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BALSAMS

THE
Canadian Horticulturist.

VOL. V.]

AUGUST, 1882.

[No. 8.

THE BALSAM.

The beautiful colored plate which adorns this August number will illustrate much better than any description the improvement that has been made in the form and coloring of this beautiful flower.

It is a tender annual; hence in our climate it is desirable to get the plants well started in the house or in a frame, so that they can be planted in the open border when all danger from late frosts is over, and come into bloom early enough to enable us to enjoy their flowers before the autumn frosts come and ruin their beauty. As soon as the plants are up and nicely started, they should be transplanted either into small pots or into the frame, and as soon as the roots fill the pots be shifted into larger pots, or, if set out in the frame, moved as often as they begin to become crowded. The soil should be made light and rich, kept free from weeds, and frequently stirred, to secure a strong, healthy growth and abundant bloom. They may be flowered in pots if desired, and grown in this way they make handsome window plants or ornaments for the verandah. Our hot

summer weather is much better suited to the cultivation of this popular flower than the cool, moist climate of England, so that with suitable soil and little care we can grow them in the greatest perfection.

The plants can be pruned to any desired form, either to a single, straight stalk, or with three or four branches. Sometimes they incline to throw out so many branches that if all are allowed to grow the flowers would be hidden. It is better to cut away the superfluous branches as they start into growth, and leave only enough to display the flowers to the best advantage. Thus grown, the plant, when in full bloom, is in itself a beautiful bouquet. The cut blooms show to best advantage when arranged in a saucer of water, or of moistened sand, and in this way make an attractive table ornament. Florists find these double flowers, and especially the double white, very useful in the formation of crosses, wreaths and other floral designs. These double flowers have attained to such perfection of form that seedsmen have named them rose-flowered and camellia-flow-

ered, intending thereby to set forth that they are so double that they resemble these flowers.

There is an opinion current among gardeners that old balsam seed is more likely to produce double flowers than the seed of last season's growth. But we do not know of any experiments that have been recorded which establish this as a fact. Perhaps some of our readers may have made experiments in this direction; if so, they would be interesting as tending to throw light upon this point.

ENGLISH SPARROWS.

Our attention has been called to the article under this title in the May number, page 108, where the eggs are spoken of as being of a *pale blue*. This is not the color of the eggs of this bird as they appear here. The young gentleman, who laughed at the description given, brought us some of the eggs, which are so nearly covered with rusty brown spots as to be almost brown in color, without any perceptible blue whatever.

COMMUNICATIONS.

THE BLACK WALNUT.

TO THE EDITOR OF THE CANADIAN HORTICULTURIST.

SIR,—It is very gratifying to find so many "anxious enquiries" for information respecting the Black Walnut tree, but at this time of the year it becomes too great a task to reply to all letters on this subject, and, as many persons ask nearly the same questions, the constant writing of answers becomes somewhat monotonous. Will you, therefore, permit me to reply to a

few of the most pertinent questions through the columns of the *Canadian Horticulturist*? By doing which, I think you will oblige many of your readers, as nearly all of my correspondents are members of the Fruit Growers' Association.

1. Can the cultivation of the Black Walnut tree be profitably pursued as a commercial enterprise?
2. Are the Canadian walnuts as good a desert nut as the English?
3. What is the style of growth of the Black Walnut? and have the trees long or short trunks?
4. What kind of soil is most suitable to produce a healthy and vigorous growth?
5. What extremes of temperature will it survive?
6. Is it a rapid or a slow growing tree?
7. What time do the nuts ripen?
8. Can the trees be easily transplanted?
9. I intend planting several acres of Walnut trees. Would you recommend the nuts or the young trees? When—in the spring or fall?
10. Where can young Walnut trees be obtained, and at what price?
11. Where can the nuts be obtained suitable for planting?
12. How far apart should Walnut trees be planted?
13. What preparation of the soil is needed, and what is the best manure for that purpose, if any is required?

REPLY.

1st. There can be no doubt respecting the profitableness of an investment in the cultivation of the Canadian Walnut tree, provided an average amount of intelligence is brought into play in the planting and culture of the

same during the first fifteen or twenty years. It can easily be shown that the planting of a given quantity of land with this species of tree will give, in from fifty to one hundred years, a larger profit on the investment than would any other legitimate investment in Ontario.

2nd. The Canadian Walnut is not the same as the nut of commerce, commonly called the English Walnut. The Canadian Walnut tree is the Black Walnut, *Juglans Nigra*. The desert nut known as the English Walnut is the product of the *Juglans Regia*, another branch of the *Juglandacea* family.

3rd. Much depends on the proximity of its neighbours. If the trees are grown near together they will be tall and slender; but if allowed plenty of room, the diameter of the top will about equal its total altitude. The general form of the head will be round, loose and open.

4th. A rich clay soil, worked as deeply as possible.

5th. At this place the thermometer often registers above 90 in summer, and below 35 in winter, and Walnut trees are perfectly healthy.

6th. I have several trees measuring over 24 inches in circumference, 12 years old.

7th. From the middle to the end of October.

8th. The Walnut tree, like most of the nut-bearing trees, are more difficult to transplant than seed-bearing trees.

9th. You will probably be more successful by planting the nuts than with the young trees. Perhaps it would be better in your case to plant both nuts and trees. The nuts must be planted in the fall of the year, and as soon after the nuts can be obtained as possible. Let them be in the ground by the 1st of November. The trees may

be transplanted either in the spring or fall.

10th. I cannot answer this question. Nurserymen having Walnut trees for sale should advertize the fact in the *Canadian Horticulturist*.

11th. Same reply as above.

12th. If you want them simply for shade trees, I should say from 40 to 50 feet apart; but if for planting for timber, I would recommend planting the nuts in rows four feet apart, and two feet apart in the row. Each alternate tree in the row can be removed for transplanting purposes in two or three years, leaving the standing trees four feet apart. In from five to ten years each alternate tree can again be taken out, and also all the trees in each alternate row. What is left will then be eight feet apart. In 15 or 20 years, the thinning can again be done, as last mentioned, thus leaving the standing timber 16 feet apart. This will be all the thinning out required.

13th. Let the land be thoroughly subsoiled to a depth of 20 inches. If the land is then in proper condition to grow an ordinary grain crop, no manure will be required. T. B.

Lindsay.

PEACHES AND OTHER FRUIT AT AYLMER.

TO THE EDITOR OF THE CANADIAN HORTICULTURIST.

DEAR SIR,—Can you tell me what is the matter with my peach trees; see enclosed leaf. I have only to look from where I am writing, and see that all peach trees look yellow, and on closer inspection all the leaves are like the enclosed. One of my neighbour's trees are the same, and not only his peaches, but his pears. In his instance not only the leaves, but the young pears are just the same. It is worse on a splendid, thrifty young Clapp's Favorite. My pears are all right. Can it be the

yellows, of which I have read a great deal lately? Is that big white grub, with the watery end, injurious? He is very frequently met with this year. All the harm that I can see he does is to eat into potatoes and eat strawberry plants off.

Fruit looks around this section on the main very good, so far. Apples, pears, and cherries, splendid; in fact, never saw such a show.

Currants—25 per cent. blasted by east wind.

Gooseberries—Frozen on the top branches, May 23.

Grapes—Badly frozen in exposed positions same night; coming on again now.

Raspberries and Blackberries—Show is good.

Strawberries—Somewhat frozen on May 23, Sharpless worst of all. Jucunda and Wilson only open blows, but Sharpless is so tender that unopened buds froze, added to which it is not nearly as nice a berry to eat as the so-called third-rate berry Jucunda. These are two faults which even its large size and beautiful color of fruit will not compensate. For size and color they are simply magnificent, with me; but a neighbor got some plants from Ohio, and the shape of their fruit is like a man's closed hand; almost in every one can the fingers be traced, with a green seam between, which renders them worthless.

Peaches—None; and if the rain was a little more like the peach crop, we would like it considerably better.

Yours, &c., A. G. E.

The leaves found enclosed with this interesting letter had the appearance of having been injured by the frost. Do not think it to be the yellows.

EDITOR.

PROTECTING GRAPES FROM BIRDS.

TO THE EDITOR OF THE CANADIAN HORTICULTURIST.

