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VEGETABLES

THE
Canadian Horticulturist.

VOL. VI.]

NOVEMBER, 1883.

[No. 11.

VEGETABLES.

If fruits have been found conducive to human health and happiness, and worthy of attention from learned societies and of the fostering aid of the state, so vegetables also deserve a place in our considerate regard as having likewise much to do with the comfort of man. The beautifully colored plate that accompanies this number brings before us at a glance very many of the productions of the garden that in spring-time, in midsummer, and in autumn have both graced the table and satisfied our desires. What more delicious in the first really warm days of spring than that asparagus which the artist has so properly, as we think, represented in buds and stalks of green? Let them eat white asparagus who may, we would not deprive them of the pleasure if they can find it; but to our taste it is far more delightful in flavor when grown in the genial sun-light, its bitter changed by that mysterious alchemy to sweet. Then how much better than conserves are those rosy tinted round and oval radishes, grown quickly in some warm, sheltered nook, tender and crisp, delighting the eye and the palate as well. That sweet-corn also, which an

English writer, envying us our sunny climate, styled food fit for the gods; is there anything more delightful to the hungry soul, smoking hot and redolent of its peculiar perfume? Those midsummer days are all too few in which we can pluck ears of corn, tender, juicy, rich, and sweet. They who like may cut the kernels from the cob, but its highest flavor is enjoyed by those who can adopt a more primitive style. Then the artist, with an appreciation of excellencies that shows him to have been well acquainted with his subject, has given us the Hubbard squash, the richest, sweetest and best of all our autumn squashes. Let more southern latitudes boast their yams and sweet potatoes, they do not compare in richness of flavor with this northern vegetable. And as for celery, that is strictly a production of our north temperate zone, yielding its delicate spicy flavor only in the cool autumnal weather, when the fierce heats of summer are passed away and the latter rains bathe the plants with frequent showers.

Thoughtful observers have maintained it to be a fact that our daily food has much to do with what we are as mental and social beings; that the con-

tinued consumption of coarse food, as pork and potatoes, gives a coarseness to our natures, while on the other hand the daily use of these fine vegetables tends to human refinement and elevation. We are inclined to believe there is much of truth in this opinion; at least we do find that men of refined minds and tastes very generally cultivate these fine vegetables and make them a very considerable portion of their daily food. Again, as refined taste pervades society, our vegetables are not estimated in proportion to their bulk. It is no longer the largest possible size without reference to fineness of grain, and delicacy of structure that now receives the prizes at the exhibitions of horticultural productions. These monstrous growths, with their coarse fibre and coarse flavors, are turned over to the exhibitions of stock feeding roots, where, if anywhere, they belong. Horses and cattle may be able to masticate and digest them.

In the cultivation then of our vegetables for table use we will aim at the production of fine grain combined with tenderness and flavor. To this end we will use fertilizers that have been properly prepared by composting until they are no longer rank and coarse, and in such quantity as experience has taught us will, in our soil, produce quick growth without coarseness. Frequent stirring of the soil by means of hoe or cultivator greatly conduces to this result, and a mellow surface is of as much, if not of more importance than the application of fertilizers.

EXPERIMENTS IN TREE GROWING.

BY P. F. BUCKE, OTTAWA.

In the autumn of 1872 I procured from the woods near by some butter-nuts (*Juglans cinerea*) which I immediately planted. I wish here to state that all tree seeds and nuts should be planted so soon as ripe, whenever that may be; if not, their vitality is either altogether destroyed or much impaired. They all came up in the spring of 1873. One of these, which has been twice transplanted, is now, at ten years of age, two feet three inches in circumference at one and a half feet from the ground, and is thirty-four feet high. It began to bear nuts at seven years of age. Had this tree been grown in a grove for timber, instead of for ornament, it would have been much taller, as the branches would have been trimmed off higher up the stem, and the trunk would have been drawn more to the light. These butter-nuts are the oldest lot of trees I have on my place grown from the seed. Maples of the same age are not half so thick through, though nearly as high. The butternut is a very quick growing tree, and well repays by its thick and graceful foliage any care that may be bestowed upon it. The timber and nuts are both valuable, and considering the ease with which they may be obtained, it is certainly most extraordinary that they are now becoming so scarce. A few acres of these trees in rows ten or twelve feet apart would be a magnificent sight.

Whilst in Toronto in the autumn of 1876, I procured some horse chestnuts (*Aesculus hippocastanum*). The trees are now seven years old, and are ten inches in girth and twelve feet high, having been twice transplanted. They do not grow nearly so fast as the butternut, and are not very satisfactory in this cold climate.

