FIG. 1987. OFFICERS AND DIRECTORS FOR 1901 AT BRANTFORD MEETING.

THE CANADIAN HORTICULTURIST

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** FEBRUARY **

THE BRANTFORD MEETING—II.

CONSIDERING the extreme value to farmers and fruit growers of the discussions at our meeting in Brantford, and the talented gentlemen who were invited to speak, it was surprising what a little local interest was aroused. We had a large outside attendance, but Brantford people were conspicuously absent. In future we shall take good care not to accept an invitation unless guaranteed a good local attendance and interest. Six places have competed for the next meeting, and we have accepted the invitation to Cobourg because backed up by a good live affiliated horticultural society, which insures a local interest. Many who are not able to attend our annual meetings will be pleased to see in our frontispiece our present directorate, and compare it with that of 1892 shown last month. This one is engraved from a photograph by Park & Co., of Brantford.

We are fortunate in being able to include H. L. Hutt, Professor of Horticulture of the O. A. C., Guelph, and W. T Macoun, Horticulturist of the C. E. F., Ottawa, who by virtue of their positions well deserve a place on our directorate.

Mr. W. H. Bunting reported for the Committee on Transportation, showing that while much yet remained to be sought for, some more reasonable concessions had been made on carloads of fruit to about 20 per cent. The making of 20,000 lbs. a carload made it impossible to get the advantage of the reduction in the case of this fruit, because, owing to the light weight of this fruit and room occupied by the baskets, this weight of grapes could not be put in a car. The committee was continued with one or two additional members.

Dr. Saunders, of Ottawa, contributed very largely to the interest of our meeting and to the value of our report, by his very able address upon Canadian fruits at the Paris Exhibition. Canada had won more medals and prizes in fruit than in any other department, and had created a most favorable impression among foreigners, leading to much inquiry for purchase.

The fruit forwarded by the Secretary by by the Manchester Commerce on September 25th and on the Manchester Trader on October 5th had arrived in capital condition, although five days out of cold storage from

Manchester. Even peaches had arrived in good condition and gained for us a special *Grand Prix.*

At the evening session in Wickliffe Hall, an address of great interest was given by Mrs. John Hoodless of Hamilton, in which she gave a comprehensive account of the progress of women in the study of horticultural problems and practice in Great Britain, and strongly advocated that provision should be made in Ontario for the training of young ladies in this art, by the erection of women's buildings in connection with the Ontario Agricultural College at Guelph. The suggestion was adopted and a resolution passed supporting the ground taken by Mrs. Hoodless on this subject.

The secretary showed quite a number of fruit packages for the consideration of the meeting, including *the barrel* advocated by Nova Scotia and adopted by the American apple shippers, viz., staves 28½ inches long, head 17¼ inches, bilge 64 inches; *bushel apple-box* 22 x 10½ x 11, inside measurement; *pear-box*, 22 x 10½ x 5½; *peach-box*, 22 x 10½ x 4½. This was felt to be a very important matter, and one upon which uniformity should be secured as soon as possible. It was therefore referred to a committee consisting of W. M. Orr, W. F. Fisher, S. M. Culp, M. Pettit, T. H. P. Carpenter, W. H. Bunting, Robt. Thompson, D. J. McKinnon, A. H. Pettit, E. D. Smith and L. Woolverton.

MAKING WHITEWASH.

AT DAIRY conventions and meetings the necessity of *perfect cleanliness* and the advantage of an *attractive appearance, inside and outside,* at cheese factories and creameries are constantly reiterated. The following receipt for making whitewash is highly recommended:

Take half a bushel of unslacked lime. Slake it with boiling water. Cover during the process to keep in steam. Strain the liquid through a seive or strainer, then add to it a peck of salt previously dissolved in warm water; three pounds of ground rice boiled to a thin paste and stirred in while hot; half a pound of Spanish whiting, and one pound of clean glue, previously dissolved by soaking in cold water, and then by hanging over a slow fire in a small pot hung in a larger one filled with water. Add five gallons of hot water to the mixture, stir well, and let it stand a few days covered from dirt. It should be applied hot, for which purpose it can be kept in a kettle or portable furnace. A pint of this whitewash mixture, if properly applied, will cover one square yard. It is almost as serviceable as paint for wood, brick or stone; and is much cheaper than the cheapest paint.

Coloring matter may be added as desired. For cream color add yellow ochre; for pearl for lead color add lampblack or ivory black for fawn color add proportionately four pounds of umber to one pound of Indian red and one pound of common lampblack; for common stone color add proportionately four pounds of raw umber to two pounds lampblack.

Cheesemakers might use a barrel and steam, instead of a furnace. The east end of the President's house at Washington is embellished by this brilliant whitewash. It is used by the government to whitewash light houses.—*Report Cheese and Butter Association.*

AGARICACEAE OR GILL-BEARING MUSHROOMS.

IT is not my intention to attempt a systematic and thorough discussion of this subject. I take it for granted that what is desired for the columns of the HORTICULTURIST is not a technical treatise that may interest students of mycology, but such a clear and concise description of the salient characteristics of a few of the more important species of this group as will enable the average reader to recognize them readily, and so enrich his fungus *menu* by one or more new acquisitions or to avoid at least the forbidden fruit that some have eaten to their cost. Judging from my own experience and that of others, I bespeak for every reader of the HORTICULTURIST an intensity of interest and pleasure every time that he identifies a new species, and places it for the first time upon his table, and partakes of it without harmful results. The subject of mycology is so fascinating, and the interest in it so easily awakened, that I venture the assertion that some who may read these articles will not be content with the few fragmentary thoughts that I may be able to give them, and will eagerly seek for more. To those unfamiliar with the subject it may be desirable to explain a few terms used in describing the more important structural features of this group.

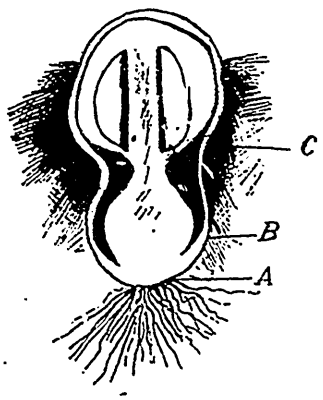


FIG. 1988. UNDEVELOPED AMANITA.

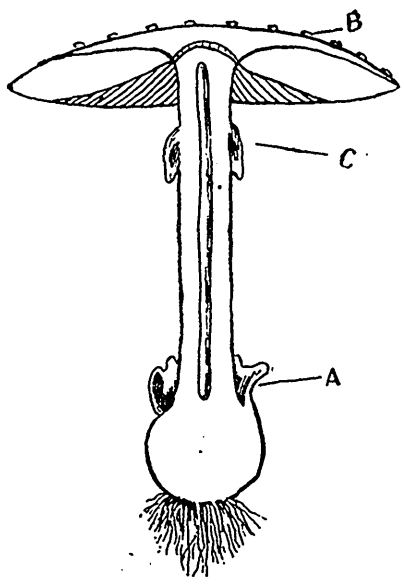


FIG. 1989. MATURED AMANITA (*McIlvaine*).

Fig. 1988 represents a cross section of a young and undeveloped amanita. The letter A points to the mycelium or thread-like vine, the true fungus from which the fruit or mushroom grows ; B—the outer envelope or volva, by some styled the "universal veil," completely enwrapping the whole plant ; C—the inner or partial veil connecting the stem with the cap and enclosing the lamellae or gills.

Fig. 1989 represents a cross section of the same plant at maturity. During the period of growth the outer veil has been ruptured, and nothing remains of it but a cup or sheath at the base of the stem indicated by the letter A, and some shreds or fragments looking like scales or warts on the top of the cap ; (B). The inner veil has also been torn from the cap and now appears as an annulus or ring about the stem ; (C). The gills under-

neath the cap serve the important purpose of affording surface for the development of spore-bearing cells (basidia) known collectively as the hymenium. The cap or pileus is sometimes styled the hymenophore because of its bearing the hymenium. The spores shed from the basidia are of different sizes, shapes and colors, and afford important features for the determination of species. For instance, the family agaricaceae has been divided into five series, viz., leucosporae, rhodosporae, etc., according to the color of the spores, whether white, pink, brown, purple, or black. The shape of the cap and the gills and their relation to the stem or stipe, the shape and position of the ring, the presence in some form or other of one or both of the veils referred to, or their entire absence afford important distinctions by which species may be determined. Standing at the head of the family Agaricaceae, the very aristocrat of the whole mushroom race, is the genus amanita, to which belong our most poisonous varieties. I shall reserve the discussion of these for the next article, and shall proceed to describe some edible species belonging to this family found within the college grounds, or in the neighborhood of Whitby.

FIG. 1990. AGARICUS CAMPESTRIS.
(From Coville, U. S. Department of Agriculture.)

(1) Agaricus Campestris, or Meadow Mushroom—This is the best known of all our mushrooms and the one usually cultivated artificially. Fig. 1990 presents a group in different stages of development. The second specimen from the left is one in the young or button stage. There is no volva or universal veil surrounding it, as illustrated in Fig. 1988; but there is a partial veil connecting the cap with the stem, and leaving when ruptured by the growth of the plant a ring or remnants of a ring upon the stem. The cap when fully expanded is from two to three and a half inches in diameter and varies in color from creamy white to light brown or tawny. The gills are unequal in length and are pink when first revealed, afterwards changing to brown, purple brown, and almost black. The stem is solid and generally shorter than the horizontal diameter of the cup, and about equal in thickness throughout. The spores are brown and may be obtained by placing a mature specimen gills downward on a piece of white paper, care being taken to cover it with a tumbler or bowl to exclude draughts of air. We cannot shake the spores out of this mushroom, and have them appear in the form of dust, as in the case of the puff ball. If it is

desirable to preserve a "spore print" the surface of the paper should be coated with a thin solution of gum arabic. This mushroom has been found for many years in great abundance in our college lawn and pasture fields. During last summer the pasture field was plowed up, and this only added to the luxurious growth of mushrooms. The usual custom of peeling this mushroom before cooking is a mistake, as it takes away from it its choicest flavor. It may be fried in butter or stewed in milk or cream, or eaten raw, and is always palatable and easily digested.

(2) Agaricus Arvensis, or Horse Mushroom.—This has been considered a large variety of the Compestris, and has likely received its name, "horse mushroom," because of its size and rankness of growth on the same principle that the horse radish received its name. Its cap often expands to the diameter of six or seven inches. It resembles in many respects the compestris, but differs from it in having a hollow stem, a slightly bulbous base, a double ring or collar, and a paler shade of pink in the gills of the young plant. Dr. Peck says of it: "The collar appears to be composed of two parts closely applied to each other and making a double membrane, the lower part of which is of a thicker, softer texture and split in a stellate manner into broad yellowish rays. This is perhaps the most distinctive character of this species." It has been supposed that the spores of this and of the preceding will not germinate until they have passed through the alimentary canal of the horse. Whether this be so or not, it is certain that it is only in soil enriched by the manure of this animal that either of them can be successfully grown in gardens or in cellars. A. arvenses has been found in considerable quantities in and around the college hot beds.

(3) Agaricus Gambosus, known in England as St. George's Mushroom.—It is one of our earliest spring mushrooms, having been found as early as April 23rd. Its most striking feature is its densely-crowded, yellowish white gills of unequal lengths, each annexed to the stem with a decurrent tooth as shown in Fig. 1991. The cap is about three inches in diameter, occasionally five inches, and is *smooth* (no patches or warts on surface), thick, and fleshy, suggesting soft kid leather, at first rounded, convex, ultimately expanding quite horizontally, and is commonly fissured here and there with irregular cracks both in its expanse and at its edges. Its color is white or yellowish white. The stem is comparatively short, thick and solid with a slight

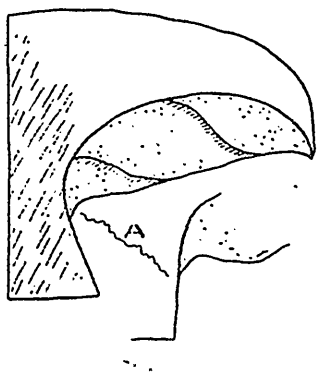


FIG. 1991. AGARICUS GAMBOSUS (*Gibson*).

enlargement toward the base, and *with no indication of volva or sheath.* This latter feature will be more strongly emphasized when we come to speak of poisonous varieties. It has a stronger fungus odor than the common mushroom and sometimes grows in rings and clusters. It has been found for some years on college grounds, and its edible properties have been fully tested.

(4) Marasmius Oreades or Fairy Ring Mushroom, called in England "Scotch Bonnets," also "Champignons."—It received the name "Fairy Ring" from its tendency to grow in rings or circles or parts

of circles. Fig. 1992 gives a good idea of its appearance on the lawn. In the early days of superstition it was thought that the rings marked the place of fairy dances, or bolts of lightning, etc. It is now known that the ring is due to the outward growth of the mycelium. Starting with a single fungus whose development in the soil takes from it the constituents necessary to its growth. This exhausted condition of soil necessitates the college lawn about twenty years ago, and its manifest rings presented a rather unsightly appearance, and special efforts were put forth to stamp it out. Of late years we hail it with delight and proceed to fill our baskets with wholesome and nutritious mushrooms. The following description of this fungus is given by Dr. Peck: "Pilens fleshy, tough, glabrous, convex or nearly plane, often somewhat umbonate,

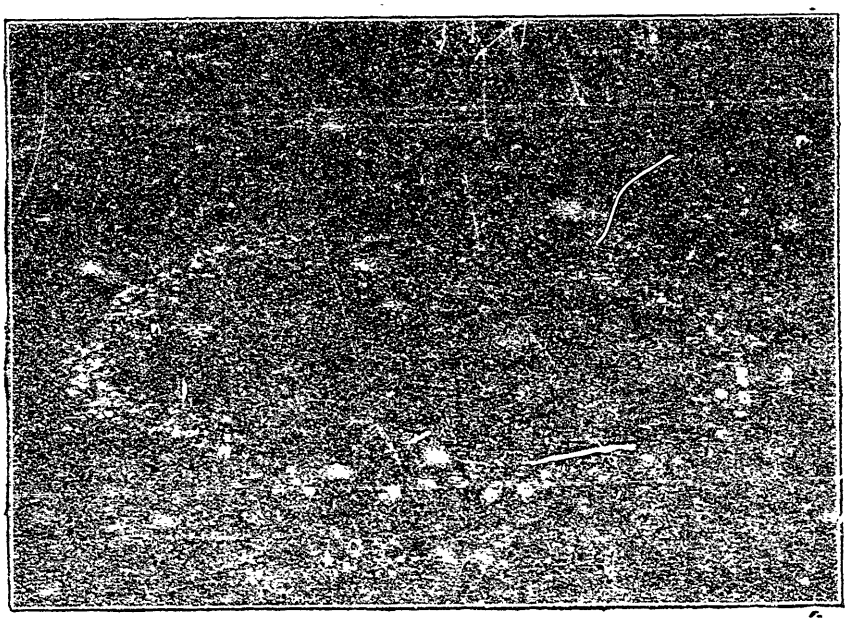


FIG. 1992. MARASMIUS OREADES.
(U. S. Department of Agriculture.)

the outward spread of the mycelium, and so it extends from year to year, growing always on the outside and dying on the inside, thereby indefinitely increasing the diameter of the ring. Should any cause intervene to stop the growth of the mycelium in any direction, a broken ring or an arc of a circle would be formed. Strange to say the grass surrounding the ring is always deeper in color and more luxuriant in growth than the rest of the grass on the lawn.