SIR,—I have been much amused and instructed by reading the various subjects discussed in the *Horticulturist*, as also the report of the Entomological Society. I cannot help thinking what a labour it must be to tie paper bags on the bunches of grapes in a large vinery. Would not a sheet, made so as to go over and round under the whole vine, and fastened to the trellis, made of course gauze, be much cheaper in the end, and much handier, than to tie a bag on every bunch, although it would cost more at first? It could be taken down, laid by, and used again for many years; it would allow the passage of air through, and keep out bees or birds, and would save much labour in putting it on, as well as in taking off, as compared with paper bags.

Yours respectfully,

JAMES MILLIGAN.

Orillia, 26th June, 1882.

FRUITS IN MUSKOKA.

Nine or ten years ago, I planted quite a few trees—apples, pears, plums, cherries, etc.—but all with the exception of two crabs, Transcendant and Montreal Beauty, died. Last spring I planted several apple trees, with the following result:—Duchess of Oldenburg, two out of eight were winter-killed; Red Astrachan all alive; St. Lawrence all dead; Snow-apple half killed, and Golden Russet a fourth killed. Last winter was an exceptionally severe one here on trees, and I congratulate myself I have so many alive. I bought my first lot through an agent, and did not then know what sorts were suitable for this district. I believe the sorts I have now can be successfully grown here.

I am, yours respectfully,

WM. GREGORY.

BLACK APHIS ON CHERRY TREES.

TO THE EDITOR OF THE CANADIAN HORTICULTURIST.

DEAR SIR,—I have a fine cherry tree, the growing shoots of which are full of small black lice. Will you kindly, through your columns, inform me the most effectual method of destroying them, and oblige,

Yours, SUBSCRIBER.

REPLY.

Tobacco water will kill the black aphid. This is made by steeping tobacco stems in water until the liquid is of a dark brown color. The stems can be procured of any cigar maker.

If the tree be small the twigs can be bent down and dipped in the water; but if large, it will be necessary to throw the tobacco-water on the young shoots with a garden syringe.

If tobacco stems cannot be conveniently procured, common plug tobacco will do just as well.

TO THE EDITOR OF THE CANADIAN HORTICULTURIST.

SIR,—If convenient, will you please in July number mention how to grow Tuberose, and at what time of the year, and you will greatly oblige,

Yours, A SUBSCRIBER.

Please read the article on page 93 in April number for this year.—EDITOR.

RICE AS A SUBSTITUTE FOR POTATOES.

When the excellence of rice as a diet is fully understood, its use will be more frequent and of daily occurrence in every household. At this season of the year especially, it may properly be classed as superior to any of the cereals which are in such general use for the morning and mid-day meals. No other food is so easy of digestion, and at its present cost it is cheaper than potatoes, oat-meal, or grain-grits of any kind.

CAP RASPBERRIES.

The improved methods of drying fruits, and the ready market for dried berries, have given a new impetus to the culture of Cap Raspberries, or Thimble-berries, as properly they ought to be called. This classifying two so distinct species under one name has always been productive of considerable confusion, yet, as they were so denominated by our forefathers, Thimble-berries will no doubt be called Black-cap Raspberries to the end of time.

In the early history of small-fruit culture, Cap Raspberries figured prominently, and many varieties, all chance seedlings, were introduced and cultivated; but from disease and other causes most of them have become deteriorated and unreliable, creating a demand for good reliable new varieties, which seems in a fair way of becoming satisfied. The following varieties are among the most promising recent introductions:

Hoosier Mammoth is evidently a seedling of the old Mammoth Cluster, and is in no way superior to it, unless it be that it is less subject to the casualties which impair the value of the latter.

Florence.—This is a large yellow or buff variety, and were it not that the so-called yellow varieties are not popular, and not in demand in the markets, would be eagerly sought after. It is almost as large as the Gregg, of strong growth, excessively prolific, and entirely hardy. It ripens from mid-season to late, and is of sweet and pleasant flavor. A dish of this and the Gregg, nicely mixed, is a most appetizing sight to all who are fond of Cap Raspberries.

Hopkins originated in Missouri, and promises to be of great value. According to an excellent authority from the State of its origin, it is as large as

the Gregg, decidedly hardier, and even more productive.

Gregg.—In congenial soil, and under proper treatment, this is, perhaps, the largest Raspberry of its class that has as yet been produced. Much disappointment has been encountered with this variety by planting it upon thin, light soil, where most Cap varieties succeed. The Gregg Raspberry, like the Strawberry, delights in a deep, rich, cool soil, and is so critical in this respect that it frequently refuses to respond in the least to any amount of coaxing on almost any other, and proves an utter failure upon sand. It is extra large, jet black, with a decided bloom, and, although quite good, yet not of the highest quality, being somewhat dry and meaty. In time of ripening it is a little later than the well-known Mammoth Cluster, hence late to very late. Very productive (when grown on congenial soil, and with thorough culture), and although exempt from the diseases that attack the Mammoth, and free from its weaknesses, it is not quite as hardy as that fine old kind. However, taken all in all, it is a variety of great value, and worthy of a place in all gardens suited to its culture.

Souhegan is just what every one interested in Cap Raspberries has long been looking for: to wit, a good *early* variety. It has steadily, and entirely upon its own merits, made itself known, and really leaves but little to be desired as an early Black-cap, either for market or the home garden. Of first importance is, that it succeeds on both light and heavy soils, and in productiveness it is simply wonderful, being, without exception, the most prolific variety of the productive Cap Raspberries that has yet come under my notice. In hardiness it appears to be "iron clad," having stood twenty degrees below zero without injury, when all

others in the same plantation were killed to the ground, and is very early, ripening about a week earlier than Doolittle. It is of fair size, juicy, sweet, and rich, and, what adds much to its value as a market berry, shining jet black, without bloom.—J. T. LOVETT, in *American Garden*.

GRAPES.

In answer to frequent inquiries as to the relative value, quality and character of the more common and newer varieties of the grape, we place a number of sorts under the following heads:

Early grapes—*Moore's Early*, *Lady*, *Worden*, *Massasoit*, *Hartford Prolific*.

Hardy half-bloods—*Burnct*, *Salem*, *Wildner*, and the other *Rogers'* hybrids.

High quality and character, with a slight intermixture of exotic blood—*Lady Washington*, *Brighton*.

Of fine quality, but poor growth—*Eumelan*, *Rebecca*, *Walter*, *Adirondack*.

Hardy and high flavor, but poor bunch—*Creveling*.

Nearly perfect, but not quite good enough—*Concord*.

Prominent and promising white grapes—*Prentiss*, *Pocklington*. Red or darker—*Jefferson*, *Vergennes*.

Half-blood, tender, high quality—*Allen's Hybrid*.

Faultless, but rather small—*Delaware*.

Hardy and productive, but not good enough—*Hartford*, *Martha*.

Good winter keepers—the late-ripening *Rogers'* hybrids.

Grapes of high value or of high promise—*Lady Washington*, *Niagara*, *Duchess*, *Brighton*, *Rochester*, *Prentiss*, *Jefferson*.

Of little value—*Blood's Black*, *Janesville*, *Champion*, *Charter Oak*, *Dracut*

Amber. Israella, Northern Muscadine, Union Village.—*Altered from Country Gentleman.*

A NEW PRINCIPLE IN PROTECTION FROM INSECT ATTACK.

BY J. A. LINTNER.

(Read before the Western New York Horticultural Society.)

Our more accurate writers in Economic Entomology, in the recommendations which they present for the arrest of insect depredations, have, of late, made a very proper distinction between *preventive* and *remedial* measures. If we construe an "insect attack" in its broadest sense, as a habit pertaining to a species of insect, of regularly attacking a plant or an animal, then its arrest at any time or in any manner, may properly be regarded as a remedy of the evil, and remedial measures would thus comprise preventive ones. But if we limit the "attack" to each separate periodical recurrence of the same, then it is possible by the interposition of preventives to preclude the attack and to render remedies unnecessary, and, indeed, impossible. In this latter sense, "remedies" imply that an attack has commenced: "preventives" that means are resorted to prior to the commencement of attack.

Of the latter, are such measures as change in crops, early or late planting, that may preclude the period of egg deposit, vigorous cultivation, selection of varieties which may be nearly or wholly exempt from attack, washes and coatings or other coverings, or the application of highly odorous substances to the object to be protected, or to the soil adjacent if it be a vegetable growth, to prevent the deposit of eggs.