One of the most rapid growing trees of the hard wood varieties is the ash leaved maple, or box elder (*Negundo aceroides*), sometimes called the Manitoba maple. I obtained seed of these in the autumn of 1881, and planted them so soon as gathered in October. The trees on which the seeds are growing should be carefully watched from day to day to ascertain when they are plump and begin to fall, at which time they should be at once collected and planted one and a half or two inches deep. In the spring of 1882 these seeds came up as thick as peas in a row, and so soon as they had the seed leaves and one other expanded, they were taken up and set in a row six inches apart. The growth does not appear to have been checked by this operation, as they are now some of them eight feet high at the end of the second year's growth, and are one and a half inches through. This variety is at present being set out as the future shade tree of Manitoba. In Winnipeg, Portage la Prairie and Brandon, streets are being lined with them, and in spite of the past dry season they are doing remarkably well. Very few are dead which were planted this spring, showing that they bear transplanting very well. These trees grow very profusely along all the streams of Manitoba and the North-west, and may be seen there entwined with wild hops and grape vines. The wood of this tree is valuable for fuel, and sugar is made from its sap. A few acres would be a great acquisition to any farmer, either in Canada or the North-west, for fuel, shelter or sugar.

Black walnut (*Juglans nigra*) two years old from the seed are two and one-half feet high, and appear to be quite hardy here, though, of course, this cannot yet be determined with certainty, as they were well covered by snow last winter.

The elm (*Ulmus Americana*) grows

nearly twice as fast as the sugar or the soft maple, it is not so subject to borers, and is a more graceful street tree. In the American towns the elm has the preference over all others, and in my opinion justly so, as it has many estimable qualities.

The white native birch (*Betula papyracea*) also makes a very pretty street tree, but for some reason is seldom planted; growing side by side with the elm on my place there is very little difference in size or height between the two. The birch has a thicker, closer head than the elm, and its leaves remain green longer in the autumn than the latter tree.

So far all attempts to grow the sweet chestnut (*Castanea Americana*) here have failed. The foliage and flowers are both very ornamental, and the tree is well known for its fruit. It should be grown by all lovers of trees further west.

From the small experience I have had in growing trees, I find there would be no trick in clothing this country, if required, with a dense forest during the life time of any one who had reached his twenty-fifth year, provided he attained the age of three score years and ten. If a proper selection of trees were made, and the ground put in good condition for planting, I believe that in five years from the sowing good saplings could be had for sale to parties who did not wish to take the trouble, or had not time to grow them from seed; ten years would give timber suitable for fence posts; fifteen years for fuel or railway ties, sugar making, and a variety of other uses; and a sufficient supply of nuts and seeds could be grown to enable the cultivator to enter into a tree seed business, for which there will be a large and increasing demand before many years are over. It would be well for the Ontario Government to start a tree

farm to supply trees and seeds, if no one else will go into the business; a practical demonstration is now all that is required to set tree growing going on a large scale.

REMINISCENCES OF MOBILE.

MR. EDITOR,—It was my privilege to pay a flying visit to Mobile, Alabama, in the last days of February, 1883, and it occurs to me that a brief description of what I saw at that time might be of interest to your readers.

The present population of Mobile is estimated at about thirty thousand, of which fully ten thousand are blacks. The general appearance of the city is not one of great enterprize and thrift; its buildings are not imposing, nor is there the stir and activity at the wharves which one sees in the cities of the north and west. The double row of earthworks on the landward side is still to be seen, though broken and worn by time, where the slaves toiled by night and by day until they died by hundreds from fatigue and exposure. The labor might have been spared, for the Northern army never stormed the ramparts. Admiral Farragut entered the harbour that was so securely fortified and filled with sunken torpedoes as to be thought impregnable, with his fleet one day, and the city was at the mercy of his guns.

The trees and plants that grow about this city, which by the way is one of the oldest on this continent, are particularly interesting to one whose life has been spent amidst the vegetation of Canada. Some of the grandest specimens of the *Magnolia grandiflora* are to be found on the shell-road just out of the city, where stands a grove of them, many of the specimens being fully eighty feet high, and supposed to be

