthy of further notice by our fruit committee.

PRESERVING FRUIT FOR EXHIBITION.—T. Cranefield, in Wisconsin station report, gives results of experiments in preserving fruits for exhibition purposes, and retaining color and form. Sulphur fumes, corrosive sublimate, salicylic acid, and solutions of formalin in water were tried and found to be of little value. Mixtures of formalin and alcohol were tried, however, as preservatives for plums, with considerable success. A formula containing 2 per cent. of formalin, 20 per cent. of alcohol, and 78 per cent. of water was found to be best suited to the purpose.

"Plums put in the above mixture one year ago are at present well preserved. The fruit remains firm, and in the case of the lighter colored varieties the color is well preserved and the liquid remains clear. The color was not so well preserved in the case of the dark-purple varieties. The Japan plums are especially well preserved both in

color and form. Plums that were put in the mixture slightly immature cracked badly in every case, while those put in fully ripe remained without cracking. Currants, raspberries, and blackberries placed in the formalin and alcohol mixture mentioned above remained firm, but the color was not well preserved."

THE APPLE MAGGOT.—Card, of Rhode Island, has found orchard cultivation to go a long way in destroying this insect. Of 500 apples picked from a tree in grass, September 19th, where the ground had not been ploughed about 400 were wormy, while on the ploughed ground only about half of that number were affected.

THE QUALITY OF CANADIAN FRUITS is the subject of comment in *The Fruitgrower*, published in London, England, from which we quote as follows :

We are particularly pleased to testify to the quality of the Canadian fruits. They are far superior to the American, the flesh of the fruits are finer, more juicy and toothsome, whereas a good many of the Californian Newtown apples are hard and quite different to those sent from Canada. This is proved indirectly by the excellent prices which rule for best Canadian stuff, and we hope that the public will create a larger demand than ever for the finest of fruits which will be shipped us from the patriotic colony which sent such brave volunteers to uphold the glory of England in South Africa.

PERFECT SUCCESS IN EXPORT OF TENDER FRUIT.—This season inaugurates an entirely new era in the fruit growing industry. Until this present season there was no guarantee of temperature on shipboard, and the ship companies would not agree to keep the temperature within certain specified limits; the fruit might be cooked or it might be frozen, and all the same they would not be responsible. But this year this agreement has been made. Besides this, the Provincial Department of Agriculture has taken an intense interest in the success of this experiment and has determined that

it shall not fail. A car has been fitted up by Mr. Hanrahan, especially fitted for fruit carriage, holding exactly the number of cases required to fill the storage chamber on shipboard, and the storage on the Manchester Trader has been fitted up in the same way, so as to give cold with ventilation, which is so important to the best results. Two shipments have been forwarded in this system, and the third is to follow. We are happy to state that all these have arrived in perfect condition and have brought the most favorable criticisms from the English papers. Our Crawford and Elberta peaches in particular surprised them, for they could not believe that such elegant fruit could be grown in the open air. Complete reports of prices, etc., will be given later on.

OUR GLADIOLI EXPERT, Mr. H. H. Groff, of Simcoe, records victories for his Gladioli at London, Toronto, Montreal and New York. He has scored a victory over Mr. J. L. Childs in his own country that is most gratifying. "This stock," he writes, "he has discarded, it having been superseded by the more advanced work to be exhibited at the Pan-American in 1901."

OUR WINTER MEETING.—On invitation of the Board of Trade and the Brant County Farmer's Institute, the Ontario Fruit Growers' Association is to meet in Brantford on Wednesday morning, December 4th, at 9 o'clock. Mr. S. D. Willard, of Geneva, N. Y., Vice-President Westen, New York Horticultural Society; Prof. H. E. Vandeman, ex-U. S. Pomologist; Dr. Saunders, of the Dominion Experimental Farms; the Hon. John Dryden, and many others have been invited to be present and take part in the discussions, and topics of extreme interest will be discussed. Programmes may be had on application to the Secretary.

QUESTION DRAWER.

Gnarly Duchess Pear.

1188. SIR,—I send you by this mail a sample of Duchess pear which is all gnarled and distorted by little hard spots which grow in it at the skin. This pear, as you see, is about one-quarter the size it should be, showing the dwarfing effect of the pest. Will you kindly state through your columns what it is and what remedy can be applied. My Seckels and Duchess are both badly affected every year, and it is probable that other readers of the Canadian Horticulturist are bothered by it also.

London.

W. E. SAUNDERS.

Without doubt this pear is affected with stings of the curculio, a very common fault with the Duchess. Where this pear is grown upon rich land, well fertilized and cultivated, it overgrows all such injuries and is large, smooth and beautiful; but where weakly and stunted in growth, the fruit is usually small, knotty and worthless.