While the preventives that have been proposed are comparatively few, the remedies could be enumerated by hundreds. Merely to specify a few,

we have the popular applications of Paris Green, London purple, hellebore and pyrethrum, in powder or in liquid form; carbolic acid, kerosene and other oils; soft soap and other alkaline washes, lime, ashes, soot, dust, salt, hot water, hand-picking, tree-jarring, burning infested twigs, attracting to fires, to lights, or to adhesive sweets—all tending to the destruction of insect life in one or more of its several stages.

It will readily be conceded that the use of preventives, wherever practicable, is more economical, more effective, and often more convenient than a resort to remedies.

We propose, at this time, to limit our attention to those means now in great favor, which consist of such applications to the soil or to the plant directly that promise a *safeguard against the deposit of insect eggs.*

The great benefit of commencing our efforts at this point is so obvious as to need no words to commend it. It would not be "nipping in the bud" or "crushing in the egg." It is prior to and beyond these. If no egg be deposited, we have no artfully concealed egg to search for, no larva, whose rapacity and destructiveness we must arrest; no pupa, whose retreat is to be discovered, and no imago, whose egg-distended abdomen is as fraught with evil as was that of the Trojan horse of old, to be captured or entrapped—in short, we have dispensed with the four insect stages that require such unwearied and unending investigation in order to ascertain the most vulnerable point of attack of insect life, and the best means with which to assail it.

Can the deposit of eggs be prevented? It can be, and has been done with perfect success in many instances. Please accept my simple assurance of this, instead of occupying your time by citing instances in proof thereof.

How may it be prevented? It may be prevented by applying to the plant or to the soil, certain odorous substances which are popularly believed to be disagreeable to the insect, and therefore, to drive it away.

Among these substances may be mentioned kerosene oil, coal-tar, naphthaline, carbolic acid, gas-lime, and bisulphide of carbon. That these and similar substances have been successfully used in preventing insect attack, is undeniable, resting as the claim does, on authoritative testimony, which I would be glad to present to you if there were the time.

How do they prevent the deposit? The answer to this question is the object of the present paper. The views that I shall present are my own—original, so far as I know. They have been but recently conceived, without the time or opportunity of maturing them. They, as yet, may only claim theoretic value, but believing as I do, not only in their correctness, but that they are destined to be of eminent service to economic entomology, I esteem it a privilege to offer them first to this Society. I do so from the deep interest which you feel in entomological investigations, as shown in the admirable papers that have been presented at former meetings, in the prominent place you have given to entomological topics in your discussions, and in the invitation extended to your State Entomologist, to address you at this time. And beyond these considerations, there is the fact that your membership offers all needed opportunity for testing these views, and I am sure that there is the willingness to take the pains requisite for their proper test.

In answering the question, how do these odorous substances, in their application, prevent the deposit of eggs, I must first premise, that much the larger

proportion of the insect world are guided in the deposit of their eggs, not by the sense of sight, but by the sense of *smell*. Allow me a consideration of this view, before proceeding to its practical application. The idea is a popular one, that most of the moths and beetles and many of the insects that attack vegetation, select by means of sight the particular plant upon which to place their eggs. Their marvellous compound eyes, consisting of hundreds and even thousands of separate lenses, even to the number of 34,000, as in the eye of the butterfly, have been cited as a wonderful provision in nature, to afford that acuteness of vision which was needed in their selection of the proper plant on which to oviposit. While sharing in this belief, I had often wondered at the incomprehensible acuteness shown by an insect in the discovery of the particular species of plant upon which alone the young caterpillars proceeding from its eggs, could feed,—in the discovery of a single individual of a rare species occurring in a certain locality, and growing in such a manner as effectually to hide it from human observation. When its range of food-plants extends beyond a species to all the members of a genus, how could it detect all of the often greatly different forms? When a still broader range embraces the several genera of an extended order, a still greater variety of forms are presented, which the rude insect brain must group and classify, and claim within its province. How amazing such knowledge without previous instruction. It had no parents living, as in the class of vertebrates, which might teach it by example. It had no ancestors a whit wiser than itself from which to learn. The deposit of the egg in its proper place may have been but the second voluntary act of its imago life, regarding that of flight for the purpose as the first. Perhaps a

plant from some distant shore, of which not one of its ever so remote ancestry could have had any knowledge, is brought within its range of wing; its flight is unhesitatingly directed to it, and its precious burden of eggs, without a shadow of mistrust, is at once committed to its leaves. Such knowledge has never been attained by our most distinguished botanists, and it is beyond the scope of human intellect. We have called its displays instinct—a word conveniently framed to cover manifestations in other classes of animated beings, which we are utterly unable to explain. As a partial explanation of these wonders, it has been suggested that to the insect world may have been given senses differing in number and in kind from those which we possess. But all the wonderful phenomena attendant upon insect oviposition by selection is readily explained under the supposition that it is guided and controlled by the sense of smell. We know the value of this important sense to us, how greatly it may minister to our pleasure, and what service it may render in guarding us from deleterious exhalations and from improper food. It is capable of cultivation to the extent of rendering us still greater service. I have been told of a chemist in one of our colleges who can make quite a correct qualitative analysis of a patent nostrum by applying it to his nose, and picking out one after another of the ingredients, first naming those which are simply added as covers. It is related of a blind person that he acquired the faculty of recognizing his acquaintances by the sense of smell. There are negroes in Africa who will follow their masters by scent. A fish dealer in Albany claims the ability of naming each species of fish offered in the market, when presented to him blindfolded, by the odor peculiar to each. The illustra-

tions given us of the acuteness of this sense, in some of our domestic animals, are so numerous as not to need citation. We will quote a single instance of this almost miraculous acuteness, related upon undoubted authority:—“A person, to make trial whether a young blood-hound was well trained, caused one of his servants to walk to a town four miles distant, and then to a market-town three miles further. The dog, without having seen the man he was to pursue, followed him by the scent to the above mentioned places, notwithstanding the multitude of market people that went along the same way, and of travellers that had occasion to cross it; and when the blood-hound came to the chief market-town, he passed through the streets without taking any notice of any of the people there, and left not till he had gone to the house where the man he sought rested himself, and found him in an upper room, to the wonder of those that followed him.”

That insects are controlled by this same sense may seem a bold supposition to those of you who may happen to know, or who may learn now from the confession that I am compelled to make, that notwithstanding the laborious investigations in insect structure, conducted through a century by some of our most distinguished scientists, we are utterly unable to point out with positive certainty the precise location and nature of the organs of smell. Naturalists have differed, and still differ, in their views in regard to their location. Cuvier, Audouin, Dumeril and Burmeister, have regarded the spiracles or breathing pores as discharging this office. Reaumer, Lyonnet, Latreille, and others, have referred it to the antennæ. Others have believed that the palpi were the true smelling organs, and others that the sense belonged to certain cavities in the front part of the

head, and to the mucous lining of the mouth; while Kirby and Spence have thought that they have discovered a nose in the fore part of the head, which they call the rhinarium or nostril-piece, connected with which is a beautifully striated structure, which they have described as the veritable organs of smell.

I am indebted to Dr. Hagen, of Cambridge, Mass., for the following information as to the location of these organs, drawn from *Hauser: Zeitschrift f. wissenschaft Zoologie*, 1880. The Record has just been received, and it gives the latest observations of the best investigators.

Strong smelling substance, as turpentine, carbolic acid, and decayed meats, proved that the organs of smell were situated in the antennæ in very many insects. Nevertheless, not all the insects employed in the experiments were deprived of the sense after the amputation of the antennæ, among which were *Carabus*, *Pyrrhocoris*, &c. After the antennæ were cut the males rarely mated.

Sensitive bristles are present in Orthoptera (*Edipoda* and *Caloptenus*) on every joint of the antennæ after the eighth or ninth, and fifty sensitive pits or furrows, which are probably closed by a fine membrane and have interiorly one smelling-rod. *Stenobolrus* and *Gryllobatpa* are similarly provided. Diptera (flies) have in the third joint 100 to 200 furrows, with as many as 200 sensitive bristles. *Vanessa* has on each joint of the knob of the antennæ fifty furrows. Of the Coleoptera, the Carabids, Cerambycids and Curculionides, possess no antennal furrows, while they are present in the Silphides, Staphylinides, and Tenebrionides. The Lamellicornes have on the under side an immense number of very small furrows, viz., in the female, 17,500, and in the male 39,000.