not less than one hundred and fifty years old. I measured a few of these monarchs and found them from four to four and a half feet in diameter. Here, beneath their shadow, I found the beautiful *Magnolia glauca*, whose northern limit extends into New Jersey. A very noticeable feature in the woodland landscape at this season of the year is the *Ilex cassine*, covered with berries of brilliant red. The most common street tree is the Chinaberry, *Melia azadirach*, which has been introduced on account of the beauty and perfume of its flowers, but which at this season of the year is by no means of an attractive appearance, being disfigured by the masses of dried berries or seeds which remain upon it all winter. The Live Oak, *Quercus virens*, seems also to have been planted as a shade tree, at least some most magnificent specimens are to be found on the streets and in the suburbs. I paced the spread of one of them and found its branches extended over a diameter of twenty feet, with a circumference of over two hundred feet. What a grateful shade when the summer sun is in the zenith, but at the time I stood beneath its spreading branches admiring its magnificent proportions, a north-easterly wind was blowing and an overcoat was not uncomfortable. That the readers of your magazine may have some idea of the appearance of these fine oaks I send you a cut of one that stands not far from the residence of that eminent botanist who has done so much for the science of forestry in the Southern States, Doctor Charles Mohr, of Mobile. And should you ever visit this ancient city, especially if you desire to study the flora of this region, do not fail to make his acquaintance; you will find him a genial gentleman, who will take a pleasure in placing his vast stores of botanical knowledge at your command. The picture will also give you an idea

of life at midwinter in this southern clime.

Another species of oak which is very abundant here and throughout this region is known as the Water Oak, *Quercus aquatica*. The leaves of these oaks are quite unlike those of our Canadian

them the long-leaf Pine, or Southern Pitch Pine, *Pinus australis*. It is a tree of lofty growth, with a tall shaft like the mast of a vessel, stretching upwards without a branch for many feet. Doctor Mohr assures me that they not uncommonly reach to the height of a



EVERGREEN OAK IN MOBILE.

Oaks, being much smaller and entire, not cut at the edges. It were difficult to one accustomed only to the oaks of our forest to accept these small leaves with regular outline as those of an oak but for the unmistakable acorns and cups, which at once satisfy all doubts.

The Cotton Wood, *Populus monilifera*, also grows here, but the trees I saw were of very modest dimensions. And here I formed the acquaintance of a new race of pines, foremost among

hundred feet and over. From him I learned that the forests of this long-leaf Pine in Alabama form four separate regions, the maritime region, the central pine belt, the forests of the Coosa river, and an isolated forest in Walker County, covering an aggregate of twelve thousand square miles, and computed by him to yield an amount of merchantable pine equal to 19,000,000,000 feet, linear measure. Notwithstanding which, he says that the

constantly increasing inroads into these forests for the production of naval stores will in a short time lead to the complete exhaustion of these vast resources, without any hope of their restoration. Next to the long-leaf Pine in importance is the short-leaf Pine or Soft Yellow Pine, *Pinus mitis*, which forms a considerable portion of the forest growth in the upper part of the Coast Pine belt, and of the upland in the northern part of the State. It is scarcely inferior in the quality of its timber to that of the long-leaf Pine. I also saw here a few specimens of the Loblolly Pine, *Pinus taeda*, whose lumber is fit for only inside work.

The principal horticultural industry here seemed to be the growing of cabbages, beets, cucumbers and Irish potatoes. I saw farms covered with cabbages, some of them full grown, others just approaching maturity. These are shipped by the car-load to Cincinnati, Chicago, Philadelphia and New York markets and bring remunerative prices. The cucumbers were yet under small frames covered with cotton cloth as a protection from possible frosts. Doctor Mohr informed me that according to the observations of the Mobile Signal Station, the average temperature from October to December, was 54° Fahrenheit, and from January to March it was 52°. It seldom falls lower than 28° at any time during the winter, and rises occasionally as high as 72°. The Irish potatoes, as they are called to distinguish them from the sweet potatoes, were at the time of my visit about a foot high. These come in about the middle of April, and are also shipped to northern markets. I did not see any large plantations of strawberries, which ripen here in March. The soil did not seem to me to be at all equal to our own in quality, yet by the use of phosphates these truck farmers are producing surprising crops. The rain fall

from January to March, inclusive, averages 18 inches, which is favourable to the production of fine crops of vegetables during this part of the year.

It was my privilege also to visit some of the parks and flower gardens in the vicinity of the city, and it was a novel experience indeed to walk among avenues of Oleanders, and in groves of Camellias, these now indeed beginning to drop their petals, yet still gorgeous with their lovely flowers; the air laden with the perfume of the Fragrant Olive, mingled with the odor of roses, which were here blooming in greatest profusion. Here I saw fine specimens of Laurestinus just coming into bloom, with Pittosporum, Vincas, and Fig trees the latter just putting forth their leaves, while a *Rhynchospermum jasminoides* clambered upon the verandah trellis.