This mushroom made its appearance on

reddish or tawny red, becoming paler with age or in drying; lamellae broad, distant, rounded behind or free, whitish or yellowish; stem slender, tough, solid, coated with a close, dense villosity, whitish; spores nearly elliptical white .0003 to .000035 inches long." The cap is from one to two inches in diameter and the stem from one to two and a half inches in length and about a quarter of an inch in thickness.

Fig. 1993 shows a couple of young specimens. In these the mound or umbo, at the

FIG. 1993. YOUNG SPECIMEN MARASMIUS OREADES. *(U.S. Dept. of Agr.)*

juncture of the stem and cap, is not so manifest as in some others. In old specimens the pileus is usually flat.

Fig. 1994 exhibits one of the most striking and important characteristics of this mushroom, and that is that the gills are rather broad and wide apart, showing at the rim of the larger specimens not more than ten to twelve to the inch. I draw special attention to this characteristic, because associated with it on our college grounds is a poisonous species, Marasmius ureus, closely resembling it in shape and size but differing materially in the number and closeness of the gills, having from twenty-five to thirty to an inch. They differ also in taste. The true fairy ring can be eaten raw and is quite agreeable to the taste, in fact it has been described as "sweet, nutty and appetizing," whereas the poisonous variety is rather acrid to the taste. Another species, Nancoria semiorbicularis, said to be found sometimes in company with Marasmius oreades, but I have not yet cuceeded in obtaining it. Should any reader of the HORTICULTURIST desire specimens of Marasmius oreades and Marasmius ureus at the proper season, I shall be pleased to send them to them.

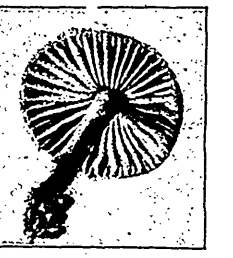


FIG. 1994. MARASMIUS OREADES SHOWING THE GILLS. *(U.S. Dept. of Agr.)*

J. J. HARE.

Ontario Ladies' College, Whitby, Ont.

FEEDING CROPS.

FOR hundreds of years the common practice in farming has been to feed the soil rather than the crops grown on the soil. So ancient is this practice that it has become a fixed law, and many intelligent farmers even to this day continue to enrich the soil without any considerable reference to the crops to be grown thereon. This is one of the most stubborn habits the scientific agriculturist has to contend with; still, it must be understood that the science of farming is so young that many of us well remember the rather startling propositions of Liebig and Lowes, and with what incredulity they were first received by the vast majority of even the more intelligent classes of farmers.

All this brings us back to the main point, the feeding of crops. Stated briefly, crops should be fed (fertilized) with reference to the special needs of the crop. A soil in good general condition is not sufficient of itself, just as good farmers now know there is no good general purpose in anything on the modern farm. A soil black with humus, and in excellent tilth, may answer very well for certain crops, but these are the very crops so common on such soils, and which usually are but slightly profitable. The successful modern farmer is one who quickly learns what crops are to him most profitable, and learns also how to make his soil produce those very crops, whether they are common to his neighborhood or not.

The first thing to do in most cases is to *unlearn* all the old ideas as to manures, soil heart, etc., and to confine the idea of plant feeding to the bare fact, now unquestionably

fixed by thousands of scientific experiments, that plant food is not merely manure, or fertilizer, or fertilizer chemicals even, but the nitrogen, potash, and phosphoric acid contained in these substances. This is the first idea to fix thoroughly in the mind, and a great deal has been gained when so much is accomplished. Next should be considered the feeding habits of plants, and these are shown largely by the chemical analysis of the whole plant substance of any crop, grain or forage, including in every case the roots, stubble and straw—all such parts as are commonly considered useless as having no sale value. It is well to look into these refuse portions of crops still more closely. While straw, roots and stubble have little crop value in the market, they take up their proportionate amount of the plant food needed for the crop; but, without these comparatively useless proportions the valuable grain or forage as the case may be, cannot be realized. Hence, the plant food required for a certain crop must always include an allowance for the elements contained in the comparatively useless stubble, roots and straw.

The feeding habits of the chief grain crops are shown roughly by the following table, giving the actual plant food required for crops as indicated:

	Bu. per acre	Nitrogen	Potash	Phos. Acid
Wheat	35	60 lbs.	35 lbs.	25 lbs.
Rye	30	52 "	47 "	27 "
Barley	40	47 "	39 "	22 "
Oats	60	56 "	65 "	23 "

It is imperative, in order to realize the yields as above, that the crops should have in available form the quantities of nitrogen, potash and phosphoric acid given in the table. It is also well known that crops cannot sweep a soil clean of food, and that all plant food elements must be present in excess of the actual requirement of the crop. Knowing this, the farmer can easily balance his plant food to fit the crop.

Unfortunately, there is a tendency among farmers to use incomplete fertilizers (fertilizers not containing all three of the essential elements of plant food), and to these we must say that the laws of plant growth are inflexible; no one element of plant food can replace another. If any two are present in ample quantities, or even in excess, and one element deficient, the crop is limited by the deficient element, the excess of the other two elements goes largely to waste. In this connection, farmers will do well to scan the composition of the fertilizers offered by dealers, to see if they are not practically incomplete in the sense that one or more elements are present only in very small precentages.

Where incomplete fertilizers are used to grow a legume (plants of the clover type), the procedure is rational, as the object is to favor a heavy growth of the legume, which type of plant not only takes up atmospheric nitrogen for its own uses, but also stores up large quantities in roots and stubble which may be used as plant food for succeeding crops. In this case, potash and phosphates must be used liberally, as the nitrogen cannot be assimilated unless certain quantities of potash and phosphates are present to accompany same in the vegetable substance of the crop. It must be kept in mind, however, that fertilizers for this purpose may be deficient in nitrogen only.

S. P. Cox.

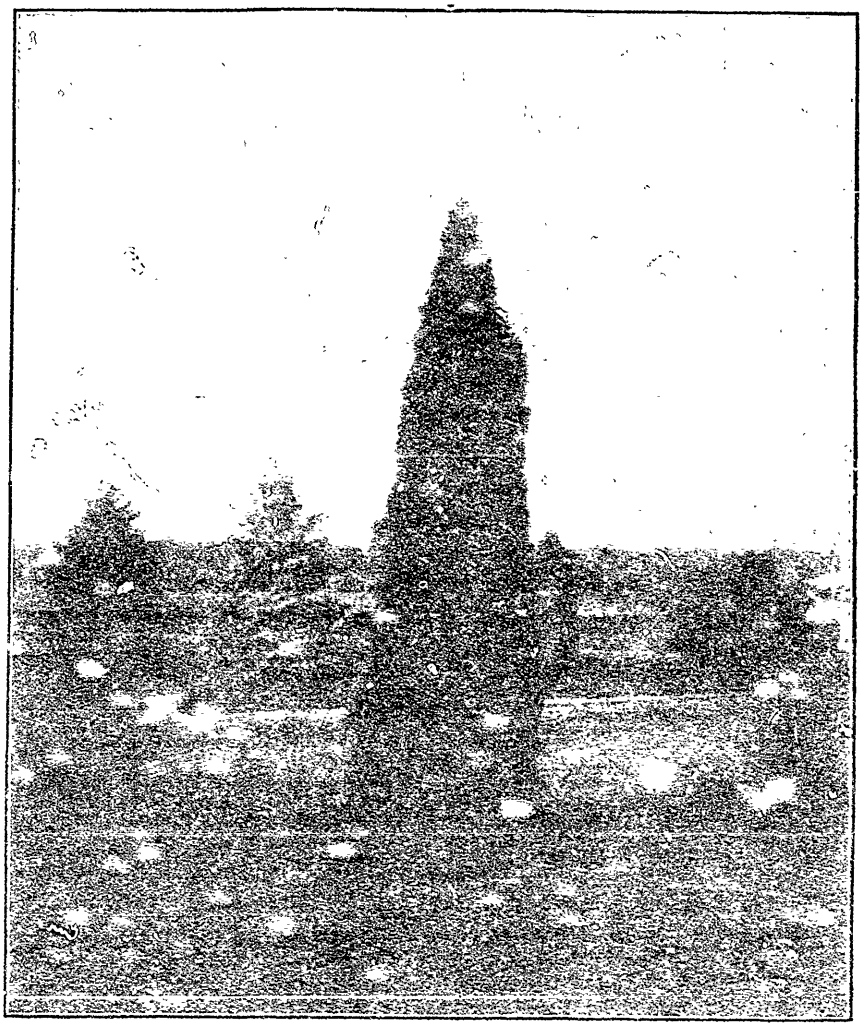


FIG. 1995. PYRAMIDAL ARBOR VITAE.

CENTRAL EXPERIMENTAL FARM NOTES.—XIII.

THE weather during the past month has been very changeable. There has been no continued spell of very cold weather and no mild weather worth mentioning. On November 14th four inches of snow fell, and there has been a constantly increasing depth of it until now there is fully three feet on the level and more in some places. The heaviest snowstorm since the first of the year occurred on Jan. 12th, when fourteen inches of snow fell. The coldest day was on the 18th, when the temperature was 24° Fahr. below zero, but on the 3rd it was 21° Fahr. below zero, almost as low. There has been more cloudy weather than is usually the case during the month of January. On the 16th there was a heavy rainstorm which lasted five or six hours and the

weather continued mild most of the day, but in the evening it froze again. The snow must have been lessened somewhat, but not perceptibly.

Owing to the heavy covering of snow there is very little frost in the ground. The probability is that on this account spring will open very early this year, though it may be backwards enough later on. Bulbs had a splendid opportunity of making great root growth, and the flowers next spring should be very fine.

Evergreens are noticed in the winter months perhaps more than in the summer on account of their contrast with the bare-looking appearance of the deciduous trees, and it is surprising how much more comfortable a house looks with a few evergreens near it, even though they do not offer any protection from the cold winds, which they often do.

Among evergreens there are few as satisfactory as the different varieties of American Arbor vitæ. At the Central Experimental farm there are now fifty-one distinct forms forms growing which vary much in foliage and habit of growth from the dwarf and compact "Little Gem," which is only a few inches high, to the pyramidal Arbor vitæ which rises straight and full in striking contrast to it. The American Arbor vitæ adapts itself to a great variety of soils, and it is only on the heaviest clay and lightest sandy soils that it fails to make satisfactory growth. This adaptability to so many different situations is one of the reasons why it is so valuable for ornamental planting. Another important reason why they are so desirable is that they are all perfectly hardy, as the ordinary form grows in the coldest parts of Ontario and Quebec. Owing to the dwarf or semi-dwarf habit of most of the varieties, they are very useful for small grounds where there is not room to grow anything which will reach a great size. Some of the varieties are so distinct in shape, such as *compacta*, *globosa*, *pyramidalis*, and *Hoveii*, that visitors to the Experimental Farm are often led to believe that they have been pruned to their several shapes until informed to the contrary.

Out of the large collection the following are selected as being among the best as regards form and color of foliage:

Douglas' Golden Arbor vitæ (*Thuya occidentalis aurea Douglasii*:—For those who are fond of yellow foliaged evergreens, this is a very desirable one. It is of a fine, upright form, with bright golden leaves which retain their yellow color well in the winter, making this tree very attractive at that time of the year. Contrasted with darker kinds it makes a good effect.

Compact Arbor vitæ (*Thuya occidentalis compacta*):—This is a compact, dwarf variety with bright green foliage and is very pleasing to the eye. There is a variety, Parsoni, which is particularly good.

Ellwanger's Arbor vitae (*Thuya occidentalis Ellwangeriana*):—Although this variety does not grow very tall, specimens from twelve to fourteen years old being about four feet high, it is a vigorous growing sort and spreads out well. It is a compact variety and has slender leaves and branches which give it a less stiff appearance than some other varieties.

Hovey's Arbor vitæ (*Thuya occidentalis Hoveii*): This is one of the finest and most attractive varieties. The leaves are bright green and the branches flat and parallel, giving the shrub a very remarkable but pleasing appearance. It does not grow very tall, specimens from twelve to fourteen years of age being only between four and five feet high.

Pyramidal Arbor vitae (*Thuya occidentatis pyramidalis*):—The pyramidal Arbor vitæ is one of the most distinct in form. It is a compact and very upright grower, being quite columnar in form, which makes it a very conspicuous object wherever planted.

Siberian Arbor vitae (*Thuya occidentalis wareana Sibirica*) :—The Siberian Arbor vitae is one of the best known varieties. It is of compact habit, and while not as dwarf

Fig. 1966. Alcock's Spruce.

as some others, it does not grow very tall. The leaves have a blunt appearance, which distinguishes it from most varieties, and their deep bluish green color is also quite distinct.

Thuya occidentalis Columbia :—Of those varieties of the American Arbor vitæ which have variegated foliage this is one of the best. The tips of the leaves, which are rather blunt, are whiter than most of the other variegated forms, and the contrast between the lighter parts and the green is, therefore, more marked. This is a very beautiful variety.

There are a good many species of spruce, and of the Norway spruce especially there are a great many varieties, but there are few of them which are better than the ordinary forms. The Norway spruce (*Picea excelsa*) is one of the best evergreens that will grow in this country. It is hardy, of rapid growth and good form, and possesses more good points than any of the other species.

The Rocky Mountain Blue Spruce (*picea pungens*) is a very handsome tree. It lacks the graceful form of the Norway, but if a good specimen of the glaucous form is procured there will be nothing found to equal the beauty of the steely blue foliage. This tree is a slow grower and it takes some time before it reaches a great height. The beautiful specimens growing at the Central Experimental Farm are the wonder and admiration of all visitors. This species varies much from green to steely blue, and in ordering this tree the blue variety should be asked for.

Among the newer spruces there are none of the hardier species which equal Alcock's spruce (*Picea Alcockiana*) in beauty. It is a native of Japan and there attains a height of from forty to sixty feet. It is quite distinct from other species. The upper surface of the leaves if dark green and the lower surface is bluish, silvery-green, and the contrast gives the tree a very attractive appearance. The cut of this spruce, which was produced from an excellent photo taken by Mr. F. F. Shutt, gives some idea of the character of it.

The native White Spruce (*Picea alba*) is not to be ignored. When given plenty of

room where it can develop symmetrically it makes a handsome tree. The White spruce varies much in the color of the foliage, and by a careful selection specimens may be obtained which almost equal the Blue spruce in beauty of coloring. If one cannot afford to buy trees of other species one can get much satisfaction from growing a White spruce. The trees should be planted when quite young to get the best results, and they should be branched almost to the ground. If larger trees are planted they are liable to be scraggy or will become so.

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

IMPORTATION OF NURSERY STOCK.

ORDER IN COUNCIL.

His Excellency, in virtue of the provisions of section 5, chapter 23, 61 Victoria, intituled "An Act to protect Canada from the Insect Pest known as the San José Scale," and of 63-64 Victoria, chap. 31, "An Act to amend the San José Scale Act," and by and with the advice of the Queen's Privy Council for Canada, is pleased to order that exemption from the operations of the above mentioned Act shall be and is hereby authorized of any trees, shrubs, plants, vines, grafts, cuttings of buds, commonly called Nursery Stock from any country or state to which "The San José Scale Act" applies; and that all importations thereof shall be and are hereby permitted to be entered at the Customs Ports only of St. John, N. B., St. John's, Que., Niagara Falls and Windsor, Ont., and Winnipeg, Manitoba, between the following dates in each year; in the spring, and in the autumn; and at Vancouver, British Columbia, during the winter months only, at which ports they will be thoroughly fumigated with hydrocyanic acid gas by a competent Government official in accordance with the most approved methods.

All shipments made in accordance with the above will be entirely at the risk of the shippers or consignees, the Government assuming no risk whatever.