All insects which have to rely upon the sense of smell for discovering their food or placing their eggs possess many sensitive furrows or pits in the antennæ, as bees, wasps, ichneumons, Diptera and Lepidoptera.

Dr. Hagen suggests that probably in many insects the organs of smell and taste are united. Such may be the organs which are found in the honey-bee in the epipharynx (on underside of the labrum), consisting of numerous sensorial furrows, and which have just been discovered in the same position in *Aphis* and *Cicada*, by Mr. H. Osborn, of the Iowa State Agricultural College.

THE NEW WHITE GRAPES.

A young inquirer wishes to know the comparative quality and value of four new white grapes which he names, namely, the Duchess, Pocklington, Prentiss and Niagara. Without having had an opportunity of examining them critically side by side, we should place the Duchess first in quality, a drawback being its one-fourth foreign blood, and the fear that this intermixture may possibly injure the foliage in future. Next in flavor would be the Prentiss, a strictly native sort, of excellent quality, but not equal in this respect to the Duchess. The Niagara, although one notch lower in flavor, is larger, finer in appearance, a prodigious grower and bearer, and on the whole has an unusual number of excellent points not found combined in any other variety. The Pocklington is still larger, and perhaps more showy than the Niagara, but a notch farther down in quality at the usual time of ripening. We are informed, however, that if allowed to hang several weeks it becomes excellent. These four sorts all stand high, and are all eminently worthy of trial.—*From the Country Gentleman.*

CALLA ÆTHIOPICA, OR "TRUMPET LILY."

A correspondent of the *London Gardener's Magazine* says:

"The Trumpet Lily has become so much in demand of late years for furnishing cut flowers for church decoration at Easter and for indoor decorations generally, that a hint or two on its cultivation will perhaps be of service to



some readers of the *Magazine*. First of all I would say that I have tried many ways of growing it. For example, I have tried drying off the plants through the summer at one time, and keeping them growing in pots and feeding them highly at another. But the plan which causes the least trouble, and gives the best results, is planting them out. If you have a few examples to start with, as soon as danger of frost is over, in the spring, turn them out in rich soil in the kitchen garden, and water liberally to settle the soil about the roots. They will soon become established and take care of themselves, unless the weather is very dry indeed, when an occasional soaking with clear water or liquid manure will be of service to them. They will not seem to make much progress until the nights become rather cool, when they will grow most sturdily. They must remain in the border until there is danger of frost, and then be taken up and potted. If an increase of stock is desired take off the offsets when the stock is lifted, and put them several together round the sides of five or six inch pots. These can be put out as advised above in the spring following.

If it is desired to put them in small pots carefully remove all the soil from the roots, and put them in pots of the desired size. The massive plants which already contain the flowers will not show the least sign of distress if after potting they are well watered and kept well shaded for a few days. I have taken up thousands and treated them thus without losing a leaf. If wanted for Christmas, those which show flower (and many of them will bloom earlier than Christmas if forced on at once) should be selected for putting into heat. The others will come on in succession, and many of them, if kept cool, will not start until Easter, when the flowers are again in great demand."

THE SECRET OF GOOD LUCK.

It is very common to hear people say that it is no use for them to plant fruit trees. They have no luck with them. But in truth luck never did anything of any importance. We don't trust our farm or general garden crops to this person, Luck; but the sensible farmer and grower employs good, careful hands, and directs their work by long experience, and the teeming harvest field and luxuriant vegetable garden attest to their wisdom and industry. There is no luck about it, but a careful measuring to the end to be accomplished with the means at hand to gain it. Whenever the same means have been adopted with fruit trees good results have followed. In our own district there are "loads" of people who have wonderful success with certain things that they set their hearts on, and the growing of fruit is among these successes. But these men, we repeat, do not trust to luck. The trees are pruned as they ought to be and manured with what they need; precautions are taken against injury from curculio and borers, and thus industry, and not luck, meets

with its due reward. Try it as fruit raising and every other crop raising ought to be tried, and see how easy it is to get good fruit and plenty of it by going about it in the right way.—*Germanstown Telegraph.*

NUT-BEARING TREES.

(From the Witness).

BY JAMES DOUGALL, WINDSOR, ONTARIO.

As you have advocated, from time to time, the planting of nut-bearing trees in places where the land is not suitable or not intended for cultivation, and as there has been some inquiry through your columns regarding the proper time and way to plant and cultivate them, I give you my experience on the subject.

THE BLACK WALNUT (*Juglans Nigra*), owing to its gigantic size, its beautiful and graceful appearance when at maturity, its quick growth and the great value of its wood in a commercial point of view, besides its value as a nut-bearing tree, is first of its class. It is in every way suitable for road, lawn, or grove planting where the soil is suitable, but I doubt if it could be grown to advantage on rocky or barren lands unfit for cultivation, as it requires a rich, deep soil. It grows naturally to an immense size on the rich lands of the western peninsula of Ontario, in Ohio and other States. In 1853 I planted a row of one-year-old black walnuts. No after care was taken of them. The greater part, including the largest, were cut down to make room for buildings. On examination I find only four of them left, the largest of which measures four feet in circumference at the butt, three feet six inches at six feet high, and three feet at fifteen feet from the ground, and upwards of forty feet high; the other three trees are about an eighth less in size. Had the nuts been planted where the trees were to stand, and had they not been

injured by buildings so near them, they would probably have been much larger.

THE BUTTERNUT (*Juglans Cinerea*), is not so large or so valuable a tree as the black walnut, but it will grow in places where the other will not thrive, and grows naturally much farther North. I have seen it growing to a good size on the stony sides of the Montreal Mountain, and it would no doubt do well in places unfit for general cultivation. The wood is not so valuable, but the nuts are preferred for eating to the black walnut, though both are rather strong and cathartic. Both are nearly as good for pickling when gathered, green, as the European walnut.

THE EUROPEAN WALNUT OR MADEIRA NUT (*Juglans regia*), where the climate and soil are suitable, would be a valuable tree to plant, but it is too tender for this section of the country. I have tried it largely, but it is invariably Winter-killed to within a foot or so of the ground, sending up strong shoots from the base the following season, to be again killed down the following Winter. My soil is a strong clay loam. If planted on a light soil, with gravelly sub soil, it would perhaps stand the Winter here, and further South it would no doubt succeed well and prove profitable for the nuts as well as for the wood.

THE HICKORY, shell bark (*Carya Alba*), is only second in value to the black walnut, if it is not really first. The wood is very valuable, being much used in carriage building and for other purposes, while as a wood for fuel it stands first. The nut, with perhaps the exception of the sweet chestnut, is the most prized of any of the nut-bearing trees of this country, and always commands a steady sale and high price, which will continue to increase as the trees in the forests get scarcer, large

numbers being cut down for firewood everywhere.

In clearing a farm for pasturage some years ago I left all the hickory-trees, of which there were a great many, some of them of very large size. I found great differences in the size and quality of the nuts. Some were very large, with very thick shells and but little meat in them, others nearly as large with comparatively thin shells full of meat of a finer flavor, while others bore small or medium-sized nuts of inferior value.

The hickory, from its upright, graceful habit, its quick growth and valuable qualities, is one particularly suited for roadside, lawn, or grove planting. It requires a similar rich soil to the black walnut, or rocky hillocks with good soil among the stones, on which it will attain a large size, bearing early, and will prove very profitable to those who plant it largely. The nut must be planted where the tree is to stand, as owing to its large tap-root it will not stand transplanting from a seed-bed, as I have found by experience.

THE PECAN (*carya olivæformis*) is a variety of the hickory, with oblong-shaped nuts, a thin shell and more delicate flavor. I have not heard of its being grown to any extent in the Northern States, its natural habitation being further South; but I have no doubt it would grow well wherever the hickory grows. It is equally hardy here, and grows fully as fast and strong as the hickory. Some years ago I planted some of the nuts in my garden in the Fall. They grew the following Spring, but being too close together I removed all but one and planted elsewhere. Like the hickory they did not stand transplanting, and dwindled away. The one left grew very fast till it attained two feet in circumference, when it suddenly blighted just as it was coming into bearing and died back. Supposing

it had been injured by the Winter, or unsuitable to the climate, I thought it would not succeed so far North, but I afterwards found that my neighbor had placed a number of barrels of coal oil against my fence, which had leaked so much that two years after in digging I found the subsoil perfectly saturated with the oil. This had killed the roots of the tree on that side. On cutting back the tree to a shoot on the sound side it has since grown fifteen feet, and bids fair to become a good-sized tree. The pecan is well adapted for a shade tree or for planting for profit.