The Pecan, *Carya oliviformis*, I also saw growing here, though I believe that it must have been introduced. Its home seems to be in Western Texas, below latitude 32°, from whence large quantities of the nuts are exported, reaching an annual value of from \$50,000 to \$60,000. It is now being cultivated in Louisiana for the sake of the nuts, growing rapidly and bearing fruit at about four years after being planted.

I was informed that the residents are now seeking to encourage immigration, and to that end are circulating pamphlets in English and German, setting forth the advantages which they can offer to both capitalists and laborers to come and settle among them. Cotton is no longer king. A mixed husbandry, adapted to the peculiarities of that climate, is now accepted to be the necessity of the country. The old time residents are not sufficiently skilled in general agriculture to develop fully the resources of that land, and to bring out its capabilities; hence, they long for the settlement among them of skill-

ed and enterprising cultivators. As these must come from more northern climes, they will doubtless find that they have much to learn in the way of adapting their new methods to the circumstances, and although standing on vantage ground by reason of their general knowledge of the subject of land tillage, it will probably be found that it will require the time of one generation to fully ascertain the particular crops and best methods of cultivation to yield the most remunerative returns.

Yours, B.

IN MEMORIAM.

Mr. James Little, the Nestor of Canadian Forestry, died at his residence, Cote St. Antoine, Montreal, on the 2nd of October, 1883, at the age of eighty years. He was born near Londonderry, Ireland, and came to Canada in 1823, being then only nineteen. In 1833 he was married to Annie Youell, daughter of William Youell, Esq., of Thorold. He was extensively engaged in lumbering and was the first to send lumber to the markets of the United States.

About ten years ago he commenced to write on the subject of forest protection and the importance of curtailing the cutting of our commercial woods, raising a warning voice against the reckless waste that was rapidly destroying an important source of national wealth. In recognition of his labors in this direction the American Forestry Congress awarded him a special vote of thanks.

In the August number of *Forestry*, published in London, England, 1883, at p. 243, is a vigorous article on the "alarming destruction of American Forests" from the pen of his son, Mr. William Little, in which he sets forth the present condition of the White Pine forests of the United States and Canada,

and shews from unquestionable data that at the present rate of destruction it will require but seven years to exhaust the supply of White Pine timber. We commend the article to the careful perusal of every one. The mantle has fallen from the father upon the shoulders of the son, may he be long spared to continue the work of arousing the attention of our people to the great importance of preserving and continuing this source of our wealth.

DECIDUOUS FLOWERING SHRUBS AND PERENNIAL PLANTS.

THEIR HARDINESS, AND ADAPTABILITY FOR
THE DECORATION OF THE PARK
AND GARDEN.

There is nothing in cultivation to excel hardy shrubs, and perennial plants, for the decoration of the Park and Garden. Their hardiness, beautiful varieties of foliage, flowers, and their handsome as well as graceful forms of growth, place them first on the list for decorative purposes. There is at present in cultivation such an extensive variety of both the shrubs and plants, that there is no difficulty whatever in selecting varieties most suitable to soil, situation, and climate, and by a judicious selection of the same, a continual succession of bloom may be kept up during the whole floral season. One great point in favor of the shrubs and plants is, that when once planted and taken root there is very little trouble beyond a slight covering of the shrubs, for protection from frost in severe northern climates. The covering may be done with old mats or straw. Shrubs too large to bend down should be drawn together as close as possible without breaking the limbs. Tie with strong cord, and cover. It is necessary that the covering should be done before the severe frost sets in, and left on in spring till all danger of frost is over, as it is the continual freezing at night

and thawing during the day that does the most harm to both the shrubs and plants. It is necessary that the shrubs should have a shortening in spring. Cut all dead wood out and shorten small wood back close; also shorten the flowering wood slightly. The forms they may be used in are numerous and varied, such as ribbon-lines, beds, clumps, or singly on the lawn. In using on the lawn, shrubs with remarkable foliage should be selected, such as *Cornus variegata*, *Weigelia variegata*, *Berberis purpurea*, &c. In using them in ribbon lines, beds or clumps, the tall varieties are selected for the back ground or centre of bed, and the next taller on down to the edge or border. The varieties should be so dispersed as to form an even display of bloom as well as a continual succession of the same over the entire shrubbery. As climate, soil and situation have a great influence on the growth and height of both the shrubs and plants, it is impossible to lay down precise limits for the same. As some seasons vary greatly from others, so their time of flowering may be earlier or later according to the season, consequently it is impossible to expect them to flower the same time every season. The shrubs and plants will thrive in almost any soil, providing it is not very poor. In planting, mix in some well decomposed manure or old hot-bed mould along with the soil at the time of planting; water in dry weather. The whole secret of success lies in the tasteful arrangement of shrubs and plants according to their various forms of growth, colors of flowers, foliage, wood and heights, and so blended as to form a contrast, both in flowers, foliage, and wood. The following are the names of some of the shrubs and plants most worthy of a place in the Park or Garden, and which have proven quite hardy, with but a slight protection during the winter, as

far north as Ottawa, Ontario. There are some of the shrubs and plants that need no protection whatever. They are marked thus* :

SHRUBS.