Packages must be addressed so as to enter Canada at one of the above named ports of entry, and the route by which they will be shipped must be clearly stated upon each package.

As it is well known that well matured and thoroughly dormant nursery stock may be safely treated, but that there is danger of serious injury to the trees if fumigated in the autumn before the buds are thoroughly dormant, or in the spring after the buds have begun to unfold, all stock which when received is immature or too far advanced for safe treatment will be refused entry and held at the risk of the shipper.

His Excellency, in virtue of the provisions of section 7 of the Act first above mentioned, is pleased to direct that the authority herein granted be published in the *Canada Gazette*.

JOHN J. MCGEE,
Clerk of the Privy Council.

THE CANADIAN EXHIBIT OF FRUIT AT THE PARIS EXHIBITION OF 1900.

COLLECTION OF THE FRUIT, ETC.

THE collection of fruit and vegetables for the great International Exhibition was begun in June, 1899, in time to obtain the earliest fruits of the season.

The work was begun simultaneously in the different Provinces of the Dominion. This was absolutely necessary where so large an extent of territory had to be gone over. In the older Provinces the work was put into the hands of experienced men, under the general direction of the Director of the Experimental Farms. A good deal of the work was done at the several experimental farms—their splendid collections of fruits and vegetables giving them unusual facilities for the task.

As it was desirable to make as complete an exhibit as possible of the various fruits of the country, it was necessary to preserve the soft fruits and the smaller vegetables, that were quickly perishable, in antiseptic fluids, in clear, glass jars. For that purpose jars of various sizes from a pint to a half bushel were procured and sent to the collectors, together with the formulas, and the necessary chemicals and alcohol to be used in making the antiseptic fluids. Thus fitted out the collectors went into the country, and either personally collected the fruit in the gardens and orchards or made arrangements to have it sent to a central point where it could easily be reached and collected for preservation.

FORMULAS FOR PRESERVING THE FRUIT.

1st. A two per cent. solution of formalin was used for strawberries, red raspberries, black berries, and black currants. 2nd. A two per cent. solution of boracic acid for cherries, red and black currants, red gooseberries, red and black grapes, plumbs and apples. 3rd. A three per cent. solution of chloride of zinc for all light colored fruits, green and russet apples, &c. 4th. A solution of sulphurous acid, of one pint of the acid to eight pints of water, to be also used for light colored fruits. 10 per cent. of alcohol was added to all these solutions to prevent danger from freezing,

These preservative fluids were calculated to preserve the colors as well as the substance and texture of different fruit, and accomplished the desired end fairly well, and would doubtless have been perfect had the fruits been always in proper condition when put into it. In fact so well did they accomplish that purpose that they were universally admired. Probably no part of the general exhibit of Canada, or for that matter of any of the countries exhibiting, awakened so great a degree of interest and gave opportunity for asking so many questions as the splendid display of Canadian fruit, both natural and in solution. The bright liquids and the clear glass jars gave the preserved fruit a very tempting appearance. Householders never wearied of admiring it, nor of enquiring how it was done, when it was gathered, and what were we going to do with it at the close of the exhibition, and the disappointment was correspondingly great when they found that it was not to be eaten. As the summer was full advanced, the astonishment was always marked when visitors, in answer to their questions, were told that the natural fruit was of the year 1899. A considerable quantity of the fruit of 1899 was still in perfect preservation when the new fruit was installed in October.

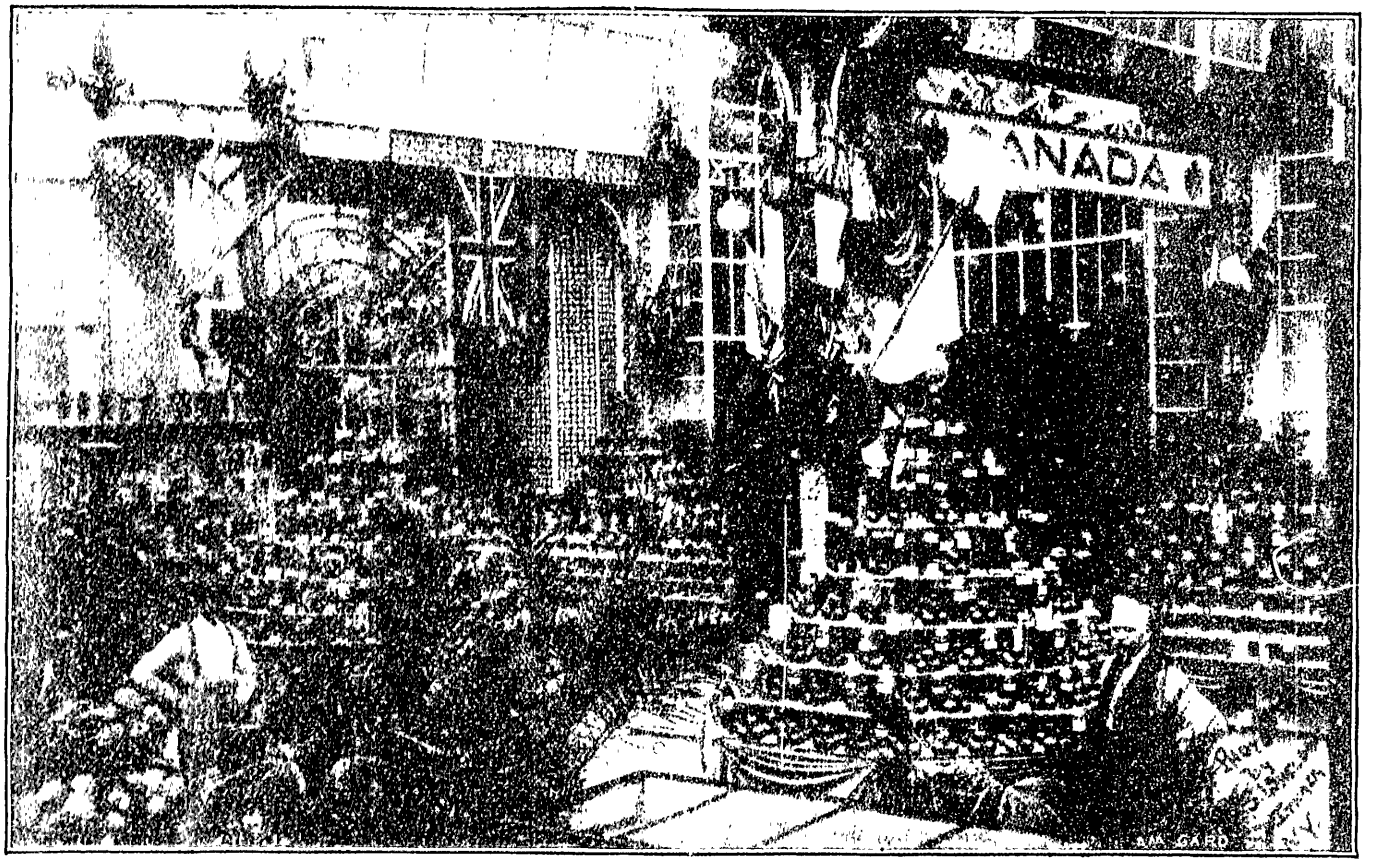


FIG. 1097. THE CANADIAN FRUIT EXHIBIT.

FRESH FRUIT—APPLES.

Our fine fruit, in such variety, and in such admirable keeping and condition, as it was throughout the entire seven months duration of the exhibition, seemed a new revelation to many of the visitors. It seemed incomprehensible to most of them, who had never heard of cold storage or had only a vague idea of what it was.

The entire collection of fruit and vegetables consisted of about 1700 jars in solution and over 500 cases of fresh fruit—apples.

Although there were a great many of the cases of bottled fruit broken in transportation, there were still nearly 1400 jars in good condition for the exhibition, and nearly a hundred varieties of apples were placed on the tables and stands for our first concours.

It is perhaps needless to say that many of the jars of fruit in solution were spoiled by the intense heat of the Horticultural building (a glass structure), but about 1200 were still in good condition at the close. The losses were chiefly in the colored fruit, which, while it retained its form, almost entirely lost its color.

It will be easily understood that the collection and preparation of such an exhibit was no holiday task, and called for sound judgment and a great deal of thoughtful consideration from those engaged in it, and also that it was not accomplished without a large outlay of money.

PREPARATION OF THE PERISHABLE FRUITS.

For the due preparation of the fruit, scales, weights and measures were necessary, besides vessels in which to mix the several solutions. Strainers and filtering papers were also necessary, perfect cleanness and clearness of the fluids being amongst the conditions required in thorough work. It was further necessary that the fruit should be as nearly as possible without bruises or imperfections of any kind, and it is gratifying to know that many fruit growers put their best fruit at our disposal for this purpose and gave us a free hand, so that it was sometimes possible to take our apparatus into a garden and stay a few days in the neighborhood, by this means securing the best species in the best condition and at once putting it into the preserving fluid, thus obviating the necessity of a second handling.

The water used in the solution required to be of the clearest. Generally there was no difficulty in procuring it, especially where a filter was within reach. Otherwise distilled water was used when renewing the solutions, as was sometimes necessary in Paris, The Seine water, the only water procurable in the Horticultural building, was very impure.

All the small soft fruit, ie., the strawberries, raspberries, cherries, currants, gooseberries, &c., were put up in pint bottles. The greater weight of a larger quantity than a pint would have crushed the fruit, and besides, the smaller bottles showed the fruit to better advantage. Some of the smaller plums, also, were put into these small bottles.

For the general run of plums a quart jar was used, and for the largest sizes a two quart jar. Crab apples and the smaller sizes of apples were also put into the two quart jars. The general run of apples and small sized pears required a gallon jar, or larger, and the largest sizes, Alexanders, &c., took the largest sizes at our disposal, and, unfortunately, the largest sized jars suffered the most in the transportation.

Packing and placing in cold storage from time to time when a sufficient quantity of fruit had accumulated it was collected, relabeled and carefully packed in medium sized cases for shipment and transferred to to the cold storage warehouse, there to remain till finally shipped to Paris.

The bottled fruit did not suffer as much

from the several transhipments as might have been expected, when it is remembered that much of it came from British Columbia, the North-West and Prince Edward Island, Nova Scotia and New Brunswick. With all the handling that these changes entailed, with the double handling at Montreal, re-handling at Portland, from train to ship, and again from the ship to train at Antwerp, and finally at Paris, it is little short of miraculous that it reached it destination at Paris as well as it did. It is, I think, safe to say that the greater part of the injury sustained by the fruits in solution was after it reached Paris. There the laborers engaged seemed incapable of handling anything except in the roughest manner. They apparently took a fierce pleasure in throwing things about.

PARIS.

On our reaching Paris in the end of March, we found everything in the buildings in confusion. No part of the building was ready, nothing was completed, and, to add to the confusion, large quantities were continually arriving and being laid down in the building, or outside of it, so that for some time it was necessary to climb over piles of cases to get into the building—such was the state of matters in the Canadian pavilion. In the Horticultural palace, where our fruit exhibit was to be made, things were in a still worse condition. Our side of the building was neither roofed nor paved, and all our efforts for several weeks accomplished nothing in hastening the work. Repeated visits to the office of the British Royal Commission, in whose hands our portion o the building was, yielded nothing but promises. After some weeks delay the roo was put on, and as there was no prospect of the paving being attended the Commissioners finally determined to put a floor down and proceed with preparation for our installation, as the placing of our fruit was called.

PREPARATION FOR INSTALLATION.

After many delays through waiting for lumber and material of various kinds, and the dilatory character of the French mechanic, about the first of June we were ready for the installation of the fruit, but we had yet to learn many things of French methods of not doing it. Our fresh fruit that was in cold storage at Liverpool took nine days to reach Paris, by Grand Vitesse as their trains are called.

In building the stands, etc., for the display of our fruit, we were necessarily restricted by the size and shape of the space at our disposal. This space was divided, in its length, into two nearly equal parts, at different levels, the higher being raised about two feet above the lower—the whole being about forty feet square. On the upper space, twenty by forty feet, we built four oblong stands or tables, taking up nearly the entire length of the space, less the passages, one semi-circular shelving stand, and two quarter circle shelving stands, one in each of the two corners at the ends, in all seven stands on the upper level. On the lower part, out of which the British Royal Commissariat had reserved two spaces of about six by twelve feet each, we built two oblong shelving stands, two regular octagonal pyramids and one oblong pyramid all with shelves, five stands in all on the lower level, making altogether twelve stands of different sizes and shapes that suited our installation perfectly.

On the small shelving stands of the upper level we made displays of bottled fruit and vegetable only; on the four long tables, at first only fresh fruit, and on the long stands the lower level, as well as the pyramids, composite displays of both fresh and bottled fruit. We changed them, however, as much as possible for every succeeding concours.

These stands suited the character of our exhibit by Provinces. We were able to

allot a larger or smaller stand to each of the Provinces according to the size of its exhibit, while reserving a large space for a Dominion display. The whole installation when completed was very much admired, both by visitors and judges. When our visitors had feasted their eyes on the different kinds of fruit, and afterwards were invited to sample some of the best flavored, their admiration knew no bounds, and when afterwards they were shown on the map of Canada, which we had hanging on the wall, the locality from which the fruit came, and saw that it extended from ocean to ocean, nearly 4,000 miles in extent, they mostly allowed that Canada must be a great country, in fact, next to France.

THE CONCOURS IN COMPETITION.

These concours, as they were called by the administration, took place every fortnight or three weeks. They were not really competitions. Every object was judged on its individual merits and without regard to the quality of other similar objects. A number of points was adopted as a standard (20) and in accordance with the number of points obtained by the object, under judgment, it received a first, second or third prize, or, perhaps, honorable mention. The number of points adopted as the standard was twenty, and from 15 to 20 entitled the object to a first prize or gold medal; from 11 to 15 to a second prize or silver medal, and from 6 to 11 entitled the object to a third prize or bronze medal; below 6, it might receive honorable mention.

THE INTERNATIONAL JURY OF JUDGES.

The International Jury, as the whole body of Judges was called, was largely French, but its members were also chosen from all the nationalities exhibiting, so that besides Frenchmen there were Russians, Germans, Austrians, Hungarians, Swedes, Japanese, Americans, Australians, Italians, and Canadians. In the section on fruit and fruit trees, there were about 25 or 30 in all, and the whole number present on any occasion, together judged and passed, upon the objects before them; but the fact was that only a few were able to see the object under judgment; the few declared their opinion and the rest simply acquesced. These decisions were generally regarded as fairly just, though, occasionally, on remonstration from interested parties, they were reversed. I think, however, that full justice was done to the Canadian fruit on every occasion.

VARIETIES OF FRUIT IN THE CANADIAN EXHIBIT.

As our first concours, on the 25th of June, we had about 90 varieties of apples, but they rapidly dwindled down until at the concours, of the 26th September, we had not more than 7 or 8. Amongst those that held out to the last were the Spies, Baldwins, American Pippin, Ontario, Nonpareil, Rox Russet, Golden Russet, and Mann. We had now, however, received some of the new fruit, and, besides apples, showed a very good collection of pears and peaches.

From the first the fruit on the stands was daily examined, and decaying specimens were removed and replaed by fresh fruit. The slightly damaged fruit served for sampling, but was mostly given to the Sisters of Charity, or some one of the city institutions, who called for it two or three times a week.