THE SWEET CHESTNUT (*Castanea Vesca*), is one of our largest and handsomest trees, and is very profitable when grown on suitable soil. It is very prolific—the nuts, which are easily gathered, falling to the ground when ripe, and selling at high prices in any quantity. It will only grow on light, sandy soils, with gravelly subsoil, where it attains an immense size. A friend made as much from a fine grove of gigantic trees near his house as he did from the rest of his farm of fifty acres. His trees were near enough to overshadow the ground so that grass would not grow, and he kept it clean and smooth, so that the nuts could be gathered once or twice a day, as they fell. The timber is also valuable and very lasting.

THE EUROPEAN OR SPANISH CHESTNUT is said to be the same as the American, but larger fruited. It has been greatly improved by cultivation, and is now nearly as large as a small horse-chestnut, but is not so sweet or fine-flavored as the common American variety. In Spain, the southern parts of France, Italy, and the adjacent countries, sweet chestnuts, either raw, boiled or roasted, or ground into flour, form a common article of diet. It is not, however, the wild chestnut which furnishes the nuts that

are consumed in the south of Europe and exported to more northern countries, but a number of cultivated varieties, the nuts of which are larger and sweeter.

I formerly imported a large number of trees of the best of these varieties from France, but they were too tender for this climate, and died off in a few years. This may, however, be attributed to unsuitable soil, and I presume that, planted on soil in which the common chestnut thrives, they would stand our Winters. Farther south, on land as previously described, they would no doubt do well and prove highly profitable; while in the light, sandy soil best suitable for it other crops do not prove profitable.

THE ALMOND (*amygdalus communis*), will do well in many parts of the United States, wherever the peach grows and the seasons are long enough to bring its fruit to maturity. I have grown the hard-shell variety in perfection here, but I have not heard of orchards being planted with it, though it would prove highly profitable in the Southern States or California; and it could be grown in place of peaches where the latter would be too far from a market. Its cultivation is the same as the peach, to which it is nearly allied. In France the peach is commonly budded on the common almond, being considered more hardy. There are several varieties, the common the *hard-shell sweet*, the *soft-shell sweet* and the *bitter almond*. The *soft-shell sweet* ripens much earlier than the other varieties, but is rather tender north of Philadelphia. As the nuts imported from Europe are often stale and musty there is no reason why all that are required in this country should not be grown in it, so as to have them always fresh and sweet.

The cultivation of nut-bearing trees

is very simple when understood. As a general thing they will succeed much better if the nuts are planted as soon as ripe in the Fall where they are to stand. The greater part of them have very large tap-roots which have to be cut off short in removing them, so that they do not thrive or even grow, as before mentioned, when transplanted.

Two or three nuts should be planted in a hill, the best only being allowed to grow. The great difficulty in planting in this manner on waste lands which are usually used as pasturage will be to keep the cattle from browsing them till they are high enough and large enough to be out of danger. A few stakes driven in around them and wattled with thorn branches is an excellent protection, and a space round each tree wherein grass should be hoed for some years.

When planted as orchard or groves it would be advisable to keep the land planted with corn or hoed crops. Thick planting is advisable, to be thinned out by degrees to the proper distance. The thinnings of the hickories more especially would sell well and pay for the cultivation till the trees begin to bear.

After procuring the nuts in the Fall they should not be allowed to dry or shrivel in the least. If not convenient to plant at once where they are to stand they should be mixed with sand or light mould in a box or barrel and exposed to the freezing and thawing of Winter, to be planted out the first thing in Spring, as is usually done with peach-stones.

Windsor Nurseries, Ont., Canada.

MULCHING STRAWBERRY PLANTS.—A correspondent of the *Rural World* advises fruit growers to use old straw for a mulch for strawberries when applied in the spring to keep down weeds, as in a dry time the straw does not settle down to the ground.

THINNING OF FRUIT.

A fruit tree cannot bear a very heavy crop oftener than once in two years, and in order to obtain an even-bearing tree, the fruit should be thinned very freely every year. This would secure not only very even crops every year, but finer and superior fruit. Thinning is easily done if we obtain a slender pole with a hook-like knife attached, or even a codfish hook, by which the extra fruit could be easily cut out.—*Michigan Farmer.*

We fear that there will be little occasion to urge upon our readers the practice of thinning out the fruit this season, unless it be in the matter of grapes, for the cold easterly storm that prevailed when the trees were in blossom in the Niagara District has thinned the fruit quite too severely in that great fruit-growing region.

SALT FOR ASPARAGUS.

Chas. Hovey, in the Massachusetts *Ploughman*, takes exception to the general impressions that salt is essential, or even beneficial, to asparagus, saying thousands of plants are annually killed or injured by its application. He also says that our "mammoth" specimens do not compare with some grown by the ancients, and quotes Pliny as saying "there was a variety which grew near Ravenna, a deep, sandy country, three shoots of which would weigh a pound."

It may be that enough salt has been applied to injure asparagus, but we have never seen an instance. It is a maritime plant, growing naturally in salt marshes, hence not likely to be injured by any reasonable application of salt.

TO GET RID OF MELON BUGS.

A Virginia farmer, as soon as bugs appear upon his melon vines, puts about half to a whole gallon of sharp sand immediately around them, and with melons, cucumbers and squashes found it a sudden and sure cure. It is supposed the heat and the inability of the bugs to shelter themselves from the hot sun by going into the ground, constitute its virtue; at any rate, in this instance, it succeeded perfectly and gave great satisfaction. Just spread the sand as if putting ashes around grape vines or fruit trees.

Will some of our readers please give the above remedy a trial, and report results to the *Canadian Horticulturist*? It is a new expedient to us, and we have grave doubts as to its success with our Canadian melon bugs, and yet it is so easy of trial and inexpensive, that it would be interesting to know whether it will succeed.

ROOT PRUNING FOR TOMATOES.

Root pruning of tomato plants is recommended to induce early maturity of the fruit. While the plants are young they are transplanted several times, which of course destroys some of the roots; and after they are put into their final resting place, a spade is once in a while thrust down into the ground a foot or so from the main stalk. In this, of course, size, and perhaps quality, are sacrificed to a few weeks earliness; but many are willing to pay this penalty for the sake of the early dish. Those wishing to secure an early ripening of fruit will do well to practice this system of root pruning upon a portion of their plants. Tomato plants produce better and more evenly ripened fruit when afforded some support, as by stakes or trellises, to keep vines from the ground.—*New York Herald.*

THE CANKER WORM.

This destructive pest is making sad havoc in some of the apple orchards of Western New York. It is therefore quite possible that some of our readers will find the enemy at work in their own orchard, and will be glad to read the following which we clip from the *Michigan Farmer* on fighting the Canker Worm.

The *New England Farmer* recommends the following method of reducing the numbers of the Canker Worm :

"It is very common for writers on Canker Worms to recommend that the trees to be protected be treated with printer's ink quite frequently, beginning in October or November, and continuing the practice till the trees are leaved out in spring. It is not improbable that the moths may occasionally mature sufficiently in their pupa skins to burst them and come forth, during unusually mild weather in autumn, but in average years the number that come out of the ground before spring will probably be found to be very small. Mr. O. A. Hillman, whose apple orchard is one of the best in the vicinity, has made the habits of the canker worm a study, and has found that the female moths, which are wingless, very seldom crawl up the trees till the first really warm day in spring. His method of protection is printer's ink, spread upon strips of paper some six inches wide, which are wound round the trunks of the trees and fastened by two or more carpet tacks at each end of the band, the paper receiving one application of the ink early in the spring, and then the trees are examined every warm day till the moth begins to move, when the ink is again applied. His observations lead him to believe that the moths move almost solely by night, and that the

greater portion leave the ground the same night and immediately following the first warm day. By watching closely, and by having the papers all in place and covered by one application of ink, he is able to know by the few scattering moths caught, just about the right time to give them a sticky path to travel in. Last spring a very warm day in April gave promise of starting out the moths in full numbers, and by painting the bands of the entire orchard one afternoon, he was enabled the next morning to see nearly the whole previous year's crop of moths imprisoned in the sticky mass. The number which crawled up late was too insignificant to be worth paying much attention to, unless utter extermination of the species be aimed at, which would be an undertaking of no small moment where an orchard is surrounded by trees belonging to careless neighbors.