- * *Berberis vulgaris*, *Canadensis*, *alba*, *purpurea*; *Berberis*.
- * *Cornus sanguinea*, *variegata*, *mascula*—Dogwood.
- Deutzia scabra*, *gracilis*, *erecta*, *crenata*, *plena*—*Deutzia*.
- Hydrangea hortensis*, *paniculata*—*Hydrangea*.
- * *Syringa Emodi*, *alba*, *purpurea*, *persica* *alba*, *sinensis*, *speciosa*, *Washington*, *Grandiflora*, *sanguinea*—*Lilac*.
- * *Philadelphus cornarius*, *cordatus*, *floribundus*—*Mock Orange*.
- Pyrus japonica*, *alba*, *rosea*—*Japan quince*.
- Ribes sanguineum*, *aureum*—*Currant*.
- * *Spirea prunifolia*, *obovata*, *grandiflora*, *callosa*, *alba*, *crenata*—*Bridle Reed*.
- * *Viburnum grandiflorum*, *opulus*—*Snowball*.
- Weigela rosea*, *splendens*, *alba*, *grandiflora*.

PERENNIAL PLANTS.

- * *Aconitum album*, *longiflorum*, *napellus*—*Monkshood*.
- * *Anemone palmata*, *vernalis*—*Windflower*.
- Antirrhinum*, different kinds—*Snapdragon*.
- * *Aquilegia arctica*, *grandiflora*—*Columbine*.
- Arundinaria variegata*—*Ribbon Grass*.
- * *Aster Gmellus*, *bicolor*, *grandiflora*—*Michaelmas Daisy*.
- * *Bellis perennis*, different kinds—*Daisy*.
- * *Campanula pyramidalis*, *rotundifolia*—*Bellflower*.
- * *Convallaria majalis*, *multiflora*—*Lily of the Valley*.
- * *Dielytra erimia*, *spectabilis*—*Bleeding Heart*.
- * *Dictamnus*, *Fraxinella*.
- * *Galanthus nivalis*, *flore pleno*—*Snowdrop*.
- * *Helleborus atrorubens*, *bividos*—*Christmas Rose*.
- Heemerocallis aurantica flava*—*Day-lily*.
- * *Iris bicolor*, *pumila* *alba*, *persica*—*Fleur de luce*.

* *Lychnis chalconica*, *haggeana*, *alba*—
Flower of Jove.

* *Narcissus*, different kinds.

Peonia arborea, *alba*, *grandiflora*.

* *Phlox nivalis*, *ovata*, different kinds.

* Pansy, different kinds.

* *Salvia azurea*, *officinalis*.

* *Sedum montanum*, *ternatum*.

* *Spirea japonica*, *speciosa*, *umbrosa*.

* *Viola arborea*, *odorata*, *alba*.

THOS. E. DAVIS.

Ottawa, Ont.

THE FORESTRY EXHIBITION.

Arrangements are being made for the holding of a Forestry Exhibition sometime in the summer of 1884 in the City of Edinburgh, Scotland. The following notice is taken from the *Garden* :

"Quietly, but energetically, the executive committee charged with the arrangements for this undertaking are pushing forward the preliminary measures necessary to ensure its success. Without any direct appeal to the public, the guarantee fund has already mounted up to about £3,500. While no date has yet been fixed for the holding of the exhibition, it is generally understood that the most suitable period for it will be the months of July, August, and September next year. Entries, it is said, will close on the 1st of March next. The nature and scope of the exhibition will, perhaps, be best understood from the following abstract of the proposed classification:—

"In Class I., 'Practical Forestry,' will be exhibited implements, tools, &c., used in forestry, draining, and enclosing, models of foresters' huts, charcoal kilns, and timber slips, plans of river embankments, rafts, and appliances for floating timber, models of machinery for transporting timber and transplanting trees, sawmills, wood-working, and pulp machinery of every description, and fencing materials."