The changes that took place in some of the varieties of apples on exhibition were very remarkable. While the greater part of the fruit exposed turned brown, softened and rotted, many specimens seemed to undergo a sort induration and remained unchanged, except that they faded and became almost colorless. This peculiarity was not confined to any one particular kind. Some specimens from a good many kinds were subject to it: not juicy fruits, how-

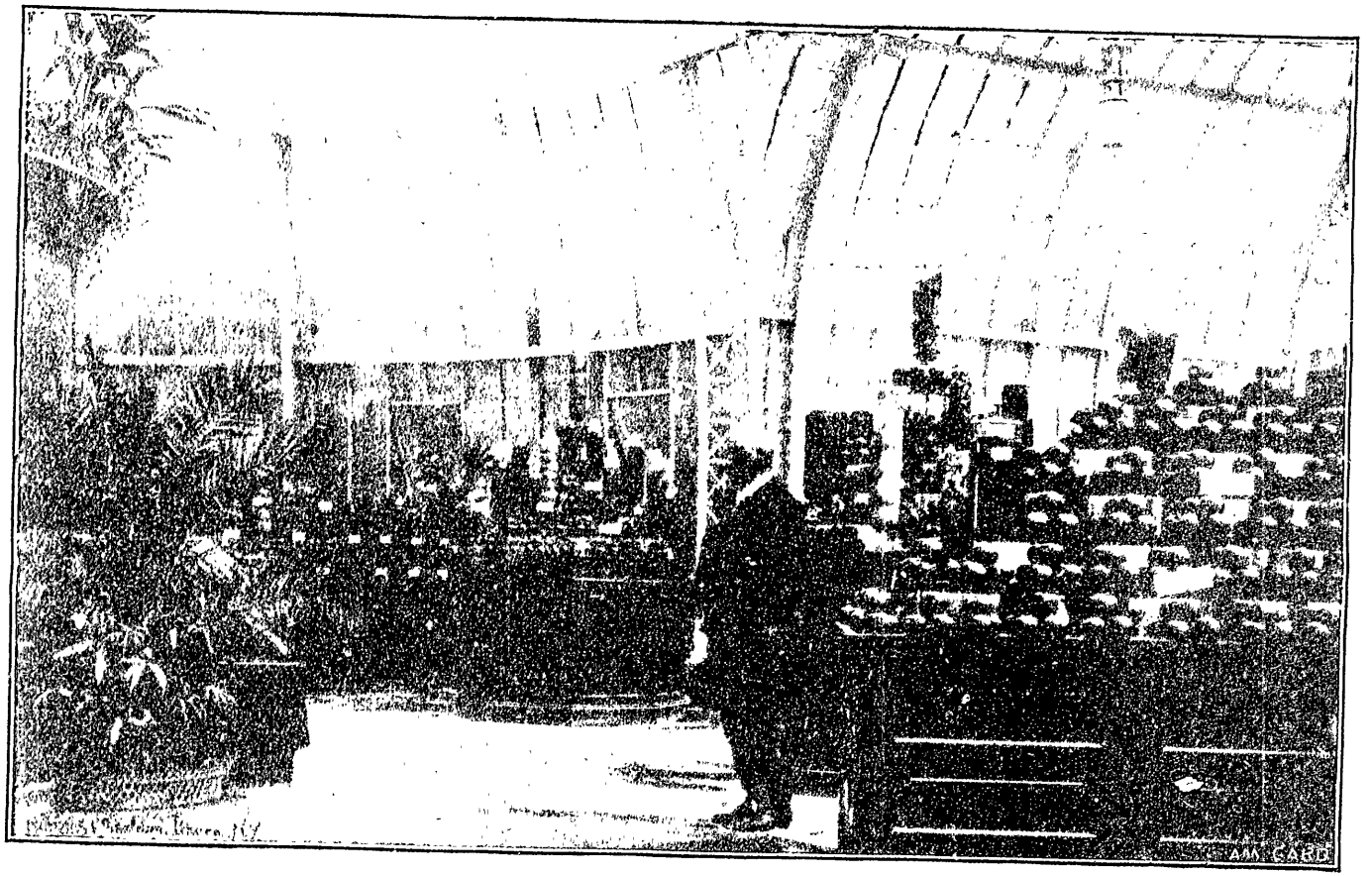


FIG. 1998. THE UNITED STATES FRUIT EXHIBIT.

ever—*Spys never.* Such varieties as American Pippin, Baldwin, Canada Red, Canada Baldwin, Spitzenburg, La Salle, and some of the Newman seedlings. The Russets and the Fallawater shrivelled but retained their flavor and soundness. The only juicy fine fleshed apples that kept well were the Spys and the Ontarios.

The only other exhibit of fresh fruit besides the Canadian, that calls for mention, was that from the United States, but it did not, at any time, contain as large a number of varieties, Their Jonathans, York Imperials, Winesaps, Newtons, Ben Davis, Ingrams and some others were magnificent specimens, well colored and highly flavored.

The Russians on two occasions in early summer showed some very fine apples, but with the exception of the Synaps, of which they had three or four varieties, the rest were ordinary French varieties; they were from the Crimea.

The French at two or three of the earliest concours showed a few specimens of apples. The chief variety was the Reinette du Canada. They had a good deal better success in keeping grapes, some very fine clusters of the Chasselas de Fontainebleau were still in good condition in May, and I think in June.

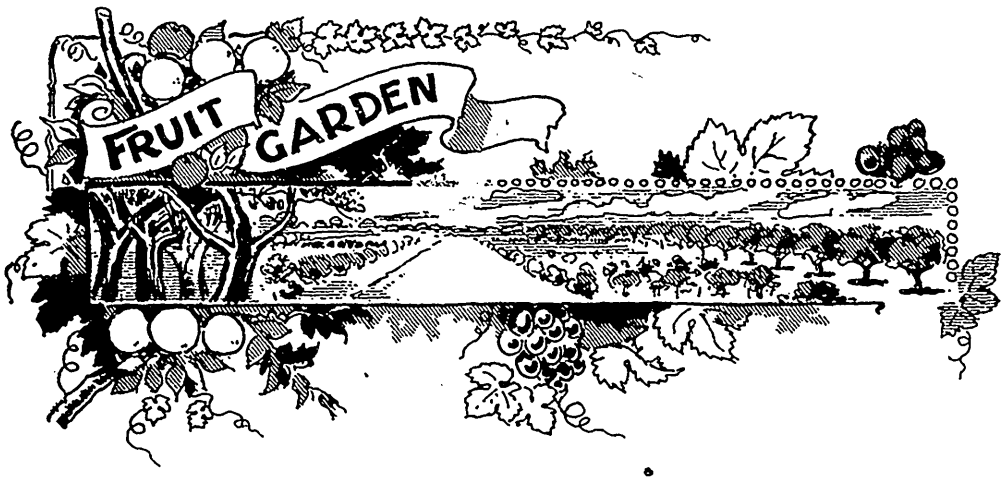
The French exhibit of new apples on the 26th September and 10th October were both very large and fine, especially the latter, when they had 14 tables of apples and pears, each table holding from 340 to 495 plates of fruit. Of course, there was endless repetition even in the same collections, but they did not seem to take any notice of it.

On the 10th October the Germans, Russians, Swedes, and other European countries sent large collections of fruit, apples, pears, grapes, nuts, &c. That from Germany was very distinct and fine, but was very limited in number of varieties. The varieties were very choice, however, and looked as if they might all be good keepers, and some that we sampled were of the highest class in flavor, texture, and appearance. The finest in quality was Winter Gold Pearmain with Landsberg Reinette and Belle de Boscoop close upon it. Those same varieties when grown in the Crimea were of much higher flavor. The same fact is stated with regard to the pears and grapes, and as far as I have been able to test them my own testimony corroborates this.

ROBERT HAMILTON.

Grenville, Que.

HOW TO GROW THE RUBBER PLANT.—"Keep the rubber plant clean by giving it a soap bath," writes Eben E. Rexford in the *Ladies' Home Journal* "Tall plants can be made to branch by cutting off the tops. But young plants growing to the height of three or four feet in one straight stock will generally be found more satisfactory as they will have larger, finer foliage than old branching plants ever have. When growth is taking place use a fertilizer, as its demands on the soil are great, and ordinary soils are not rich enough to supply all its needs. The secret of the successful culture of the rubber plant consists in always feeding it well at the times when a good deal of food is needed—and by this it will be understood that I refer to its periods of growth—and never allowing it to become rootbound. Keep the plant always going ahead, and avoid any treatment that will check its development if you would have a vigorous and healthy specimen. The rubber plant requires a much stronger light than the palm, therefore it is not as well adapted to room decoration in places some distance from the window as the palm is."



NOTES FROM THE BIOLOGICAL DEPARTMENT OF THE ONTARIO AGRICULTURAL COLLEGE.

PEACH YELLOWS.

FOR several years investigators have been trying to determine the nature of this malady of the peach orchard. Dr. Erwin F. Smith, of Washington, worked carefully and patiently but reached no conclusive result as to the real cause. Although no positive conclusion was arrived at, yet many valuable additions were made to our knowledge of the conditions surrounding the Peach Yellows. For example, Dr. Smith showed that although the disease was communicable to other peach trees of the orchard, yet the manner in which the infection spread was very erratic. Young trees planted in the places of those destroyed often escaped infection, and trees nearby diseased ones often remained healthy; moreover, it was determined that neither the age nor the vigor of the trees was a predisposing factor in the matter of infection, as would naturally be expected if the cause were bacterial; besides, apparently the ravages of disease were not influenced by the nature of the soil nor the variety of the peach tree.

It was noticed also as a characteristic feature of the Yellows that the fruit ripened prematurely, but here again a difficulty arose in trying to explain how it was that all diseased peaches of a tree did not prematurely ripen at the same stage of maturnity.

It is very evident, then, that the disease must be produced by some cause operating independent of such factors as the age and variety of the tree or the nature of the soil in which the tree is growing. The cause, whatever it may be, must be sufficient to explain the fact of the communicability of the disease by budding, the irregular premature ripening of the fruit and the periodicity in the severity of the attacks.

In a recent number of *Science* (Dec. 7, 1900) Mr. O. F. Cook, of Washington, proposes a theory of the Peach Yellows, which should naturally attract some attention on the part of peach growers. In his own words, "the yellows may be the result of the poisoning of the protoplasm of the living cells by the bite of a small arthropod, probably a mite of the family Phytoptidae."

In support of his theory Mr. Cook brings forward well-known cases of leaf-spot, or yellowing of the tissues, which are plainly

due to punctures of insects and other minute animals. For example, a palm under his observation was spotted yellow by mites through the poison injected at time of puncture; the carnation leaf-spot or stigmonose is produced by the punctures of certain plant-lice; the tufted branching characteristics of yellows, observed on some plum nursery stock by Mr. Waite, was found to be produced by a parasitic mite; and the galls so frequently found on many trees and shrubs are abnormal growths produced directly or indirectly by the poisoning of adjacent tissures.

It is true that in most cases of plant poisoning by mites or insects that the results are mostly localized, and, as Mr. Cook says, "there is a wide gap between progressive change in a spot less than a quarter of an inch across and one which covers a whole peach tree, but the difference may be one of degree and not of kind." He supposes that "the mite elaborates in its salivary or other glands an enzyme or other active compound to which the tissues of the peach and closely related fruits are peculiarly susceptiable, and which produces in them a permanent and ultimately fatal debility accompanied by definite constitutional symptoms."

Now, the question naturally arises in the mind of the peach grower: supposing this theory to be the correct one how are peach yellows to be treated? I doubt very much if any other remedy than the present one will be adopted, but much could be done to lessen the intensity of the disease by "the destruction of the wild relations of the peach which may be found to harbor the offending creatures." To say the least, Mr. Cook's theory is a very suggestive one, and ought to receive the careful consideration of all fruit growers. W. LOCHHEAD.

APPLE CULTURE.

PRUNING.

TO grow apples successfully requires skill and study. There are two kinds of apples, small and large, it is the latter ones which we all strive to grow. There are many ways to produce them, but pruning (not in itself alone though), is one great essential. This simple looking operation is one which is sadly neglected. Thousands of dollars are annually wasted through lack of attention to this matter. We may take a drive through an apple section and see many an orchard a veritable brush heap.

There are some who profess to understand this art, but are in reality hewers and slaughterers, slaying indiscriminately limb after limb, branch after branch, without regard to symmetry or the growth and development of the tree and its fruit. There is a science and a philosophy in pruning which is at the same time difficult. No set of rules can be set forth, each must study for himself to master this art. The first thing to understand is the principle of vegetable growth; you must have something definite before you. When you sever a twig, branch or a limb it is necessary to know the why and wherefore, not only how it affects the present appearance of the tree but the effect in a future year.

When the tree has become so full of brush that you cannot pick the fruit, and neither plough nor cultivate the ground on account of limbs straggling along the ground, as we often see in ill regulated orchards, then it seems

the only object, chop off the limbs in order that the plough and horses may find their way and the pickers find the apples.

A case came under my notice last fall where a picker had to carry an axe in order to open up a way to pick the fruit, the majority of which were only fit for hog feed, some in fact sour enough to make him squeal. But where a tree is not as bad as depicted above there is a higher and nobler aspiration to be kept in view; that is to develop its fruits to the highest stages of perfection, to enrich our income from the sale of high colored and luscious apples. To do this there are many things to look after, but one of which is undoubtedly pruning.

Prune annually; never neglect this no more than you would neglect to pay your taxes. If you did so you would find it much easier to attend the latter obligation. Now let us go out to the orchard with our pruning shears and saw; leave your axe behind. Now before commencing see what you want to cut; see how a certain limb or branch cut will affect the appearance of the tree or the development of the remainder, or see the effect if left uncut or what would be the ultimate result in a year or two. If you think a certain limb will materially affect others or is likely to in a future year, cut it off. A mistake often made is the cutting out of the centre instead of pruning on the outside, cut off all interfering branches, leave plenty of space in which the sun, light and air may reach the centre and you will have nice choice apples in the centre.

Again, we often see large limbs utterly devoid of branches except on the extreme end, and there you will find a mass of limbs and branches like a brush heap; cut off a few of the large branches, then cut out this brush, check the growth at the end and in the course of a few years you will have a limb nicely distributed with fruiting branches from the trunk to the end. We very often see a long row of suckers on limbs. Suckers are nature's protectors to the limb from the hot sun. Nature leaves man the privilege to exchange these suckers for fruiting branches. After a very heavy pruning these suckers shoot forth. But if thorough and systematic pruning is carried on yearly you will have very few.

Again we find long slender limbs extending far out without a twig. There seems nothing to prune about this, but is you cut off the end, check the flow of sap, laterals will start out and what was an unproductive limb will become fruitful. Give each branch plenty of room for development, allow the sun and light to penetrate through every twig when filled with fruit. Two limbs may appear far enough apart in the pruning season but when the fruit is on there is a mass. In pruning look to this and secure a lot of thriving light, a heavenly gift free and boundless without which higher life would become extinct. Where light and sun penetrate fungi recedes; it will prove a saving on your copper sulphate. The leaves are the respiratory organs, it has been observed that plants throw off oxygen gas in order to make this light as required; carbonic acid gas is a most necessary food for plants, it is decomposed by light, the carbon becoming incorporated with the tree and the oxygen thrown off into the atmosphere. The light helps to mature the blossom and paints the apple with its red and golden hues. What is more tempting to a purchaser than highly colored fruit. Light improves the flavor, and in order to have light in abundance, prune.

Another essential of pruning is the renewing of wood. If you would prune annually you will have better prospects of fruit annually. In all young and growing parts there is more activity within the cells. We study from botany that a plant or a tree is composed of cells each distinct and so small that there are millions to a cubic inch; within each of these cells there is a substance called protoplasm, the seat of the whole vital activity

of the cell, consequently the tree as the cells become older the walls thicken, filling up the greater part of the cavity. Now if we renew the growth of wood we will always have new active living cells to carry on the development of the tree.