"At the close of the pairing season, the tacks are drawn out from one end of the paper bands, and they are allowed to hang loosely during the growth of the tree in summer. Before winter the papers are replaced, and if the trees are now too large to be encircled by the bands, the ink is brushed over the intervening space on the bark itself."

SALSIFY.

Salsify, or Vegetable Oyster, is one of the easiest crops to raise, and every garden should have a row or so. Salsify is excellent, fried or boiled. If boiled, it should be scraped, cut in half-inch pieces, and thrown in water (made acid with a little vinegar) immediately, or the pieces will turn a dark color. Boil for half an hour, and add milk, salt, pepper and butter. Our readers should try this really delicious vegetable, cooked as above. The culture is much the same as that for parsnips or carrots. Sow early in drills 10 inches

apart, and thin out to four inches apart in the drill. It may remain in the ground all winter, and will not be the worse for freezing.

FERNS AS HOUSE-PLANTS.

Ferns for window-plants should be such good-growing common sorts as cannot fail to give satisfaction; the finer and more delicate kinds, and those requiring special treatment, should not be attempted, unless we are prepared to give them the care they demand. A well-grown, thrifty Fern is always pretty, - a scraggy, sickly thing is a miserable-looking plant indeed. You can grow your Geraniums, Fuchsias, Mahernias, Pinks, Mignonette, Petunias, and Oxalis, in your sunny windows; Ferns do not like such quarters, but prefer the very quarters those flowering plants don't like—namely, sunless windows. Ferns like lots of light, and to be grown near the glass, but they dislike direct sunshine. Ferns may be grown separately in pots, or baskets, or in the same pots as Calla Lilies and other window-plants.

Soil for Ferns.—Ordinary observation will teach us that different Ferns require different soils: for instance, we go into the woods and find the little Spleenworts growing in the chinks of rocks, the Virginian Chain-fern in wet swamps, the Hart's-tongue under limestone cliffs, the Sensitive Fern in wet meadows, and evergreen Acrostichums on the hill-sides. Then, again, in California and Colorado we find little farinose and crispy-leaved Ferns growing in open rocky and gravelly places, and so on. For ordinary Ferns I should advise a compost of turfy loam with the finest stuff sifted out of it, old-leaf soil and peat (that is, if you have upland peat; but if you have not, do not use any), in equal parts, and some sharp sand. Gross-growing Ferns like a little

manure. Some pounded charcoal is a good addition to the soil.

Watering Ferns.—Give Ferns lots of water at all times. The soil should be of such a porous nature that superfluous water will run off as fast as received, but care should be taken not to over-water the plants. Ferns like to be dewed overhead; gold and silver and some Maiden Hair Ferns, when they become old plants, had better not be watered overhead, but young ones of them are assisted by dewing. In mild, showery weather in spring put out your plants to get the shower; it will do them good; but take them in again.—*WM. FALCONER, in American Garden.*

CHINESE PÆONIES.

The Chinese Pæonies are so valuable on account of their large size, beautiful coloring and delightful fragrance, and so entirely hardy and vigorous, that all should have at least a *White* and a *Pink* Pæony. *Fragrans* is one of the best Pink varieties, but there are few exhibitions that present such a wonderful combination of colors as a bed of Pæonies. The Pæonies are perfectly hardy, never suffering injury by cold, and will succeed in any ground, unless so wet that the water will lie on the surface in the winter and spring. They may be planted either in the autumn or spring, and are transported with greater safety than almost any plant—not one in a hundred failing. They are also easily increased by division of the roots. A little extra attention in the way of manure will induce a vigorous and rapid growth. We do not know of anything that injures the Pæony, except starving in a poor soil and standing water during the cold season. For large floral decorations few of our flowers can surpass the Pæonies. They seem designed for a grand display, without anything cheap or gaudy in their appearance.—*Vick's Floral Guide.*

THE WATERMELON.

Hon. C. M. Clay, of all fruits, most esteems the watermelon, believing them when fully matured exceedingly healthful, and keeping down tendencies to fever. He says the meat should be red, clear, fine grained, tender and sweet, that but one variety should be planted at a time, but if more are planted they should be set very far apart, as they hybridize very easily, and even at great distance, the wind and the bees convey the pollen of one variety to the flowers of another. He has never succeeded in getting two first-class crops from the same ground in succession, and has found blue grass sod the best for them, and second in desirability newly cleared land. He recommends as fertilizer sand mixed with the vegetable *debris* of forests, or well rotted sods from fence corners or highways. He manages the striped bug and takes care of the vines in the following manner. "As soon as the seed are planted and struck with the shovel to compact the surface, in order to prevent the escape of moisture, I place shingles upon each hill to trap the striped bug, the great enemy of the vines. They seek the shelter of the shingles in the cool nights, when each evening and early morning they must be turned over and the bugs killed with a paddle. Many persons fail to raise melons because of these bugs, which conceal themselves in the ground and suck the juices of the young plants, and may never be seen till the whole crop is destroyed. An old melon raiser told me that he was in the habit of making blazing fires in his melon grounds at night, and that bugs would fall into the flames and be killed; I never tried it, finding the shingle trap sufficient. As soon as the plants are well up you may begin the thinning, till, as they get past the chances of destruction by the bugs and their leaves are well formed, they must be thinned to two plants in a

hill. As the plants advance, the weeds must be kept well under before the vines, but never touch behind them, as the vine will not admit of being handled or moved. I think nearly the same weight of fruit will be produced without topping or shortening the vines, but if large specimens are wanted, after the fruit is set, the ends of the side shoots and the main runner may be pinched off, so as to force all the sap into the few melons left for maturity. It is best to cultivate the vines late in the afternoon, so that the roots injured by the cultivator, plow or hoe, can have the whole night to recover before the sun comes upon them. When ripe they should be gathered early in the morning when cool, for the sun gives them the dull sound which maturity produces. They should be thumped lightly with the finger nail, when, if they sound with a metallic ring, seeming to pass through the whole melon, they are yet green; but if the sound is dull and seemingly confined to the rind, the melon is ripe. When the belly next the ground is white, or the curl of green fresh vines dead, these are also indications of ripeness. As the frequent walking to the hills to kill the bugs solidifies the surface, it ought to be lightly hoed towards the end of this operation. No careless persons should be allowed to enter the melon grounds, as a vine trod upon ceases to be useful; and the one who gathers the fruit should have a long stick to steady himself, and to displace the leaves to find a place for his feet. It also often happens that the vines on clean surfaces find nothing to lay hold of with their tendrils, and are blown over by the winds and severely injured. In such case they should be set upright, and clods placed on the leaves to steady them, or small sticks set near the vines for the tendrils to lay hold of. Avoid walking on the ground when quite wet, and never hill up or

reduce the height of the soil about the stems of the vines."

PRUNING THE GRAPE-VINE.

BY GEO. W. CAMPBELL.

The objects in pruning the vine are mainly to keep it within reasonable space and control; to induce a new growth of healthy and strong bearing wood; and to regulate the quantity and improve the quality of the fruit. The best time to do the principal pruning is in the Autumn, as soon as practicable after the falling of the leaves, and when the energies of the vine are dormant. If the little Summer pruning and pinching that are necessary have been properly attended to, there will be only required in the Fall to cut out the old bearing wood of the current year and to shorten the new canes which have been grown for the next year's bearing, in order to occupy their appointed spaces upon the trellis, the wall, the stake or the arbor upon which they are to be trained. And for all partially tender varieties, and for all localities subject to excessive cold in winter, it is better to lay down the canes upon the ground after pruning. Where the ground is covered with snow during the severest weather, simply pegging or fastening the canes upon the surface of the ground is all that is needed; but in other places a light covering of earth or of leaves is necessary in addition for perfect protection. It is the testimony of some old, practical vineyardists that vines so treated make a healthier and stronger growth and bear much finer and more abundant fruit. A very successful grape-grower in Southern Ohio recently declared that vines pruned early in Autumn and slightly protected during the succeeding winter bore twenty-five per cent. more and better fruit than vines that were left unpruned upon the trellis until Spring. All methods of pruning the vine are based upon the

fact that the fruit buds for the next year's bearing are formed upon the wood grown the present year; hence as much as practicable of the old and past-bearing wood should be taken out at the annual pruning.