"Class II., 'Forest Produce,' will embrace collections of timber specimens and ornamental woods, woods used for ordinance, for railway purposes, and for pavements, cooperage, wood carving and turnery, basket and wicker work, fancy wood work, wood engraving, tanning and dyeing substances, barks, including cork fibres and fibrous substances, material for paper manufacture, gums, resins, wood oils and varnishes, &c."

"Under Class III., 'Scientific Forestry,' will be ranked botanical specimens of forest flora, microscopic sections of woods, fungi and lichens injurious to trees, forest fauna injurious to woods, useful and noxious insects, preservative processes applied to timber, geological specimens and diagrams illustrating the different formations adapted to the growth of trees, fossil plants, and trees found in bogs."

"Class IV., 'Ornamental Forestry,' will consist of growing specimens of rare and ornamental trees and naturalized species, in tubs or otherwise, rustic work, arbours, seats, bridges, &c."

"To Class V., 'Illustrations of Forestry,' will be relegated paintings, photographs, and drawings of remarkable and historical trees, foliage and scenery, illustrations shewing the effects of blight, accident, or any abnormal condition, and sketches of work and operations in the forest."

"In Class VI., 'Forest Literature,' will be found forest reports of forest schools, forest periodicals, and other publications, treatise on measuring and valuing wood, forest floras of different countries, treatise on fixation of dunes and on ancient and extinct forests, working plans of forests and plantations on estates, valuations, surveys, &c., maps and charts illustrative of the geographical distributions of forest trees and their altitude."

“ Under Class VII. will come essays and reports on specific subjects for which premiums are offered. Under Class VIII. loan collections. Under Class IX. economic conditions of foresters and woodmen. Class X. will contain miscellaneous exhibits.

Among the places from which exhibits have already been promised are Ceylon, the Andaman Islands, Jamaica, Canada, California, the United States of America, and New South Wales; while the famous forestry schools of France and Germany are expected to be adequately represented, as is hoped may be also the forests of Norway and Sweden, Cyprus, Greece, and Italy. Application has been made to the heads of the forest departments in the different Presidencies of India, and many of those gentlemen, being personal friends of the members of the committee or of the honorary officials, are expected to render hearty co-operation. Communications have also been addressed to various foreign ambassadors, with a view of obtaining for the exhibition the recognition of their respective Governments; and thus far the results in this direction have been of the most satisfactory character. The literature of the subject is likely to be illustrated by reports of the schools of forestry in all parts of the world; and in this connection occasion will be taken to show the strong claims which Edinburg has for the establishment of such a school, while abundant material for the practical education of students is to be found all over the country. Closely allied to this branch of the subject is the preparation of plans showing the age of trees and the stage of growth at which cutting should be, or has been, resorted to—a mode of procedure which is said to be confined in Scotland to the Grantown estate of the Earl of Seafield, under the management of Mr. J. G. Thompson, though the practice is

said to be largely and advantageously pursued in other parts of the world. By the preparation of such plans the proprietors of forests are said to have been led to take a greater interest in the woods on their estates, and so have been enabled the better to direct their management, preventing over-felling in some seasons, guarding against overcrowding at other times, and thus rendering the plantations less liable to the ravages of such a gale as that of October 14, 1881. The loan section of the exhibition will, it is anticipated, prove to be one of the most attractive of all, including, as it is expected to do, notable specimens of carving, wood engraving, and several other kindred arts, from various quarters.

STRAWBERRY NOTES FROM OHIO.

EDS. COUNTRY GENTLEMAN—Among the new strawberries, the *Manchester* has impressed me so favorably that I would have no hesitation in planting it largely, and correspondents in many parts of the country have sent me favorable reports. It is a good grower and bearer, the fruit large, regular, good in color and fair in quality. It will not surprize me if the *Primo* proves to be the most valuable of the new varieties. It seems to have all the good points of the *Manchester*, with better flavor and perfect blossoms. The *Jersey Queen* is the only one on my place entirely free from rust at this date. The fruit is large and excellent. The “Big Bob” is small and poor in other localities, but better with me. From what I have seen I expect a great deal from *Arnold's Pride*. The *Mrs. Garfield* is but little known out of my own place. I raised it from *Crescent* in 1878, and it proves a good healthy grower, abundant bearer, blossoms perfect, berries medium to large, bright red, excellent in quality. George W. Campbell calls it the best flavored of all the large varieties. I

have fruited the *Daniel Boone* seven seasons, and it has never disappointed me. It was our main dependence this season. The fruit is very large, regular, bright red, good in flavor; plants pistillate. Charles Carpenter of Kelly's Island says it will yield as many quarts as the Manchester.