Pruning is important financially. You lessen your crops by pruning as regards the number of individual apples, but we have something in size and quality to make up for it and in increase of price.

A small 1½ inch apple takes about as much from the soil as an apple 4 inches. The seeds and pulp are the great feeders on the expensive fertilizers, whilst the balance is obtained without cost from the air and water, 84 per cent. being water. Here is an actual fact: 72 apples, respectable size, netted the writer of this article $-.30 for the bare cost of apples before packing. Now a package of the same size would hold 275 to 300 small apples worth about 30 cents.

Where trees have been fruitless for some years a pruning in the latter part of June will induce a growth of fruit buds. Downing says prune in winter for wood and in June for fruit. This may be so, but my experience is that by annual pruning in winter or early spring you will have wood and sufficient fruit buds. Vast sums of money are annually spent in costly pictures to adorn our drawing rooms which are occasionally seen by a few friends; would it not be advisable to spend a few dollars and convert our apple orchards into works of art which is a source of revenue.

J. W. BRENNAN.

Grimsby.

FRUIT IN AND OUT COLD STORAGE.

IN more than one item that I have seen lately in the papers with regard to fruit in cold storage, or perhaps I should say fruit that has been in cold storage, there seems to be some erroneous views held that it would be well to remove if possible. One of these erroneous views is, that if fruit is kept in dry cold storage it will not become moist on being taken out of it. Now that is decidedly a mistake, as we had abundant evidence of during the whole term of the Paris Exhibition. The system in operation there provided dry cold air, very dry, and very cold. The thermometer very frequently showed a temperature, if I remember rightly of about 38° F. with a steady current of air. I kept the atmosphere within the chamber a live one, there was nothing stagnant in it, it seemed as near perfect as it was possible a temperature and atmosphere for such a purpose, and yet, in a few minutes after coming out of the cold air chamber the fruit was as wet as if a sprayer had played on it for some time. After our first experience, we allowed the fruit to dry of itself by letting it stand for an hour or two, it then looked better than if we had wiped it dry with towels.

Here let me call attention to the remarks of the men who were directed by Professor Robertson to examine the fruit being loaded at Montreal for Great Britain. Amongst other statements made as to condition and quality was the remark that so much of it was wet. Now if it was discharged from cold storage cars in which the temperature was say, not higher than 38 to 40 F., the moment it was exposed to the outer atmosphere on a hot summer day it would become moist and in half an hour would be wet.

For several years past I have been struck with the losses sustained by shippers from wet fruit, and I suspected that it was not so much due to the heat in the holds of the ves-

sels as to the sudden removal from a somewhat cool to a warmer and moister atmosphere. However that may be, if fine samples of fruit are taken out of cold storage and at once put before an auctioneer's audience, without having undergone some drying process, or allowance has been made for the fact of the removal from cold storage, losses will continue to be experienced by even the most careful packers and shippers. It is just possible that there is nothing new in the above remarks, and that the facts noted have been observed and commented on by others, but if so, it appears to be extraordinary that shippers have submitted to the great losses they have sustained from wet wasty fruit without murmur and without having endeavored to overcome the defect.

Just a word or two with regard to the keeping qualities of the various kinds of apples gathered from our experience at Paris last summer. The best keeping apple under all circumstances was the American Pippin. Some of the first set out on the tables were in perfect condition in September. They passed through the mid-summer's heat in the hot Horticultural building almost without change of texture, the change was in the loss of color. All the Russetts kept fairly well, but shrivelled badly, and were consequently unsightly.

The Northern Spy is a remarkable keeper in dry cold storage, but does not last long when exposed. The Ontario kept very well and was a good deal admired. Many fruit handlers insisted that it was a small sized Spy. It certainly resembled that variety very closely; we had it from Huntingdon Co., from a farmer who had lost the name, but thought it was Hubbardston. A variety that kept remarkably well came from Montreal, named La Salle; this is a variety that has been propagated to a limited extent only, and is in a few hands. It is about like Ben Davis in size and shape, but never reaches as high a color as the best Ben Davis; it is of better quality however. Baldwin kept remarkably well as it usually does. A rather large deep red seedling from Cecil P. Newman, Lachine Rapids, was amongst the long keepers. Fallawater also astonished us by its keeping qualities.

Grenville, P. O. R. HAMILTON.

THE BOARD OF CONTROL of the Ontario Fruit Experiment Stations met at House of Parliament Buildings on Wednesday the 2d of January. Prof. Hutt presented his report of inspection which showed that good work was being done. Apple trees tested in Wabigoon had been winter killed the first season, but another trial will be made of the most hardy varieties in the hope of finding some that will be sufficiently hardy. The Board discussed at some length the shipments of fruit to the old country. It was felt that an outlet for our surplus fruit was absolutely necessary to maintain prices, and in view of the success of the experiments during the past year it was decided to push the matter vigorously. The Board felt it necessary to keep a continuous stream of fruit pouring into England in order to catch John Bull's eye, and therefore seek a weekly cold storage Atlantic service instead of every three weeks as at present. Hon. Mr. Dryden was interviewed, and negotiations will be opened with a view to securing a more frequent service for the growing trade.

TIMELY TOPICS FOR THE AMATEUR.—XII.

THE month of February brings to our notice the usual business heralds of approaching spring, that come to us in the shape of seed and plant catalogues. A great improvement is noticeable in the general appearance and get-up of these useful adjuncts and aids to floriculture. Not only are the species and varieties of seeds and plants offered in them of a much more comprehensive and varied type and character, but the illustrations used have a much more genuine and true-to-nature appearance than formerly. This is more particularly the case with catalogues of ornamental trees and shrubs, some of these deserving more the title of magazines of photographic art rather than that of catalogues; depicting as they do scenes of summer beauty and blossom that make them very acceptable visitors, coming at this season of the year when garden and lawn is usually covered deep in its mantle of snow, and when tree and shrub are for the most part bare, gaunt and unattractive in appearance.

Seed and plant catalogues, as well as those of trees and shrubs, also bear the same impress of improvement, showing the same marked tendency to depict in a more natural manner than heretofore the many varieties and types of plants included under this category.

We see less and less every year of the style of illustrations or cuts representing impossible and unnatural looking specimens of plants and flowers, the originals of which could only have been purely imaginative in character. A few of these pictorial exaggerations can still however be found in the pages of catalogues for 1901.

Reproductions from photographs of actual specimens of plants and flowers, as well as a better and truer type of wood-cut, have done much toward banishing many of these made-up and unnatural illustrations from the pages of seed and plant catalogues. Reproductions from photos, if at all well executed, have at least the merit of portraying the form of flower and habit of plant correctly, two very essential points to be taken into consideration when making a selection of seeds or plants. Color photography and its successful reproduction seems to be the only feature now necessary to make its use absolutely indispensable for

FIG. 1999. SPRAYS OF COLUMBINE (*Gadsby*).

illustrative purposes in horticultural literature.

"Novelties" are a great feature in present day seed and plant catalogues. It is not always wise to discard old and tried varieties for untried and high-priced new varieties. These latter should be considered as extras, as the disappointment they oftentimes bring will not be felt as keenly as if they had been relied on as staple varieties.

BORDER PLANTS.

Probably at this season of the year a short descriptive list of seeds and plants, suitable for those who have a small piece of garden where a few summer-flowering plants could be grown, might be acceptable and perhaps helpful to readers of the "Horticulturist." The list will not be an elaborate one, and may not perhaps include many varieties thought to be desirable by well-posted amateurs, but is made more for the guidance of those who have very little time to devote to the culture and care of flowers. Many a nice little plot of garden, or patch of lawn, could be brightened up by the addition of a mixed border or two of easily grown plants that would not only add to the attractiveness of the home, but would give a lasting pleasure that will far exceed the very small outlay required, either of money or labor.

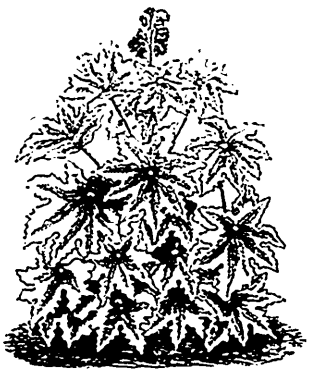


FIG. 2000. RICINUS.

Permanent border plants, generally catalogued as hardy herbaceous perennials, are a class of plant particularly suited for busy people and their gardens, either in town or country. It is better to purchase plants of these than to rely on seed for a supply, as it takes a long time with many varieties to secure flowering results from seedling plants. Herbaceous perennials when once well established will continue to give splendid flowering results for several years with very little care and attention. Keeping clear of weeds and a light forking-over around the plants in spring, at which time a little rotten manure might be forked in around them. About every second year some of the varieties may need dividing and transplanting so as to ensure the best results possible.

FIG. 2001. LILY OF THE VALLEY.

The first of these border plants to flower in early summer, almost before the last of the spring-flow-

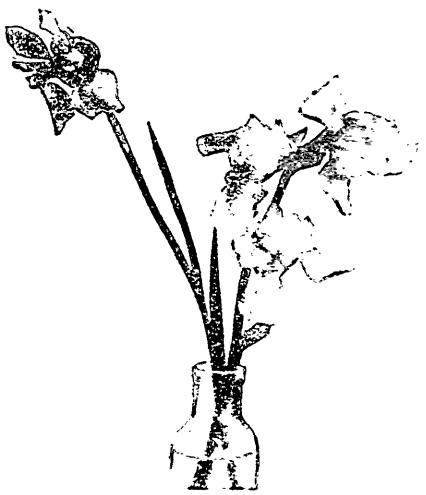


FIG. 2002. IRIS.

ering bulbs are over, is the pretty little dwarf-growing white-flowering Arabis alpina, or A. albida. When once well established it soon forms a compact mass of foliage of a silvery-grey shade, and when almost covered with its abundance of flower has a very bright and effective appearance at a time when flowers are scarce in the garden.

A plant or two of Dielytra spectabilis must also be included, its bright, coral-like, ivory-tipped flowers, borne in long sprays or racemes, together with its attractive foliage, as well as its hardy character and general adaptability, combine to make this one of the most useful early summer-flowering plants we have. It certainly deserves a more pleasing name than its common one of "Bleeding Heart," a name that seems a little repulsive, and one that certainly does not enhance the popularity of this grand old-fashioned garden flower.

The German and Siberian species of Iris are a splendid class of plants for planting in a garden that may of necessity have to be somewhat neglected at times. They succeed well in almost any kind of soil, if not too moist, and can be had in a great variety of beautiful colors from white to pale blue and dark purple, or from pale yellow to old-gold mixed with shades and markings of brown and deep chocolate. The Japanese and Spanish Iris do not succeed as well under ordinary garden treatment as the German and Siberian varieties, but are perhaps more attractive when proper care and attention can be given them. Eight or ten varieties of Iris would not be too many if there is room for them.

One or two roots of the lemon lily, hemerocallis flava, and the dwarfer and darker-colored variety, H. dumortierii, are pretty and hardy free-flowering tuberous-rooted plants that should have a place in every flower garden.

A few plants of the perennial phlox cannot be dispensed with, either for garden decoration or to furnish a supply of cut flowers during the hot summer months.

Herbaceous peonies cannot be left out, their large showy blossoms in colors rang-

FIG. 2003. GAILLARDIA.

FIG. 2004. COSMOS (WHITE).

ing from pure white to pink and deep crimson, make them indispensable for summer decorative purposes.

The old-fashioned Columbine (aquilegia) must not be omitted from this list, many of the new hybrid varieties are very beautiful and effective in a mixed border of plants. These can be raised from seed and will flower the second season if sown early the preceding summer. The plant from which the flowers were taken, as shown in the accompanying photo, was one raised from an ordinary packet of seed. Aquilegia chrysantha (yellow) and A. cerulea (pale blue and white) are two of perhaps the prettiest varieties under cultivation.

Coreopsis grandiflora gives a bountiful supply of its yellow daisy-like flowers in early summer and makes a good variety in a mixed collection of plants. The double flowering Spirea filipendula is a low growing and attractive little flower, its finely-cut foliage being a recommendation, making it very useful to use with cut flowers in vases, etc. The two varieties of perennial Campanulas (Canterbury Bells), C. persicifolia (blue), and C. persicifolia alba (white), are hardy, showy, and very little trouble to succeed with. Gaillardia grandiflora with its large, yellow margined, chocolate centered flowers, that stand boldly erect from its somewhat meagre foliage cannot be omitted, its free and continuous habit of flowering making it a valuable plant for the flower garden. A plant or two of Rudbeckia (Golden glow), are suitable plants either as single specimens on a lawn. or for planting in the flower-border, for which, owing to their tall

FIG. 2005. LARKSPUR (ANNUAL).

habit, they make either a splendid background or centre plants as the case may require. The merits of this variety of the rudbeckias is too well known to need any further comment from me. A plant of Phalaris A. var. (ribbon grass) looks very pretty in a mixed border and is useful for cutting. * * Annuals often prove disappointing as the young seedlings are perhaps either burnt up by the sun if not watered carefully, or if over-watered they snffer from damping-off. One of the easiest, and perhaps one as pretty as any of the many fine annuals under cultivation is the well-known but little seen larkspur (Delphinium). Its erect spikes of flowers so freely produced in almost all shades and colors can be found on the plants from early summer until winter frosts, and its habit of self-sowing and producing self-sown plants the following season, makes this a very desirable annual for the mixed-border. A packet of mixed colors of Semple's branching aster will give the best results—for the least possible labor bestowed—amongst the aster family.

A packet each of zinnia, marigold, candytuft, phlox drummondii, sweet alyssum, scabiosa, salpiglossis, balsam, mignonette (machet), antirrhinum, cosmos, ten week stock, centaurea imperialis (corn flower), sweet peas, and a few castor oil beans (ricinus), and nasturtium seeds will make a large enough collection of annuals for a good-sized border or bed. If there is one other flower that ought really to be added to this list and that does not belong to the perennial, biennial or annual classes of plants, it is the gladiolius. There is no summer-flowering bulb or plant that will give more satisfaction for the expense and care bestowed on them than will a few gladiolus bulbs. So many new and beautiful hybrid varieties of these can now be obtained, that no flower garden should be without a few of their gorgeous spikes of flowers from July until October. If the list of annuals given above is too large, the candytuft, alyssum, balsam and phlox could be struck out.

I will endeavor to give a few hints in the March issue of journal on the soil, preparation of border, etc., necessary for the successful culture of perennial and annual flowering plants.

W. HUNT.

Hamilton.

GLOXINIA HYBRIDA ERECTA.

THE Gloxinia belongs to a genus of Gesnorworts, distinguished by its corolla approaching to bell-shaped, with the border oblique, the upper lip shortest and two-lobed, the lower three-lobed with the middle lobe largest; and also by the summit of the style being rounded and hollowed. The name was given in honor of Gloxin, a botanical author of the seventeenth century.

They are natives of tropical America, and have opposite stalked leaves of rather thick texture, and auxiliary flowers, usually single or a few together, large, the old style nodding, and of various colors, sometimes variegated with spots.

They are among the greatest ornaments of our greenhouses, the richly colored leaves, and their ample graceful, and delicately-tinted flowers, have gained for them a prominent place among introduced plants. They are fit companions for the beautiful Cyclamen, and should be placed side by side in window gardening.

Here, as in many other instances, the process of hybridising has been resorted to with the best results, the older kinds with drooping flowers, have of late given place

to forms with the corolla almost regular and nearly erect, the latter pecularity having this recommendation, that the border and throat of the corolla, to which parts much of the beauty of the flower is owing, are presented to the eye. Permit me to advise all lovers of flowers to visit the greenhouses of our florist Mr. Maxsom, who will, doubtless, find pleasure in showing the Gloxinia in all its beauty, and blushing with bloom.