In my own practice, I prefer what is called the "annual renewal system," which allows a young vine in its first fruiting to bear no more than it can bring to maturity, and at the same time grow one or more strong and healthy canes from as near the ground as practicable for next year's bearing. The bearing wood of the present year is cut away and the new wood takes its place. This practice, with slight modifications, is continued during the life of the vine, is readily understood and applied, and a little observation and experience render it quite simple and easily performed.

A cultivated vine is in an artificial condition, and all its energies are directed toward the production of the greatest quantity of fruit within its allotted space; and some vines respond so readily to this artificial treatment that they are disposed to overbear, and set more fruit than they can mature. Attempting to grow too much fruit may so overtax the powers of the vine that it can neither ripen its grapes nor mature its wood perfectly for next year's bearing. Vines so treated are unhealthy and short-lived. It is better, however, to avoid the evil of overbearing by thinning out the fruit, especially all the small and imperfect bunches, than by too close pruning; for an abundance of healthy foliage is necessary for the ripening process.

The Summer treatment consists in thinning out the fruit upon vines disposed to overbear; early pinching off the ends of fruit-bearing shoots two or three joints beyond the last cluster, and then removing all superfluous

shoots except what are started from below and are needed for next year's bearing. This, with an occasional pinching of the end of a too rampant shoot will be all that is required. And when one has learned so to gauge the capacities of his vines as to bring each year his crop of fruit to perfect maturity, and at the same time have a sufficiency of sound wood for the next year's crop, he has learned all that is necessary for successful grape culture.—*Rural New-Yorker*.

SPINACH.

For winter and spring "Greens," Spinach takes a front rank in every well-managed kitchen-garden, and, in the vicinity of large cities, it is also a profitable crop for market.

Spinach needs a deep, rich soil to produce maximum crops, for it can only be grown with profit on land that is well drained and highly manured. For a succession, the seed may be sown early in April and again in May—for the principal crop from the first to the middle of September, or late enough to become about half-grown before cold weather sets in.

A piece of land from which a summer crop has been taken is most suitable. Before sowing, the ground should be well manured, thoroughly pulverized, and the surface leveled. The rows are then marked out, twelve to fifteen inches apart, with a garden "marker," or by stretching a line, and making drills with a hoe. The seed may be sown in the garden by hand, and in the field with a seed-drill, using five or six pounds to the acre. A quarter of a pound of seed will sow enough for home use. With this, as with most other seeds, it is important to firm the soil, after covering, with a roller, or by packing with a spade or board. As soon as the plants are large enough,

they should be hoed and thinned out where too thick. What is wanted for home use in midwinter should be mulched lightly with salt hay, forest leaves, or straw, to a depth of two or three inches; this is sufficient to protect the leaves from injury by frost. Or if the Spinach has grown to full size in the fall, it may be kept very well by cutting it, then placing it three or four inches thick in a frame, and covering it with a sash and a little rubbish. The covering of the open beds should not be removed before the leaves commence to grow.

The main crop is cut during April and May. When the soil is rich, and proper care has been given, a barrel of Spinach can be cut from a square rod of ground.

The *Round-leaved* is the most popular variety for home use as well as for market. It is perfectly hardy, standing our severest winters with but little injury, and is of the best quality.

The *Prickly* or *Fall* variety is said to be more hardy than the round, although there is but little difference in this respect. It is used principally for fall sowing, but does equally well when sown in spring.

Savoy-leaved has a large curled or crumpled leaf like Savoy Cabbage, is very hardy, and produces a heavier crop than the other sorts. It is especially adapted for late fall sowing.—*The American Garden*.

THE TUNISIAN'S PASSION FOR FLOWERS.

The Tunisian Arabs have a passion for flowers, and as soon as their spring commences even the poorest and raggedest may be seen with a delicately scented blossom stuck above his ear, the stalk resting amid the folds of his turban, and the flower projecting forward over his dark cheek. I have been

told by those who have had thirty years' knowledge of these people that they will almost go without bread to buy flowers. And there is something in the sight of a gaunt, toil-worn Arab, whose sole garments may consist of a piece of coarse sacking and a ragged old turban, with a bunch of delicate spring blossoms drooping their cool freshness against his swarthy cheek, which stirs a strange mingling of sympathy and pity and admiration.—*All the Year Round*.

THE RUSSIAN MULBERRY TREE.

This tree was introduced into the United States by the Mennonites, a sect which formerly lived in Germany, but who emigrated because the German government insisted upon their serving in the army, which their religious scruples forbade their doing. The Czar of Russia offered them a tract of land for settlement in 1800, and agreed to exempt them from military duty. From Russia a goodly number have emigrated to this country and settled in Kansas, Dakota and Nebraska. The mulberry tree was introduced into the colonies in Russia by the Czar, for the purpose of silk culture. He compelled the Mennonites to buy these trees of government. Each land holder must plant a certain number. After cultivating them until they learned their value they voluntarily propagated these trees very extensively, and learned that silk culture was not the only consideration in raising them. They found the timber very desirable fuel. It also furnished the finest material for cabinet work, and fence posts made from it would outlast those made from any other timber. The tree soon became the most highly prized of any Russian timber tree. It also bore edible fruit which was marketable in Russia. When the Mennonites came to this country they brought the seed of this

mulberry with them. They brought the seed of several other trees, but planted these more extensively than all others combined. They grow quite rapidly. Trees, the seed of which was planted six years ago, are now twenty feet high and large enough for fence posts. The tree resembles the apple tree in its habits of growth. The Russians say that they grow quite large, often reaching the height of forty feet, and from three to five feet in diameter. They bear fruit very young, frequently commencing when two years old, and bear every year. It varies in flavor from sub acid to sweet, color jet black and reddish white, ninety per cent. being black. The bark is grayish white, and branches drooping. The Mennonites also use it as a hedge plant, and it makes a beautiful hedge and stands shearing as well as any tree.

SHAFFER'S COLOSSAL RASPBERRY.

President T. T. Lyon, of the Michigan Pomological Society, thus speaks of this newest novelty in raspberries :

"Last spring I received for trial, plants of the Shaffer Raspberry. Its growth from last spring 'tips' would seem to justify the title Colossal sometimes imposed upon it. Judging from its habit, as well as from the color, texture, and flavor of the fruit, I am led to consider it a hybrid between our two natives, *Occidentalis* and *Strigosus*. It ripened a few berries, on canes of the current year, about the middle of August, 1881. It seems to possess much more than the usual vigor of *Occidentalis*; and, so far, roots from tips only. The foliage, as well as the wood growth, is very vigorous and healthy. Fruit large, dark purplish-red, with a very slight bloom. Texture rather firm, moderately juicy, with a rich, acid, sprightly flavor."—*Rural New-Yorker*.

THE SUCCESSFUL EXHIBITION OF CANADIAN FRUIT IN GERMANY.

Yesterday afternoon, in connection with the anticipated increase in immigration from Germany, reference was made to a letter received by the secretary of the Horticultural Society. Mr. Evans to-day sends us the letter:—

SIR,—The directors of this Society will be glad to have you give publicity to the following letter relative to the collection of apples sent to Germany lately by the Association. As Mr. Munderloh observed, the Germans being a thoughtful people will speedily decide that a country producing such fruit cannot be the barren, inhospitable region that interested parties have sought to make out. This Society would be able to make collections of fruit from time to time as it arrived at maturity the coming season at very trifling cost to the country.

I may state that the last shipment of fruit was made in the patent cases furnished by Mr. George A. Cochrane for the purpose. The safe arrival of this fruit at its destination goes far to show that our delicate fruits can be transported to distant markets in prime condition if properly packed and picked.

Yours respectfully,

HENRY S. EVANS,
Sec'y and Treas.

Montreal, Dec. 15, 1881.

REUTBIEGEN, WURTEMBERG, GERMANY,
November 21st, 1881.

SIR,—I received with a letter of Mr. Munderloh a collection of apples which you had the kindness to hand to him for me. It arrived at the moment as I was opening the exhibition of the objects brought over by the Geneva delegates from their journey through Canada. It received the highest approbation from all judges, especially from Dr. Lucas, the principal of the Pomological Institute at this place, to which gentleman I presented the ex-

ports of your society. I presented them also to our Department of Agriculture. As agent of the Dominion of Canada in this country, I think of continuing a permanent exhibition of Canadian products for stimulating and encouraging emigration to Canada, and I will be very grateful to you if you will assist me for the coming year by sending such excellent fruits. It is the best way to direct attention to Canada. The reports of our newspapers about the exhibition of Canadian products have expressed themselves in very complimentary words.