Of the well known varieties, I regard the Cumberland, Hart's Minnesota and Mount Vernon as the best three. Hart's Minnesota is one of the earliest and remains in bearing a long time.

The strawberry crown-borer is spreading rapidly, is very destructive, and its habits not generally understood. The larvæ are carried all over with potted plants.—M. CRAWFORD, in *Country Gentleman*.

CULTIVATION OF CURRANTS.

The currant has always been a universal favorite, not so much perhaps because of the real nature of the fruit as because of the extreme hardiness of the bush, which hitherto has withstood a good deal of neglect, with little or no attention. After once planting them in some remote corner of the garden, or under the fence, they were let severely alone. But with the currant, as with other things, as soon as they become scarce, the demand for them will increase, and better prices rule. My plan of cultivation—which I do not claim as the best, but which has always succeeded with me—is simply this: As soon as the leaves are off the bushes in the fall, I go through them with a sharp knife and trim out the old branches, and any of the new that show signs of the borer, and cut back all new shoots one-third. I then rake up all the wood that has been cut out, and burn it to make sure of destroying all insects that might cling thereto. This done, I work in *deep*—usually with the spade—three or four shovelfuls of good, well-rotted barn manure around each bush to the

space of about three feet; the ground between the rows is now either plowed or spaded, and the whole given a liberal top dressing of light manure, and the work is done for the winter.

As soon as the first worms appear in the Spring—which is early—I take a heaping tablespoonful of powdered *white hellebore*, and thoroughly wet it with boiling water—a quart or so. I now turn this to a pail of clean cold water, stirring constantly all the while, till every particle of the powder is well mixed. It is ready now for application to the bushes, which is done with a large watering-pot, taking great care to thoroughly sprinkle every bush; repeat this as often as the worms reappear. Usually two applications, one early in the Spring, and the other just before the fruit ripens, are sufficient to keep down the worms. Keep the ground around them mellow and free from weeds, and if at any time through the summer a branch is seen to wilt, it is immediately cut away and burned, as such is the "sign of the borer."

Following this method of cultivation, I have never lost a bush or had a poor crop of fruit. And I bespeak the same success to any who will take the same trouble for the sake of this delicious fruit. It will pay.—D. B. C., in *Practical Farmer*.

PLANT TREES ON THE ROADSIDES.

MR. ORANGE JUDD advocates tree planting along the highways, in *American Agriculturist* for November. He says: Trees may be planted at a time before the ground freezes solid, or as soon as it fully opens in spring. Early spring would be preferable on some accounts; but if left until then, the hurry of work, often delayed by cold and wet weather, is likely to interfere. It is better, therefore, to get every hardy tree possible into its permanent growing place now. And every year it is

delayed is no trifling loss. A hundred trees can be set at a cost of ten to twenty dollars, or for almost no cost, if one has spare time and the saplings are easily available. These may in ten to fifteen years grow to be worth three to ten dollars apiece for needed timber and fuel, or for the fruit or nuts produced.

It would be greatly to the advantage of the country, its climate, and its beauty, if the sides of our public highways generally were planted with trees that furnished shade and ornament while growing, and supply at no distant period wood for various purposes. Some years before they mature sufficiently to be cut down for use, new plantings alternating with the older trees can be coming forward to take their places, or slow and quick-growing varieties may be set, so that when the latter are removed the former will be large enough to soon fill the gaps. It is desirable, however, to have together those that somewhat resemble each other in form at the top. We have in mind a broad street, ninety feet wide, where twenty-five to thirty years ago various oaks were set, thirty to forty feet apart, ten feet from the outside, and between these, in a line with them, quick-growing maples were planted. Recently the maples were all removed, furnishing a cord of wood apiece, with considerable useful timber, and the oaks now stand in two beautiful rows.

As to loss of land from spreading roots and from shade, if planted a few feet from the fence, the roots can be kept from the crops by a deep furrow along the inside of the fence every year or two, and the shade will not be a serious detriment—none at all from trees on the south side of roads running easterly and westerly. Those on the northerly side of the road furnish a very desirable shade to animals in the adjoining pastures.

OIL FROM SUNFLOWER SEEDS.

The sunflower has long been grown for its oil seeds in Russia and India, and the cultivation has been more recently taken up in Germany and Italy. The plant grows readily in most soils, but prefers light, rich, calcareous land, unshaded by trees. In Russia the seed is drilled into lines 18 inches apart, and the plants are thinned out to 30 inches apart in the rows, thus giving about 11,000 plants in an acre. The quantity of seed required for an acre is four to six pounds, and the sowing takes place in September—October, the crop being ready to harvest in February. In England it is recommended to be planted 6 inches apart and 1 inch deep, and to be earthed up when 1 foot high, requiring no subsequent attention. The yield of seed is much increased by topping the plants, and the best fertilizer is old mortar. Each plant produces about 1,000 seeds, chiefly on the main head.