CUTTINGS—They may be propagated by cuttings of three kinds. First, the young shoots, as soon as they are three inches long, springing from the old tubers; these are the best. Second, leaves taken off with a bud at the base. Third, by the leaves only, without a bud. The first mode may be used only when the kinds or variety is plentiful, and the bush so strong as to send out more shoots than are wanted for flowering; the second mode, when the variety is new and more scarce; and the last, when it is more rare still.

There is an advantage in the first and second mode, that the cuttings, if struck early in the year, will, with moderate care and attention to repotting, flower the same year, whereas those struck from leaves or parts of leaves, will only form small tubers that season. Each kind of cutting requires to be put in sand, under a hand or bell glass, in bottom heat, to strike them quickly. A moist, warm heat is necessary; a moist, cold place would rot the cuttings immediately. Such species as do not make bulbs must be propagated by the first kind of cuttings.

SEED—To raise new varieties it is necessary to save seed. Choose the finest and brightest colored, to save it from. As soon as it is ripe, gather it and dry it, keep it very dry till the March following, then sow the seed on the surface of shallow pots, and let them grow there during the summer; the compost should be of a light sandy substance. Place the pots in a warm moist atmosphere, and as soon as the seeds are up, and the plants have attained a leaf or two, transplant them thinly on the surface of shallow pots, and let them grow there during the summer. Allow to go to rest in the autumn, and keep them in the same pots through the winter, giving but little water. As soon as life appears again in the spring, pot them off singly into small pots, watering and repotting the same as the cuttings, but it is more than probable they will not flower till the second year.

SOIL—The best soil is light fibrous loam, turfy peat, half-decayed leaves, in equal parts, with a due portion of sand, well mixed, but not sifted.

SUMMER CULTURE—To have a succession of bloom, pot a portion of the bulbs in January, and place them in heat, giving a little water; temperature, 60 to 80 degrees. Pot a second batch about the middle of February and another towards the end of March. These will supply flowers for several months. Put them in pots, according to the size of the bulbs, keep them regularly watered, but never very wet. They may be syringed occasionally previously to flowering, but not much. When the blooming season is over they may be set out of doors during summer, but should be sheltered from heavy rains. They will then gradually go to rest.

WINTER CULTURE—All that they require is to be kept in their pots in a place where neither frost nor wet can reach them; yet the place should never be below 45 degrees, nor above 55 degrees. If the cold is much lower they will be apt to rot, and if higher, to start into growth.

DISEASES—The only disease that these plants are subject to is a kind of dry rot in the bulbs, which changes the substance into a soft pulp, destroying the buds, and so causing them to perish. There is no cure for it. Like many other incurable diseases attacking plant life, it makes us feel disappointed and sorry, but we have only to "grin and bear it." WM. FOLEY,

Before Lindsay Horticultural Society.

GREENHOUSE AND WINDOW.—II.

THE GREENHOUSE.—Successive batches of cuttings can be placed in sand on the propagating bench, or in boxes or pots as required. These should be shaded on hot, sunny days. Those that have already rooted should be potted into light sandy soil, in small pots. Over-potting cuttings into large

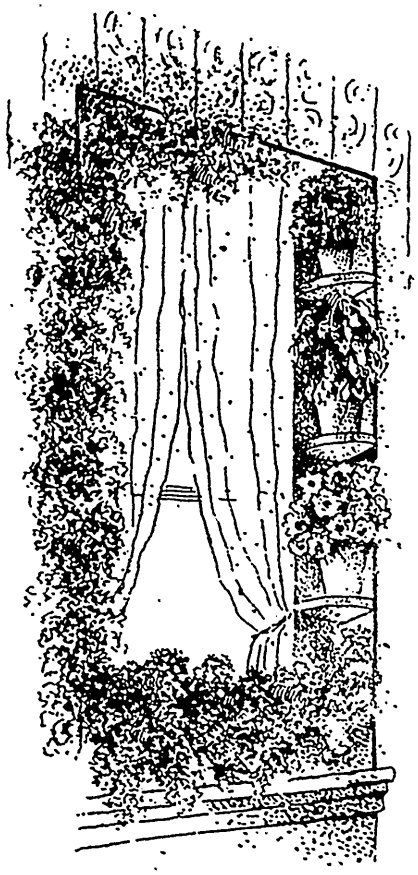


FIG. 2006.

pots is a mistake that is often made by amateur plant-growers. An excess of soil often induces an excess of water around the roots that generally proves disastrous to the well-doing of newly rooted plants. Excessive drought at the roots of cuttings is quite as hurtful as an excess of water. To avoid the small pots from drying out too rapidly, or requiring very close attention in watering them, the pots can be plunged nearly to the rim in sand until the plants have commenced to root into the soil well. This plunging prevents rapid evaporation and keeps the soil in a moist condition as well as necessisitating less attention in the way of watering.

Cuttings of coleus, achyranthes, alternantheras and all bedding plants should be commenced on this month. Put in plenty of cuttings of plants suitable for hanging baskets, window boxes, etc.; there is seldom too many of these either in number or variety when the time comes for using them. Seeds of pyrethrum (golden feather), and centaurea candidissima and C. maritimis may be sown now, both of these are useful as edging plants for flower beds or borders, the last named variety being very pretty when used in window boxes, its silvery-white foliage making it very effective and pretty contrasts when planted near other plants of a deeper shade of coloring. Both of these varieties can be propagated from cuttings.

Seeds of verbenas and petunias can be sown now so as to secure good plants by bedding-out time. It is too early for sowing annual and biennial flower seeds, March or April being early enough for these. Flower seeds of almost every variety succeed better sown in shallow boxes about 1½ inches deep. These can be filled with soil and divided into the necessary sized sections with thin pieces of shingle pressed into the soil slightly, making the boxes look like miniature fields or garden when the seeds are growing. Boxes take less room and give better results as a rule than pots. If these latter or seed pans are used, sinking them about two-thirds down into sand will

help the seeds. Seeds of gloxinia, cyclamen, primula and tuberous begonias may be sown before the sun gets too powerful, even now light shading will be necessary if the seeds are exposed to the sun at mid-day.

Examine the old bulbs and tubers of summer-flowering bulbs. Gloxinias may be started now at any time. Tuberous begonias may be left another month or even more, unless early flowers from them are required. If the tubers of these latter are started into growth, it is better to pot them up at once, as checking them again when they have started growth may result in destroying the tuber. Use top ventilators only when required, and do not forget to close them early in the afternoon. Dampen the floors frequently, especially on warm, sunny days. Insect pests will require the usual remedies of fumigating and syringing, more especially as the heat of the sun increases.

WINDOW PLANTS.—The late flowering bulbs, callas, and perhaps a few trusses of geranium blooms will help to brighten up the window during early spring. Geranium plants that have been flowering—or perhaps trying to flower — since autumn, should have a little liquid manure once or twice a week to help them along. This is much better than re-potting them at this season of the year. If fuchsias that have been resting during winter shows signs of growth they should be pruned back a little, if necessary, shaken out of the old soil and re-potted. Give them well-drained pots, light rich soil, and not too much root room.

A bulb or two of amaryllis, or a few tuberous begonias secured now and potted up will help brighten up the window in summer. These should be put into six or seven-inch pots if the tubers are large, as re-potting these when in a growing state is not safe or advisable. The amaryllis Johnsonii will probably give better results in the window than any other variety. Avoid using the bottom sash for ventilation, draughts of cold air are injurious to plants at any time.

W. HUNT,

Hamilton.

ALLAMANDA SCHOTTI.

THIS is probably the prettiest and best variety among the ten or twelve varieties of Allamandas as yet introduced to floriculture, as well as being perhaps the most suitable for growing in conservatory or greenhouse. The beautiful reddish-brown pencillings and markings to be seen in the throat of its large showy yellow flowers, together with its late flowering habit, combine to make this variety one of the most acceptable and attractive among this grand family of tropical climbing plants.

The accompanying photo of two terminal sprays of flowers shows up splendidly the rich reddish-brown markings on the primrose-yellow ground of the flower, as well as showing the profuse and continuous flowering habit of this plant. The shoot without blossoms, seen in about the centre of the photo, and that starts from near the base of the stem bearing the large flower, on the right of the photo, shows this pushing or continuous habit of growth and flower, so noticeable in the Allamandas. The shoot mentioned has a cluster of buds at its terminal point that were not developed sufficiciently to be observable at the time the photo was taken. The spray on the left however, shows plainly this peculiar habit of growth.

Most of the early flowering varieties of the Allamandas such as A. Cathartica, A. Nerifolium, A. Nobilis, and others, produce their wealth of golden flowers chiefly in June and July, when there is abundance of flowers.

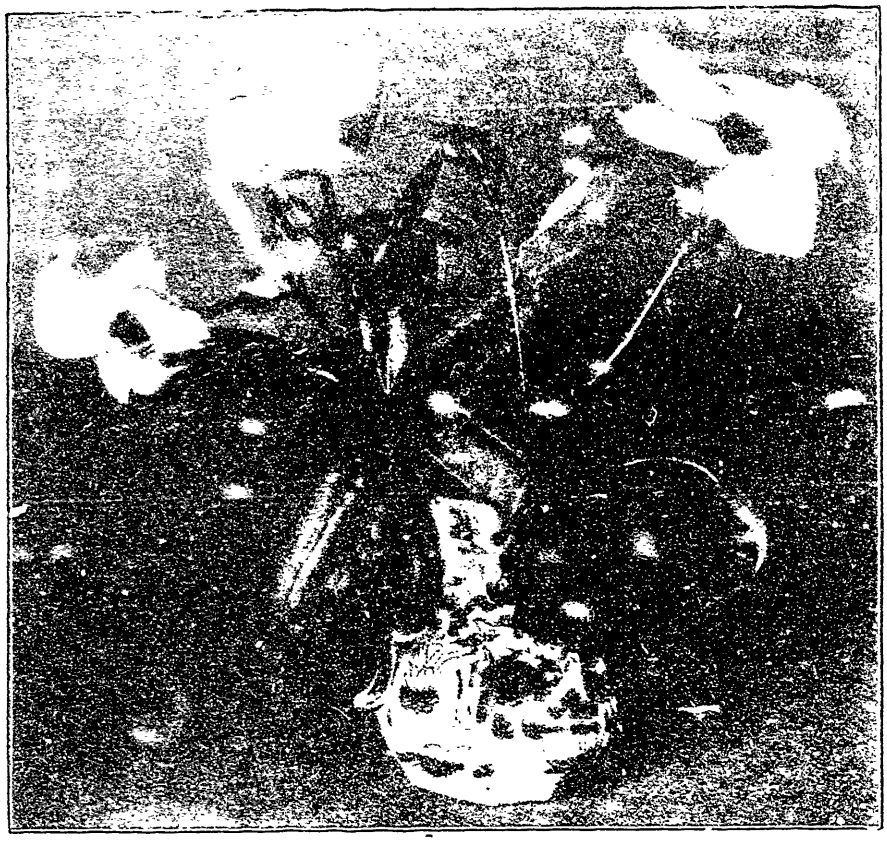


FIG. 2007. ALLAMANDA SCHOTTII.

outside, while the flowers of A. Schottii, that it produces in great profusion, come in most acceptably during September and October, at a time when flowers are usually scarce both in the greenhouse and garden. This late flowering propensity, combined with the distinctive markings of its flowers, make it one of the most desirable of the Allamandas for greenhouse or conservatory culture. So persistent is this variety, in respect of profuseness and continuity of flowering, that numbers of its beautiful flowers are often produced during November and December, and even until Christmas, when exceptionally fine weather has prevailed. This has frequently occurred without any additional heat, beyond that of ordinary greenhouse temperature having been given the plant.

The Allamandas are generally classed as stove or hot-house plants, and without doubt, better results can be attained by a little additional heat beyond ordinary greenhouse temperature, but this should not deter those who have a greenhouse from planting one of these useful and desirable South American climbers, as they will repay any care bestowed on them, even under ordinary treatment. The Allamandas do not suffer from attacks of insects, another very strong point in their favor, and one that can be thoroughly appreciated by those who have perhaps had to discard many of the prettiest of our greenhouse climbing plants, on ac-

count of the destructive and presistent attacks of insect pests.

The Allamandas strike readily from cuttings inserted in sand, a little bottom heat assisting the cuttings in rooting very materially. Cuttings of the previous years growth, taken when the plants are pruned in early spring, are suitable for this purpose, Two or three joints in length, off the terminal points of the shoots, make good cuttings. These should be grown, when rooted, in pots in the greenhouse, until large enough to plant out permanently in the position they are to occupy.

The Allamanda Schottii is a strong robust grower, and will require six or eight square feet of wire trellis, to grow a nice plant on. A flat trellis work of wire about two feet from the glass suits the climbing varieties of the Allamandas nicely; they seem to succeed much better in this way, than when trained in an upright or standing position.

In planting out the Allamandas permanently in the greenhouse select a position where the young growth can be readily trained up to the trellis before mentioned. The roots of the plants are best kept within bounds and not allowed to grow down into the cold natural soil underneath the greenhouse. A strong box about 3 feet in depth made of plank, will be ample room to grow a good large plant in. This box can be made without a bottom, if it is placed on a concrete or similar floor. The latter is to prevent the roots of the plant from penetrating into the natural soil underneath. I have known plants of the Allamanda that have given no flower results worth mentioning for several years, producing nothing but rank growth when the roots of the plant have been allowed to roam freely wherever they pleased. Good drainage is very necessary for success with the Allamandas. Put five or six inches of stone, broken pots, etc., at the bottom of the box to secure good drainage at the roots.

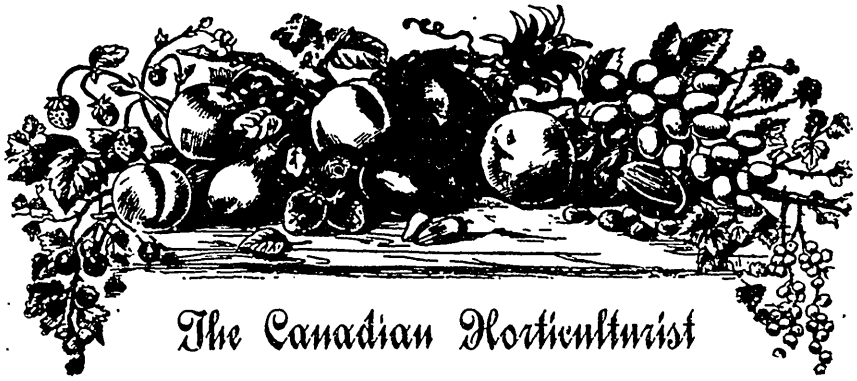
A good rich, light loamy compost, consisting of three parts loam, and one part each of well-rotted manure, sand, and leaf soil, well mixed, suits the Allamandas very well. Give plenty of water in summer while the plants are growing and flowering. In winter when the leaves show signs of decay give less water, only sufficient to keep the plant in a semi-dormant condition until spring. In April or May before growth commences the plant should be pruned, cutting back the growth of the previous year to within about three or four inches of the base of the shoot. After the pruning process, a mulching of dry cow manure about an inch deep may be given it. Give the plant a good watering after the mulch has been applied, and a liberal supply of water during the summer. The Allamandas are considered to be evergreen in their nature, but I have found that during the late winter season, when the plants are in a semi-dormant state, the plants may become almost devoid of foliage without injury. This is an advantage, as the plants underneath on the benches are not injured by too much shade during winter.