I am, yours obediently,

(Signed) DR. OTTO HAHN.

—*Montreal Witness.*

FRUIT-TREE CULTURE.

1. Instead of "trimming up" trees, according to the old fashion, to make them long-legged and long-armed, trim them *down*, so as to make them even, snug and symmetrical.

2. Instead of manuring heavily in a small circle at the foot of the tree, spread the manure, if needed at all, broadcast over the whole surface, especially where the *ends* of the roots can get it.

3. Instead of spading a small circle about the stem, cultivate the whole surface broadcast.

4. Prefer a well pulverized, clean surface, in an orchard with a moderately rich soil, to heavy manuring and a surface covered with a hard crust and weeds or grass.

5. Remember that it is better to set out ten trees with all the necessary care to make them live and flourish, than to set out a hundred trees and have them all die from carelessness.

6. Remember that tobacco is a poison, and will kill insects rapidly, if properly applied to them, and is one of the best drugs for freeing fruit trees rapidly of small vermin—and is better used in

this way than to make men repulsive and diseased.

CONTINUOUS DAYLIGHT AND VEGETATION.

Dr. Schubeler, of Christiana, who has been studying the effect of continuous daylight on vegetation, finds that flowers growing within and about the Arctic circle are larger and deeper in color than corresponding species growing further south. This is the case with garden flowers and such plants as field peas, beans, etc. Not only have the size and colors of flowers thus developed by the continuous sunlight, but their aroma is also intensified. This applies to all parts of the plant. The intensification of the flavor of savory garden plants renders some of them almost uneatable in Scandinavia. All the wild and cultivated fruits that can be ripened at all in Norway have more aroma and characteristic flavor than those which are grown further south. The strawberries, cherries, bilberries, and other wild marsh and wood berries, all exemplify this.

Yet the increase of aroma and heightening of flavor are accompanied with diminished sweetness in going north. The golden-drop plum and greengage of Christiana or Trondhjem, although large, well colored and rich in aroma, are deficient in sweetness. In like manner, the Rheinisch, and other northern vineyards produce wines of finer aroma and flavor than those of Spain and Portugal, but they are less alcoholic, on account of the smaller quantity of sugar which, by its fermentation, produces the alcohol. Therefore, it is inferred that the light produces aroma, and heat produces sweetness. Another theory is that the difference is all due to time; that in the north the continuous daylight, and the day-heat also, develop the fruit so rapidly that there is not sufficient time for the conversion

of the starch and woody fibre into sugar to be fully effected. The same fact is seen in the ripening of pears. Many of these when gathered in the autumn are hard and sour, but become lusciously sweet by merely storing them away until December or January, or even later. Oranges and other fruits sweeten in like manner after they are gathered, without the help of any notable amount of either light or heat. The summer in Norway begins so late and ends so early that the snow often falls upon the cherries before they are gathered.—*Florida Dispatch.*

HOUSE PLANTS.

A correspondent writes:—I will give you the benefit of my experience in keeping house plants just received from the greenhouse. It may be of benefit to some one who is not able to have a glass case for their plants.

I had a frame made of lath, three feet long, two feet high, with a shallow tray in which the frame just fitted. I set out my plants in pots, placed them in the tray, then watered my plants, but not so that the water leaked into the saucers. I then paste newspapers on the frame and place it over the plants, and they need no more attention for a week, except sprinkling the plants once a day. After I have kept them covered for a week, I remove the frame for an hour each day, extending the time until they get used to the temperature of the room; and the frame is very serviceable to place over them at night, or when we are sweeping, or when the room gets too hot or too cold,—the best way I have ever known to preserve even temperature. I placed them in the sun at the south window; they never wilted. I had twenty-five plants—Daphnes, Geraniums, Pelargoniums, Fuchsias, Heliotropes, Lantanas, Bouvardias, Abutilons. I have not lost one.—*Western Horticulturist.*

DEACON DAY AND THE HIGHWAY COW.

The best o' bein's will hev their cares—
There's alwus somethin' to cross our way,
To worry and fret us in our affairs—
An' sech was the lot o' old Deacon Day;
He had his trials—I'll tell you how
He was tempted an' tried by a highway cow.

The hue o' her hide was a dusky brown;
Her body was lean, an' her neck was slim;
One horn turned up, and the other down;
She wus sharp o' sight, and was long o' limb,
With a peaked nose, and a short stump tail,
And ribs like the hoops on a home-made pail.

Many a day hed she passed in pound,
Fur meanly helpin' herself to corn.
Many a cowardly cur and hound
Had been transixed by her crumpled horn,
Many a tea-pot and old tin pail
Had the farm boys tied to her stumpy tail.

Old Deacon Day was a pious man,
A frugal farmer, upright and plain;
And many a weary mile he ran
To drive her out o' his growin' grain.
Sharp were the pranks that she used to play
To git her fill and to git away.

He used to sit on the Sabbath day
With his open Bible upon his knee,
Thinkin' o' loved ones far away,
In the better land that he longed to see—
When a distant beller, borne thro' the air,
Would bring him back to this world o' care.

When the Deacon went to his church in town,
She watched and waited till he went by,
He never passed her without a frown,
And an evil gleam in each angry eye.
He would crack his whip and would holler "Whay"
Ez he drove along in his "one-hoss shay."

Then at the homestead she loved to call,
Liftin' his bars with her crumpled horn,
Nimbly scadin' his garden wall,
Helpin' herself to his standin' corn,
Eatn' his cabbages one by one—
Scamperin' home when her meal was done.

Off'en the Deacon homeward came,
Hummin' a hymn from the house of prayer,
His kindly heart in a tranquil frame,
His soul ez calm ez the evenin' air,
His forehead smooth ez a well worn plough—
To find in his garden that highway cow.

Over his garden, round and round,
Breakin' his pear and apple trees,
Trampin' his melons into the ground,
Tippin' over his hives of bees,
Leavin' him angry and badly stung,
Wishin' the old cow's neck was wrung.

The mosses grew on the garden wall;
The years went by, with their work and play;
The boys of the village grew strong and tall,
And the gray-haired farmers dropped away,
One by one ez the red leaves fall—
But the highway cow outlived them all.

The things we hate are the last to fade,
Some cares are lengthened through many years;
The death of the wicked seems long delayed,
But there is a climax to all careers,
And the highway cow at last was slain
In runnin' a race with a railway train.

All to pieces at once she went,
Just like a sawn's bank when they fall;
Out of the world she was swiftly sent,
Lettie was left but her own stump tail.
The farmers' gardens and corn fields now
Are haunted no more by the highway cow.

EUGENIE J. HALL.

LEMON ICE.—Soak half of one box of gelatine in a pint of cold water, put it in a porcelain kettle, pour on nearly one pint of boiling water; when the gelatine is dissolved, put in two-thirds of a coffee-cup of white sugar and a half a coffee-cup lemon sugar boiling long enough to make jelly; remove from the fire, then pour in, slowly, three beaten yolks of eggs, the whites of the eggs beaten to a froth; flavor with two teaspoonfuls extract lemon; pour into a mold and set to cool. This is a delicious desert, nourishing and relishable for the convalescing sick.

FENCES.—According to the *Prairie Farmer*, 40 rods of rail fence, in construction and repairs, costs in 11 years (after which it is supposed to be worn out), together with 5 per cent. interest, \$110. Board fence, 40 rods as above, costs \$80. Hedge fence, 40 rods as above, \$164. Steel wire netting, 40 rods as above, \$73 85. In our opinion, 100 acres will require about 500 rods of fence, costing here nearly \$1,000, besides occupying considerable soil. The interest on the \$1,000, the annual cost of repairs, the use of the waste land, and the excess of feed secured by mowing one's pasturing, will much more than pay the wages of help to care for stock kept in stables and yards. We consider farm fences a relic of barbarism, and confidently look forward to the time when our farms will be made conspicuously attractive by their absence. A fenced yard or field cannot be made so attractive as one unfenced, though millions are invested. They are ruinously expensive to farmers, are perpetual abomination, and should be converted to ashes, in which form they can accomplish some good. Of all fences, the stone wall is the most vexatious. Every passing hunter sets it crumbling as he scrambles over, and when in ruins what shall be done? If you don't want the fence again it is worse than the old man of the sea who clung so persistently to the back of Simbad, the Sailor.