Watermelon Vines Failing.

1189. SIR,—Can you give me any idea as to cause of my watermelon plants wilting and dying? They grew vigorously and appeared quite healthy until they would cover a space of two or three feet square and then very suddenly dry up and die. Also please give remedy for same and much oblige.—Yours truly,

Iroquois.

A. B. CARMAN.

It is very difficult to account for the dying of your correspondent's melon vines without knowing more of the particulars. The trouble might be due to drought; but it is more likely that the vines were killed by little borers working in the roots. The striped cucumber beetle (*Diabrotica vittata*) which devours the foliage of the young plants, is very often found quite as injurious in its larval stage, when it is a slender worm-like creature and bores into the roots and stems of the plants. This is one of the difficult insects to contend with in both the larval and adult stage. Probably the most satisfactory method is to cover the melon vines with netting supported on a light

wooden frame. After the plants have reached the second or third leaf the covering will be unnecessary.

O. A. C., Guelph.

H. L. HUTT.

Sample Apples.

1190. SIR,—I send you by express four kinds of apples, marked 1, 2, 3, 4. Please name them. Harriston.

I. LIVINGSTON.

No. 1 is McIntosh Red, No. 2 resembles Cranberry Pippin, No. 3 resembles Seek; the other one we do not recognize.—EDITOR.

White Bougere Rose.

1191. SIR,—Is this rose hardy enough to live out of doors during winter?

Annapolis, N. S.

E. D. ARNAUD.

The White Bougere is a tea rose, needing good heavy protection here at Hamilton, and would no doubt need the same in Nova Scotia. We would prefer taking up the plant and potting it.

Hamilton.

WEBSTER BROS.

Pruning Plum Trees.

1192. SIR,—I have some young plum trees which bore fruit for the first time this season. The trees were purchased for "Weaver," but turned out a large and very fine yellow plum, not ripening until about the 15th Sept. The trees have grown into a very straggling shape, and seem to me to require pruning. Will you kindly let me know through your columns the best season and manner in which to prune them.

Yours truly,

ARMON BURWASH.

All fruit trees need pruning, although the plum and the cherry need much less than the peach, pear and apple. The pruner has two objects in view, (1) the form of the tree, (2) the equal distribution of bearing wood. It is evidently unwise to allow branches to cross one another or to grow lop-sided. A little wise cutting will regulate this. Then a common fault with fast-growing varieties, especially with the Japans, is the rank growth of young wood, which soon make

long branchless arms. These may be shortened back annually, with judgment, and the small branches resulting can be thinned as may seem necessary. The fruit is borne, for the most part, on small spars, which are

formed along the shoots of wood from one to three years old; these therefore should be carefully preserved, and such young wood always encouraged as will furnish those for the successive years.

Open Letters.

Seedling Peaches From Jarvis.

SIR,—Herewith I send you two samples of a seedling peach that is now four years old, and fruited this year for the first time. The tree is a very vigorous grower, thick heavy leaves, and seems to be very hardy. It is now a tree of about twelve feet high and of good stocky growth. Last winter my Elberta and Crosby Early were entirely killed but this came out all right. This year, when in full bloom, we had on two nights very sharp frosts, and on the last one it froze ice $\frac{1}{4}$ of an inch thick, and yet I have forty-three very handsome peaches. The specimens I send you are one of the best on the tree, and one of the smallest. This year there is no small ones, they all seem nearly alike.

THOS. H. LEWIS, L. D. S.

Jarvis, Ont.

Plums in Cape Breton.

SIR,—I am sending herewith by parcel post samples of two varieties of plums, and will be greatly obliged if you will name them for me.

My plum trees were very heavily fruited this year, but the great storm which played such havoc in other parts of North America destroyed a number of my trees, and a very severe frost on the night of September 20th completed the work which the wind began. The greatest damage

was done the Lombards, which were very heavily laden with fruit, and, being weak and open in the crotches of the trunk and branches, were the first to succumb to the force of the wind, they also suffered the most from the frost. I notice that the blue kinds are not so badly damaged by the frost as the yellow ones. After several years' experience with Japanese plums I have come to the conclusion that they are not suited to this locality. I have several trees of Abundance which should have been bearing fruit for the past four years, but so far they have not borne a dozen plums. Burbank gave me a few very pretty samples, and while they are interesting they are not profitable. There is another Japanese variety, the name of which I have lost, which bore a fair quantity of fruit and ripened early—the first to ripen in my orchard—but the fruit, unfortunately, is of a very poor quality, tasting something like chokecherries. This latter variety is the only one of the Japs on which I have seen black knots. So far I have managed to control the knots by cutting them off and spraying the trees. I never pass a knot without attending to it. I keep a Waters' Tree Pruner in the orchard all the time, and with it I can reach any knot and cut it off, and placing it in my coat pocket carry it to the house and put it in the kitchen stove.