The flowers in the photograph are about one-third natural size. A flat, shallow Japanese bowl or a shallow jardiniere filled with the pale yellow blossoms of the Allamanda and a few fronds of ferns, or sprays of pale green foliage, tastefully arranged around and amongst the soft primrose yellow flowers, has a rich and decidedly effective appearance.

These will keep fresh for nearly a week if placed in water at once when cut and the water changed occasionally.

WM. HUNT.

Hamilton.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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

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

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

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

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

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

NOTES AND COMMENTS.

FUNGI.—Our readers who have been interested in Dr. Hare's valuable articles on the mushroom, will be pleased to know that he has promised us several other articles to follow this number.

PARIS DIPLOMAS.—Some of our correspondents are asking when they will receive the diplomas awarded at Paris. Let us remind them that in the case of the Chicago Exposition it was a year or two before these came to hand, and further we are informed that each copy must be paid for.

COLD STORAGE facilities for fruit export are likely to be made accessible to all at an early date, now that success has been attained in the season just passed. Shipments by the Linde system of refrigeration sent forward under the direction of the Dairy Commissioner, Mr. J. W. Robertson, and those in Mr. Hanrahan's compartment sent forward under the direction of the Hon. John Dryden, have arrived in Great Britain in perfect condition, where not overripe when loaded at Montreal.

FRUIT GROWERS are to be congratulated on the prospect of an immediate opening of an export trade in pears to Great Britain by cold storage, by which we may expect the prices even in our own markets will be advanced to a profitabe basis.

THE COMMERCE SHIPMENT — It should have been explained on page 499, of C. H. volume XXIII, that the shipment on the Commerce was forwarded in the ordinary cold storage compartment at a temperature guaranteed by the Dominion to be constant between 36 and 40 F. The Trader cold storage compartment was the one in which Mr. Hanrahan's plans were tried. It should be explained that the low prices obtained for the first shipment of grapes under the care of Prof. Robertson,

were merely nominal, the object being to almost give away the fruit at first with the hope of ultimately creating a demand.

THE IMPORTANCE of sending out an expert lecturer to speak on floriculture or fruit culture, before our affiliated horticultural societies, was delegated to a committee of our association. The association has been furnishing lecturers for the local horticultural societies throughout the Province for some years past. These have now become so numerous and important that we are anxious to have the work recognized by the Department of Agriculture, and special provisions made for sending out an expert lecturer to speak before them. To secure an expert professional gardener to do this would require an expenditure of $4.00 or $5.00 a day and travelling expenses. Mr. Dryden promised to lay the request before his colleagues.

PROF. J. W. ROBERTSON interviewed a representative meeting of our fruit growers at Grimsby on Tuesday the 15th January. Several resolutions were passed covering the following requests :—

(1) That special provision be made for weekly shipments of fruit in cold storage during the season of 1901, and for transshipment from car to boat at Montreal safe from extremes of heat and cold.

(2) The rental of the cold storage building at Grimsby for further experimental work.

(3) That an expert fruit grower be sent to Great Britain during the fruit season whose duty it shall be to report minutely and promptly upon the shipments of tender fruits on their arrival ; and

(4) That the export shipments of grapes be continued and extended in such a manner as is best calculated to develop the export trade.

OUR NEIGHBORS seem to be stirred up by our successful experiments in landing our tender fruit in Great Britain, and it is evident that unless we push forward heartily and capture this trade ourselves some one else will step in and carry off all the profits. Here is an extract from the 1900 Report of Wm. A. Taylor, Acting Pomologist of the United States :—

Some of the most serious problems that confront the fruit grower are those connected with the questions of harvesting, packing, and marketing the product. This has been found especially true in relation to the export trade in fresh fruits. In numerous instances efforts to increase the sale and use of American fresh fruits in foreign markets have failed through the imperfect understanding that exists among growers, packers, and shippers, as well as transportation companies and their employees, in regard to the requirements of the markets to be supplied and the methods of harvesting, packing, storing, and shipping necessary to meet those requirements. The development of that steady demand which is necessary to build up trade is in many cases retarded by the variability in condition of consignments on arrival. A shipment which arrives perfectly sound and in every respect satisfactory is frequently followed by one or more that arrive in bad condition. The result is loss of confidence in the reliability of American fruit as a staple article of trade and a disastrous lowering of prices. For these reasons it seems highly important that provision be made for a careful study of methods of harvesting packing, storing, and transporting fresh fruits, both at home and abroad, with special reference to the development of the export trade in them. Authority to make experimental shipments should also be provided for in this connection. In addition to the immediate beneficial effect resulting from such an investigation, it would have a direct bearing on the selection of varieties for the commercial orchards now being planted in many sections of the country, and thus exercise an important influence on the character of the commercial fruit supply of the next two decades. It is therefore strongly urged that provision be made for the prosecution of this work during the coming fiscal year.

SPIREA, Anthony Waterer, is very highly spoken in the Garden, 1894, drawing especial attention to its surprising beauty, its free-flowering habit and lasting flowers. The Garden proceeds to say, "The old Spirea Bumalda is now well-known for its hardiness, easy cultivation and neat, compact habit, and before this variety of Mr. Waterer's appeared, we valued it also for the beauty of its carmine flowers. Compared with the brilliancy and depth of color in this new comer, however, it appears poor and washed out."

UNIVERSITY EXTENSION AT CORNELL UNIVERSITY, ITHACA, N. Y.

Condensed Report of Address by John Craig, Cornell University, Ithaca, N. Y., before Horticultural Section of Association of Agricultural College and Experiment Stations, New Haven, Conn.. Nov. 13, 1900.

THE University Extension movement is not new in Arts and Letters. It is, however, decidedly new in agriculture. I do not at this time intend to give you anything like a complete review of the rise and development of this new feature in agricultural education, but will rather sketch briefly the history of its growth in New York State.

THE BEGINNING.—Agricultural Extension in New York stands unique among educational movements, in that it had its beginning with the farmer. The farmer furnished the *raison d' etre*. In 1893 there was a request made to the College of Agriculture, by a group of farmers in Chautauqua County, for certain investigations and experiments in that region. This is the acknowledged grape growing section of New York, and as is common in all regions where agricultural specialities are practiced, particular difficulties had arisen. The farmers sensibly applied to the Experiment Station for help. At that time there was no money available at the Station to cover the expenses of work of this kind. The farmers were so informed. They were resourceful men and not easily discouraged. They laid their case before the committee on agriculture of the State Legislature, and obtained a special grant for the purpose of carrying on work of this character in their own and adjoining counties. This was known as the Nixon Bill for the extension of agricultural information. The money was placed in the hands of the College of Agriculture, and was administered at first by the department of Horticulture. The movement grew and flourished. The money was used for investigational purposes, as well as for conducting horticultural schools; experiments were conducted in regions where there seemed to be special reasons for instituting them. This was in 1895. In 1896 the work broadened into a great general movement, having for its object the improvement of the farmers position. Each year the scope of the work has widened. The grant has been increased by the State until it has reached the sum of $25,000 per annum.

The College of Agriculture has now established a department of University Extension. The work of this department divides itself into two sections. (1) The farmer and his fields. (2) The rising generation. (*a*) The main feature of the first division is the Farmers' Reading Course. This is the central theme around which various lines of work are grouped. The farmer cannot come to college. Neither has he had time or opportunity to become a scientific observer. Reading lessons upon fundamental subjects are distributed at intervals during the farmers' reading season—the winter. These lessons deal in a concise and clear manner with the main principles underlying a successful agriculture. They are accompanied by quizzes, which are to be answered and returned. The object is to assist farmers in thinking out scientific problems by themselves. In the lesson a problem is set, and a solution suggested. (*b*) Experimental work. It is our aim to make the lessons of such a character that the reading and studying of them will suggest possible experiments on the farmers' fields. It is then our pleasure to assist the farmer in planning and carrying out these experiments. In this way the farmer becomes at once an important co-operator, and an assistant to the Col-

lege of Agriculture. We have great faith in the ultimate effect and result of this Farmers' Reading Course movement, whose central idea is to educate the farmer rather than to give him more information. We are glad to say that the movement is increasingly popular among the farmers of the State. Beginning with a membership of some fifteen hundred in 1897, it has grown till it now reaches in round numbers twenty thousand. Another cheering feature of the work rests in the fact, that among our readers we have a large following of the younger men of the country. The direct result of this work is to improve methods of farming, and to awaken a desire for more wisdom, which may culminate in some instances in a decision to complete the reading course by taking the winter course in agriculture offered by Cornell University. This we look upon as the ideal method of finishing the correspondence course.

THE NATURE STUDY MOVEMENT.—The Nature Study movement is so well understood, and has become so phenomenally popular in recent years, that very little need be said on that subject at this time. It is a pleasure, however, for me to have this opportunity of bearing testimony to the zeal, enthusiasm and perseverance of the members of the staff of Agriculture at Cornell, led by Prof. Bailey, who have had the work in hand, and who have given unselfishly and unstintingly of their time and energy for its furtherance.

This movement had its germ in the thought that the place to remedy the fundamental difficulty of agriculture, as relating to the schools, was in the rural and city schools with the younger children. To ascertain the attitude of children and the teachers toward the movement, at the beginning, a number of schools were visited by instructors of the University. These visits and talks disclosed a keen desire on the part of the majority of the children and a number of the teachers for a closer touch with things natural. Especially was this desire shown by the children. These early visits also disclosed the fact that one of the first things to be done was to educate the teacher, and here was the real work of the University. This has been accomplished in part by the publication of Nature Study leaflets, containing suggestive outlines of suitable topics for Nature Study illustration. These leaflets were at first issued irregularly. As the work increased and became systematized, it was decided to send them out at regular intervals throughout the year. They are now published quarterly, and are issued in an edition of thirty thousand.

Perhaps one of the most unique, and possibly most important divisions of the nature study work is the Junior Naturalist's Correspondence School. In this school there are marshalled a great army of little ones. They are grouped in clubs called *Junior Naturalists' Clubs*, and are scattered not only throughout the State, but throughout the United States. They have even crossed the waters and are found in Europe and Asia. The club is organized by the teacher. When properly organized each club receives a charter from the Bureau of Nature Study. The Junior Naturalist is a small monthly publication devoted to child nature study topics. Each member of every club receives a copy. There are no money dues connected with these clubs, but still there are dues. These consist of personal comments by the children of each member on the Naturalist or upon any other natural object which may have caught their attention during the month. The clubs are organized for one year, and are disbanded at the end of the school year. To illustrate the popularity of the movement I need only say that since September 1st, 1900, when the new school year was again taken up, seven hundred and fifty clubs have been organized, containing a combined membership of over thirty thousand children. There is no ques-

tion in my mind that this Junior Naturalist movement will be rich in the results bearing upon the uplifting and advancing of the farmer's position and interests throughout the country.

Such in brief are the bare outlines of a movement whose value and worth are not to be measured by the rural achievements of this decade or of the next quarter of a century. I believe that the results are far-reaching to an extent that we do not at present appreciate or realize.

THE SAN JOSE SCALE.

DEAR SIR,—I enclose you a clipping from the Toronto *Globe* of Nov. 17, 1900, thinking that it might escape your notice:

To the Editor of the Globe: I have been requested to again express my opinion in regard to the San Jose scale question, and for different reasons which I have learned from experience beg to say that I still hold to my original view that this very injurious pest cannot be exterminated unless by extraordinary methods. About seven years ago I purchased four hundred fruit trees, mostly plums. At the time of planting six of these trees were not as vigorous in appearance as the balance, and I felt confident they were suffering from some disease of the bark. I immediately investigated the matter, and by close inspection found that my suspicion was correct. Shortly afterward I had a visit from Mr. Orr and Mr. Burrell, who promptly agreed with me that the San Jose scale was the cause of the difficulty.

At the end of three or four years the scale was distributed throughout my whole orchard, and the result was that the larger portion of my fruit being badly discolored wherever the scale settled upon it, was unsaleable. I have counted as many as five hundred San Jose scale upon a single leaf. The increase of the scale during the first year was small, during the second year large, and during the third year very great. Many applications made to eradicate the scale were of no avail, and those that were applied most forcibly did not even then affect the scale, but ruined the trees. I find this to have been the case, not only in my own experience but in the experimental spraying done by Government officials, and also in that done by neighboring fruit-growers, who have applied whale oil soap and other chemicals, which in all cases have failed of success. I can point out to you examples of some at any time. Within a short distance of my place there is an apple orchard of about thirty years' standing, which is so terribly infested by the San Jose scale that, may I be permitted to say, in a very few years a saleable apple will not be found upon it. Yet my neighbors and I, who have destroyed our trees, will soon have to repeat the dose of chopping out our replanted orchards, unless something is quickly done for our protection, and the only remedy I can suggest is the use of an axe in the said infested orchard, and all others similarly affected.

Freeman, Nov. 10. H. B. KOTTMEIER.

Mr. Kottmeier is certainly very positive in his statements in regard to the San Jose scale, and if correct, the sooner his axe remedy is applied the better in the interest of fruit growing in his neighborhood. On the other hand, I was talking to a Mr. Archibald, who manages Mr. McCardal's fruit farm near St. Catharines, this summer. I also consider this farm one of the best in the Niagara district, and one of the best managed fruit farms in Ontario. Now, Mr. Archibald is equally positive that the pest can be eradicated from any orchard by whale oil soap, if applied in the right way and at the right time. He told me that he cleaned two hundred peach trees this past summer with applications of whale oil soap, I forget at present in what proportions.

I should think from the positiveness of both gentlemen it would be very interesting to know which is in the right, and I would suggest to pay Mr. Archibald a visit and have the fruitgrower see for himself. Mr. Archibald is approachable, and would only be glad to give any information asked of him, since it is a strong statement made by Mr. Kottmeier that the spraying done by Government officials and others were injurious to the trees and have not destroyed the scale. Yours, etc., R. CAMERON,

Gardener of Victoria Park, Niagara Falls South.

Open Letters.

The Culture of American Ginseng.

Some Accurate Information Regarding this Valuable Plant.

The subject of growing Ginseng has recently received so much attention from the agricultural press of the country and from circulars and pamphlets sent broadcast throughout the country by dealers, that hundreds of people are being induced to try its culture.

Many of the articles are written by people who have no personal knowledge of the best way to grow it or of the profits to be derived thereby. Others are written by dealers who have seeds and plants to sell, and in both instances as a rule the information is second hand and unreliable. The most extravagant figures are given showing enormous yields produced on a given acreage and Monte Cristo fortunes to be made out of a paltry investment while one lies in the back yard watching the gold dollars sprouting.

Certain dealers have sent out figures informing the public that $5. invested in their seeds and plants will show a value of $44,340.00 the fifteenth year. A million dollar bed in twelve years from a $1000. investment is advertised on another page. A value *which cannot be obtained* except perhaps in small quantities is placed on the seeds and young plants and the ratio of increase and loss is given very accurately and more extravagantly *on paper*. Can any of these versatile writers please inform us how many turnips can be grown on a $5 investment in twelve years, the price the roots and seeds will bring each year and how rich a man will be at the end of that period? Certainly not, and information pretending to figure it out would be absolute nonsense.

An article on Ginseng entitled "Valuable Farm Land" appeared in the St. Louis Republic a short time ago and was extensively copied by other papers in the South and Southwest. Among other wild statements the writer said that seeds bring five cents each (another writer says there is unlimited demand at twenty-five cents each) and yearling roots 20 cents each; that the eighth year an acre should produce 3,120,000 seeds which sell at five cents each, giving an annual income to the fortunate grower of $100,000.00 from the seeds alone. He further states; "Say that a full crop of seed from one acre is available for planting. That will be 3,120,000 seeds. Allow for the loss and failure to generate or 1,120,000 seeds. This will leave 2,000,000 seed that are practically sure to germinate and create 2,000,000 roots. In eighteen months these roots will be ready for market, and can be sold direct to consumers, the present price 20 cents each or a total of $400,000 from the Ginseng crop in eighteen months. This crop of 2,000,000 roots would require a space of approximately forty acres One acre should produce 52,000 roots, which at the market price of 20 cents each, should, after eighteen months, bring a return of $10,400."

Could anything be more baldly ridiculous. Let us suppose that only 1000 gardeners had the above success as to yield. This would mean over three billion seeds put on the market each year, which at five cents each would require $150,000,000 annually to pay for them, not to mention the value of the roots.

Suppose further that the ratio of increase both in yield of crops and number of growers continued the same for twenty-five years there would not be money enough in the world to buy a single years crop. China, the source of demand for Ginseng, would have used all its wealth in its purchase long before the period of twenty-five years had elapsed. Notwithstanding these air castles there is an enormous profit in growing the plant, but it depends on the individual grower as in any other crop. The right conditions for its culture must be supplied, either naturally or artificially and intelligent cultivation given. There will probably always be a good demand for the root at high prices, and it is an article commanding cash at all times.

These conditions for growing are readily found in nearly all the States of the Union or can be produced at reasonable cost of labor and material. They may be stated in a few words; A rich, deep, well-drained, and moist soil, containing abundant decayed vegetable matter and not too heavy or clayey. Humus or vegetable mold, obtained by using decayed forest leaves is extremely beneficial. as is also thoroughly rotted compost. Shade sufficient to keep off the direct rays of the sun is almost necessary, particularly in sections where the heat is excessive. Add to this careful cultivation and you have the secret, if there really be any, of growing Ginseng successfully. Lath covers are perhaps the best artificial shade and apple trees have been found good to keep the ground protected from the sun. At maturity the roots must be carefully and properly prepared for market, and the extra care taken to produce a fine article, clean, well graded and perfectly dry is more than repaid by the much higher price such roots will bring.

The writer who has had many years of experience growing this root will be glad to give fuller information as to the best modes to be used in its cultivation, but would warn the reader against the wildly extravagant articles that appear from time to time and which will damage rather than help an industry that really does promise most unusual returns for the labor and expense necessary to cultivate it successfully.

HARLAN P. KELSEY.

Tremont Building, Boston.

Walbridge.

SIR,—The apple you sent me for identification under date of Nov. 16th is Walbridge. This variety, as you probably know, originated in Illinois a good many years ago. It has always been recommended for hardiness of trees and long-keeping

qualities of fruit. Twenty years ago it was quite popular in the northwest prairie states. It was introduced into Canada by Charles Gibb in 1877. Trees were planted at Gibbland Farm between 1877 and 1880. On the thin, gravelly soil, characteristic of the west slope of Yamaska Mountain, the tree has done fairly well, so far as growth and vigor are concerned, but the fruit lacks size and color. At Abbotsford it has always been an undersized, flat apple, which did not color up until midwinter. Neither has the tree been productive. On the Experiment Station grounds at Cornell, where the soil is a heavy and in places a stiff clay, this variety the past season gave an excellent crop of fruit fully up to the size of the specimen you forwarded. Of course its normal size is medium or below. I do not know of any place where Wallbridge is popular, and I am of the opinion that it has been very much overrated. I enclose you a sectional outline which shows that it has a very small core.

Ithaca, N.Y. J. CRAIG.

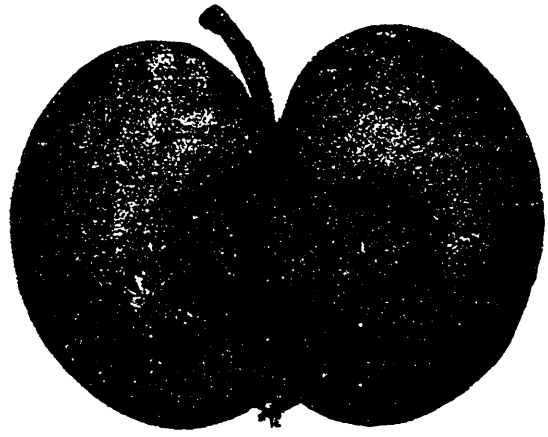


FIG. 2008. WALLBRIDGE.

Our Affiliated Societies.

LINDSAY.—The members of the Lindsay Horticultural Society are doing a quiet but noble work by encouraging the growth of flowers, fruit and shrubs and the beautifying of the homes of our citizens, and they are entitled to much praise for the good work already accomplished.

The large attendance at last Friday night's meeting in the council chamber, despite the darkness and other unfavorable conditions, was a convincing demonstration of the growing interest being taken by our citizens in horticulture and floriculture.

The president, Mr. W. M. Robson, occupied the chair; Vice-President Cathro, Secretary Framton and other officers were also present.

President Robson in opening the meeting congratulated the members and citizens on the society's increasing usefulness. They were enabled to offer very valuable prizes to members at a small cost owing to good management and the liberal aid extended by the provincial government. The premiums amounted to about $3 worth at a cost of $1, and there was other advantages as well. He hoped to see the membership double itself during the coming year.

After a few enjoyable selections on the graphophone by Mr. W. H. Stevens, President Robson read an extremely interesting paper entitled "Possible Achievements in Flowers and Fruits." The paper contained a reference to the career of Harry Dale, of Brampton, the greatest grower of roses in the world, who started business some 17 years ago in a small greenhouse, and now has many acres under glass. Mr. Dale has some 50,000 roses continually in bloom, and cuts 500,000 buds annually, which are all disposed of in Canada. In 1891 Mr. Dale carried off first prize at New York for cut roses, the competition being open to the world. He employs 50 men constantly about his greenhouses, and many others at certain times. His wage list averages $500 weekly, and it takes 2,000 tons of coal to heat his greenhouses every year. The paper also referred to the famous Montreal muskmelon, grown by specialists, and sold to leading American hotel and summer resort proprietors at $5 and $6 each. About 5,000 are shipped annually. The paper was received with applause.

Secretary Frampton, before reading a paper on the Gloxinia, gave a few useful hints on flower culture, and noted some of the simple causes leading to failure, but easy to remedy. The paper was very carefully written, and entered very fully into the methods to be followed in attaining success with the Gloxinia. The reader generously disclaimed the authorship, and explained that the paper had been written by a gentleman "too modest to disclose his name."

Mr. W. H. Stevens, Collegiate Institute Science Master, read a paper on the growth and care of the tuberous-rooted Begonia, which the society is distributing this year to members, among other premiums. There are two varieties, the erect and the drooping, the latter being especially suited for window culture. Those who wish to secure the plant should join the society or purchase from M. Maxsom, our own reliable florist. During the discussion that followed, Mr. Stevens said that all smooth leaved plants might be watered on the leaves, but water would discolor rough or spinous-leaved varieties. It was pointed out that many people plant seeds too deep. Mr. Maxsom said a safe rule to follow was to plant three times the depth of the seed, and in case of very fine kinds, to sow on top of the pot or to sift a little mould on top, and then smooth over.

Florist Maxsom next gave a short but very in-

terest'ng talk on the Cyclamen, also given as a premium by the society. It was introduced from North Italy, where it grows so freely that the hogs feed on it, but careful cultivation has improved the flower greatly. He had known a lady to plant the bulb wrong side up; there is always a small depression on the side that should be planted uppermost. The soil must be kept moist. The Begonia is a fine plant, but the Gloxinia is difficult to grow. Questioned concerning Azaleas, Mr, Maxsom said he had seen plants 40 years old at the Governor-General's house at Ottawa, but peat had to be specially imported from Wimbledon Common, England, for use of the plants. All Azaleas have a little ball of peat about the hair-like roots, and they seem to thrive until the nutriment has been exhausted. Of hardy plants we would recommend ferns, begonias, rubber plants and cyclamens as likely to survive any ordinary kind of neglect.

In reply to a question whether newly-planted shoots of Boston Ivy required particular care, Mr. Maxsom replied in the negative. It might be well to cover the roots.

The meeting was brought to a close about 10.30 by all singing the national anthem, led by Mr. J. H. Knight.

The graphophone used by Mr. Stevens during the evening was kindly loaned by Mr. R. Chambers. The numerous selections given were greatly enjoyed.—Lindsay Post.

LINDSAY.—The annual meeting of the Lindsay Horticultural Society was held Wednesday evening last at 7.30, in the council chamber, to receive the treasurer's report and elect officers and directors for the year 1901. Treasurer Frampton's report disclosed a very satisfactory state of affairs, the financial position being as follows;

Receipts, 1900.

Balance on hand Jan. 10th, 1900	$117.42
Legislative grant	77.00
Members' subscriptions	114.00
Sale of plants	2.20
Total receipts	$310.62

Expenditure.

Meetings for discussion of Horticultural subjects	$ 19.50
Horticultural periodicals	86.98
Purchase of Plants	94.94
Working expenses, including secretary's salary	25.93
Extra printing	6.00
	$233.35
Balance in hand	$77.27

KINCARDINE—The annual meeting was held on Wednesday evening, Jan. 9th, 1901. The officers were elected for the ensuing year.

Mr. Barker, the efficient secretary of the society, presented the following report :—

In submitting the fourth annual report he congratulated the society on the marked progress which it has made during its four years of existence which commenced with a membership of fifty-nine and has now attained a growth of ninety members.

For the information of the members and others the secretary prepared a statement showing the exact number of plants, bulbs and fruit trees which have been purchased by the society and distributed to the members last year in accordance with the selections made by them are as follows:—

Collection 1.—27 azaleas, 27 gloxinias, 54 begonias.

2.—14 Fosterina palms in pots.

3.—6 palms, Phoenix reclinata; 18 begonias, red white and yellow.

4.—10 Boston sword ferns in pots, 40 carnations.

5.—52 dahlias, assorted colors; 13 gloxinias, 13 new Russian violets, 39 single tuberous begonias and 39 double.

6.—20 fuschias, 20 geraniums, 10 Russian violets 20 dahlias, 20 chrysanthemums, 20 carnations.

7.—42 double hyacinths and 42 single.

8.—6 cannas and 40 gladiolii.

9.—12 flowering shrubs.

10.—10 cherry trees, Ely, Richmond and Black Vartarian; 10 peach trees, Crosby and Early Crawford.

11.—36 raspberry bushes, 6 of each of six kinds.

12.—110 currant bushes, two years old, first-class, of the following varieties; Champion, Black Naples White Grape, Fay's Prolific and Cherry.

In addition to the above, the Fruit Growers' Association have presented annually to the members of the horticultural societies of Ontario a premium such as newly introduced pear, plum, peach, also small fruits such as the best varieties of raspberry and currant, besides ornamental vines, shrubs and roses. Our members have also received from the above association the annual report of their proceedings—a neatly bound volume containing most valuable instructions and information to fruit growers in Canada, and then each member gets the Canadian Horticulturist magazine every month during the year, and we have no hesitation in declaring this monthly visitor to be the peer of its kind published in Canada, giving such plain instructions regarding the cultivation of fruit and flowers, which make it indispensable to our members and worth much more than our small membership fee of $1.

Our society last year was in a position to give material aid and encouragement to the Juvenile Flower League of Kincardine by purchasing for them, with their own funds, plants and flower seeds at lowest possible price by which, said League was enabled to make a highly creditable showing in conjunction with our own exhibition last fall.

May we not hope for even greater success in this the first year of a new century? We bespeak the hearty co-oporapion of every lover of flowers and fruit in Kincardine.

JOSEPH BARKER, Secy.

ORILLIA.—The annual meeting was held on Wednesday evening January 9th, in the Council Chamber. The President, Mr. G. I. Bolster, occupied the chair. The financial statement for the past year, duly audited and certified by Messrs. J. B. Marston and G. H. Clark, was presented by the Secretary-Treasurer, Mr. C. L. Stephens. It showed amongst other matters that $147 had been paid out for prizes awarded at the fall show, with a balance remaining on hand at the close of the

year of $69.88. The amount paid for prizes was larger by $18 than that paid in 1899. The entries for 1900 were 635, an increase of 37 over the previous year. On motion of Mr. E. B. Alport, seconded by Mr. Geo. Street, the report was accepted and ordered to be forwarded to the Department of Agriculture. A vote of thanks to the officers of last year was passed. An interesting discussion, in which many members took part, followed, upon the question as to whether it was desirable to continue to act upon the old lines of co-oporation with the East Simcoe Agricultural Society in holding a fall show; or to cut away from that society altogether, and devote the resources of the town society entirely to town objects, such as beautifying of lawns and gardens, holding of summer shows, and other directions in which valuable work might be done. The concensus of opinion seemed to be that it would be hardly be advisable to withdraw at present from the former methods, particularly as it was pointed out, a summer show was impracticable owing to there being no hall in the town suitable for such a purpose. At a meeting of the Directors, which immediately followed, Mr. C. L. Stephens was re-elected Secretary-Treasurer for the fourteenth time.

On motion of Mr. Stephens, seconded by Canon Green, it was resolved that during the ensuing year regular monthly meetings of the Directors shall be held, and the second Tuesday in each month at 8 p. m. in the Council Chambers, were fixed upon for time and place. Mr. Secord introduced to the meeting Mr. G. B. Wyllie, District Passenger Agent of the Illinois Central Railway, as an old friend and schoolmate who was visiting him. Mr. Wyllie having expressed pleasure at being at being present and interest in the discussion which he had listened to, gave a short address on the subject of Canadian Summer Resorts, referring chiefly to Orillia and the Muskoka District. He promised a very large influx of visitors next summer from the Pan-American Exposition to be held in Buffalo, and hoped that Orillia would be prepared to receive a goodly number. He emphasised the importance of well-kept grounds and tidy streets as an attraction to tourists. A vote of thanks was passed to Mr. Wyllie for his entertaining and instructive address.

HAMILTON.—The annual meeting of the Hamilton Horticultural Society was held in the Hamilton Scientific Association rooms on the evening of Wednesday, January 9th, at half past seven o'clock. The Treasurer's report showed a balance on hand of $213.00. $162.00 were received in members' fees during 1900. $99.00 were expended in purchasing and distributing seeds, plants and bulbs. With the object of cultivating a love for horticulture $46.00 worth of plants were distributed among the scholars of the public and separate schools during the late spring, and prizes of plants and bulbs were awarded in October for the best grown specimens from each school, much interest being taken in the competition by parents as well as children. The thanks of the society are due E. G. Brown, John A. Bruce & Co., Walter Holt and Messrs. A. Alexander and William Hunt for kindly donating the prizes. Nine open meetings were held for hearing lectures and the reading of papers. A public exhibition was held in June. The following officers and directors were elected: President, A. Alexander; First Vice-President, F. H. Lambe; Second Vice-President, J. O. McCulloch. Directors: James Anderson, S. Aylett, W. F. Burton, John Cape, J. J. Evel, Wm. Hunt, J. Kneeshaw, Rev. A. McLaren, William Wilson; Auditors, Fred. B. Greening, M. H. Little; Secy-Treas., J. M. Dickson.

The Perth Horticultural Society held its first annual meeting in the Council Chamber, on the evening of Jan. 9th, at which the officers for the ensuing year were elected and considerable business done. The meeting was adjourned until Tuesday, Jan. 29th, at eight o'clock in the evening at the same place, for the purpose of adopting by-laws, etc. This adjourned meeting should be well attended as by-laws are important and other business will be brought up.

PICTON—The annual meeting of the above society was held in Shire Hall on Wednesday evening, for the election of officers for the ensuing year, and other business.

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