Yours truly,

D. S. McDONALD.

Glendyer, C.B., Sept. 24.

Our Affiliated Societies.

As the winter season of comparative leisure from the worry and push of fruit season is at hand, we hope there will be special activity among our horticultural societies. An autumn flower and fruit show in October, when all other fairs are over, and when the coleus and the geranium and other plants are being lifted for removal to their winter quarters is most opportune; or a chrysanthemum show in November, with winter apples and winter pears.

How the members do appreciate such an exhibition when money getting is not the object of the exhibition, only to help out the general good, and where the money is spent for the equal good of every member.

The Grimsby Horticultural Society has this year an exhibit of this character. It is an evening affair, just lasting from 7 to 10 o'clock, with orchestral music, and each member who has paid for 1900, or who pays in advance for 1901, is to receive a

collection of eight *Narcissus* bulbs, all different. Another floral show is always held toward the end of April, at which the spring plants are given away. We commend this plan to all our societies.

We clip from the reports of the various societies all the news we think will prove of general interest.

LINDSAY.—The directors of this flourishing and popular society offer to the members for 1901 the following advantages:

First—Each of the first one hundred persons who pays the sum of \$1.00 to the secretary as a membership fee for the year 1901 shall receive the following collection of bulbs and tubers, especially adapted to pot culture, for winter and spring blooming. The hyacinths are imported direct from Holland by Mr. E. Gregory, who will also supply the gloxinias. Mr. E. Maxsom, Lindsay's popular florist, will supply the cyclamen. The names of these men are a guarantee that the stock will be good.

- 4 Tuberous rooted Begonias, 40c.
- 5 Hyacinths in assorted colors, 50c.
- 2 Cyclamen in colors, 40c.
- 1 Gloxinia 15c.

These are catalogue prices.

F. FRAMPTON, Sec.

NIAGARA FALLS SOUTH.—The Niagara Falls South Horticultural Society held a very successful fern exhibit in their hall, when the following contributed plants: Mrs. Land, Mrs. James Wilson, Mr. Robertson, our secretary; Mr. George Piper, florist, the village, and Mr. R. Cameron, the park. All the above showed beautiful well-grown specimens, and Mr. Cameron showed a handsome specimen of *Adiantum farlieensis*, also a handsome begonia named Hagieana.

This society meets twice a month, and the directors are very attentive. The one night is for business, the other for the public, when papers are read on different subjects pertaining to gardening, where the public join in the discussions that follow. There have been some very able papers read by some of the lady directors lately. One subject was: Which were the best twelve window plants, and their reason for thinking so? Another was the best twelve annuals and why did they consider them the best.

A FRIEND OF HORTICULTURE.

PICTON.—The bulbs are here for the Fall distri-

bution. Each member receives twelve, consisting of 3 best exhibition Hyacinths, and 9 *Narcissus* Vox, 2 Orange Phoenix, 3 Double Daffodils, 1 Sir Watkins, 1 Horsfeldi, and 1 Golden Spur, amounting to 1236 bulbs for the 103 members on this year's list. If the members will kindly call or send to the Secretary's office, Mr. Walter T. Ross, they will receive their package of bulbs.—*Picton Gazette*.

KINCARDINE FLORAL EXHIBITION.—The annual exhibition of the Kincardine Horticultural Society was held on Friday, the 21st September, in the town hall. The floral display and incidentally the management of this year's exhibition was under the careful supervision of Mr. Joseph Barker, to whose enthusiastic and indefatigable efforts the success of the show must in large part be attributed. The directors assisted in arranging the display. The flowering and foliage plants made a very attractive exhibit and the many members of the society who, with their friends, flocked to enjoy the spectacle, were much gratified at the undoubted evidence of progress furnished by the exhibition. The Kincardine brass band was in attendance and beguiled the sightseers with sweet music. The horticultural society is doing a very worthy work in fostering interest in the garden and orchard and the local branch need not feel ashamed of the manner in which it emulates its larger sisters. The children's flower league made a splendid display. The president of the society is S. W. Perry, the secretary Joseph Barker.

TORONTO JUNCTION.—The Toronto Junction Horticultural Society held their first annual flower exhibit in the auditorium of the High School on Saturday, September 15th. The flowers open to competition were from seeds donated to the Public Schools by the society, and were asters, zinnias, phlox, nasturtiums and petunias, in all of which there was a creditable show. There were also many pretty house plants lent for the occasion. Mrs. Perfect contributed a fine spray of clematis paniculata and palms; Mr. Arch. Gilchrist showed a handsome specimen of the new chenille plant in full bloom. Rennie Bros. furnished a pretty collection of asters, dahlias, petunias and gladioli. Mr. Gilchrist also had a pretty collection of greenhouse plants on exhibition, and a very handsome fern was shown by him. Miss Macmillan, Mrs. Geo. Heintzman and Mrs. Cook were also contributors of pretty plants. The attendance was all that could be expected, and in the evening the room was crowded. Temple's orchestra furnished music during the greater part of the exhibition.

THE FOREIGN MARKET REPORTS.

No doubt the bulk of our apples, of ordinary grades up to No. 1, or 2½ inch apples, must always be sold in barrels. It would not pay to expend the labor and money upon them which would be necessary to put them up in cases, and even if they were boxed they would not command any better price than the same stock in barrels. But extra grades of apples, put up in special packages, will command special attention and make such a reputation for high grade Canadian apples as has already been made for her cheese by similar methods. The following quotations are for ordinary first or second grade apples such as are usually exported in barrels :

Mr. Eben James, of Toronto, representing Woodall & Co., Liverpool, writes Oct. 12th :—

A decided change for the better has taken place and the outlook which was blue some time ago has been reversed. Present cables, though high, should not be accepted as a criterion of future prices, though they show that British buyers are appreciating the good quality of our fruit and we may anticipate a brisk demand which even at considerably lower prices will show a good profit. Also, unlike last season, the war is now practically over and there should be nothing to spoil the sale of what is, in a measure, a luxury.

There are other reasons which brighten the outlook. There have been numerous enquiries from the U. S. for our apples and a few contracts made, showing that their crop either in quantity or quality is not what was expected; also the report we circulated about the English crop of hard fruit being ruined, is undoubtedly true, as prices show; and the storms here did great damage and reduced our crop materially.

The apples are held practically by a few hands in Canada and our advice to our friends is not to be induced to sell out their holdings as we believe the prospects are bright and there is every reason to expect that much of the money lost last year will be made up. If you are bound to sell here, kindly advise me before doing so.

Woodall & Co., Liverpool, write Sept 29th:

The season's arrivals to date 24,940 barrels, have consisted of early varieties, and during the past fourteen days a fair quantity of Baldwins have been shown, but were of course green and immature, and have come into competition with the English crop which is a large one. and all our

markets are glutted with them. It is therefore a matter of little surprise that similar class fruit such as is now arriving from America and Canada are not sufficiently superior in quality to induce satisfactory prices, although there have been occasional exceptions. Each arrival is showing some improvement, and at the same time the glut of home production is disappearing, so that it may confidently be expected that in a short time imports will be of good quality and condition, and prices paid at recent sales would suggest that even now the trade are giving American and Canadian fruit the preference.

PRICES AT LAST SALES.

	Firsts	Seconds & Slack.
NEW YORK—Baldwins.....	11/6 to 14/	8/ to 12
Kings.....	15/ to 21/	12/ to 14/
BOSTON—Baldwins.....	10/ to 12/	8/ to 10/
{Ramshorns, }	11/ to 14/9	8/ to 10/
{Hubbardston }		
CANADIAN {Gravenstein }	14/ to 19/6	12/ to 14/6
{and Blush }		
Greenings.....	11/6 to 14/6	10/ to 12/6
Snows.....	15/ to 16/6	13/ to 14/6
Colverts.....	12/ to 14/6	11/ to 14/

Wasty sell 2/ to 3/ under quotations for slack.

James Adam, Son & Co., write September 9th :

It is now more than a month since the first apples arrived from your side, and while the quantities were very small at the outset they have gradually increased, the total to date being 24,921 barrels, as compared with 41,195 barrels for the same period last season.

Needless to say, there has been great irregularity in the samples, some of the fruit being of only indifferent quality, as well as faulty in condition, still on the whole we should say that for first arrivals they have been fully up to the average, and from present indications we are inclined to hope for something good in the matter of quality later on.

New York up to the present has been our largest contributor, but it is doubtful if this will remain so for long, as the crop in the New England States is said to be very large, and in all probability we shall be getting more important consignments from this quarter very soon. So far the New York Baldwins have been wanting both as regards size and color, and although future arrivals may, and no doubt will, show an improvement as to the latter, the former defect is less certain of being remedied, indeed we hear already that the variety generally promises to run small this season. Of course with so many green apples of English growth available, our market has not warranted high prices being obtained for this fruit, still there has been a fairly good outlet at 7s. to 13s. 6d., while Kings

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