Experimental culture in France gave a return of 1,778 pounds of seed, yielding 15 per cent of oil (275 pounds), and 80 per cent of cake, from an acre; but the product varies considerably according to soil, climate, and cultivation, and the average may be roundly stated at 50 bushels of seed from an acre, 1 gal. of oil from 1 bushel of seed. The percentage of oil to seed ranges from 16 to 28; and that of husk to kernel from 41 to 60.

The Italian cultivation is confined to the neighborhood of Piove and Cogliano, in Venetia. In Russia the plant is most extensively grown in Kielce and Podolia, and the district of Birutch, in Voronej; the production of seed is now estimated at 8,000,000 poods (of 36 pounds), from an area of 80,00 dessatines (of 13,067 square yards). In Tartary and China it is cultivated in immense quantities, but no actual statistics are available. In

India (Mysore) 1 acre of land gives $11\frac{1}{2}$ cwt. of seed, which yields 45 gallons of oil, which is there compared with ground nut oil, and applied to the same uses. Russian seed is expressed on the spot, and the oil is largely employed for adulterating olive oil. The purified oil is considered equal to olive and almond oil for table use. The chief industrial applications of the oil are for woollen dressing, lighting, and candle and soap making; for the last mentioned purpose it is superior to most oils. It is pale yellow in color, thicker than hempseed oil, of 0.926 specific gravity at 15° , dries slowly, becomes turbid at ordinary temperature, and solidifies at -16° C.—*Dru Reporter*.

THE NIAGARA GRAPE.

The *Wine and Fruit Grower*, in a late number, copies some remarks upon this grape from the *National Tribune*, and then indulges in an expression of its own opinion that is more fierce than complimentary. We copy the whole for the benefit of our readers, and thus contribute our mite towards keeping the grape before the public:

For thirty years we have been familiar with grapes, and we have probably tested all the varieties which have been introduced during these years. We have no recollection of any grape being introduced that was not pronounced to be far better than any other; and yet, among hundreds brought forward, but few are really worth growing. Just at present the Niagara is well kept before the public, and judging from the opinions given by those who have tasted the fruit, it would be difficult to say what it is worth as an edible fruit. One will state that it is of the highest quality; another, that it is foxy, of second class; the third will call it good, but not best—and so on. But if it is well kept before the public, we presume its owners will be satisfied.—WILLIAM SAUNDERS, in *The National Tribune*.

[Exactly! And those who have planted largely of this grape, will doubtless be

“satisfied” too, that they have “got left.” We had an opportunity to test this grape, and an “alleged” wine made from it, at the recent meeting of the American Pomological Society, and had hoped to be agreeably surprised by its good qualities. We were surprised. The samples shown were grown at Charlottesville, Va., where the grape ought to do well, if anywhere. But we are compelled to say that neither the grapes nor the wine were calculated to inspire any one with admiration. In short we think it a gross humbug, as bad as it is big, and wholly unworthy of cultivation.—*Wine and Fruit Grower*.

INSECTICIDES.

N. Y. AGRICULTURAL EXPERIMENT STATION,
GENEVA, N. Y., Sept. 29, 1883.

One of the greatest boons to gardening would be the discovery of efficient methods for the destruction of insects, as well as remedies which are easily to be procured and of easy application. This, however, is a difficult matter to accomplish, and upon a view of the season's work we recognize but little absolute success.

The cabbage worms have been abundant and destructive. We have warred against them with tobacco-water, saltpetre, alcohol, boracic acid, bisulphide of carbon, etc., in various combinations, but we finally settled upon an emulsion of kerosene oil and soapsuds as the remedy that, all things considered, was the most satisfactory. It appears that one ounce of common yellow, hard soap, one pint of kerosene oil, and one and one-half gallons of water, well mixed and stirred, and applied by means of a rose from a watering-pot destroys all worms that become thoroughly wet with the mixture, and does not injure the plant. Care must, however, be taken to keep the ingredients thoroughly mixed in the pot, for if the oil is permitted to rise to the surface, so that it will pass out upon a few plants, it will prove fatal to the few, while the remainder will not receive enough of the

oil to destroy the worms. In this case the kerosene is the insecticide, the object of the soap being but to thicken the liquid so as to retard, in a measure, the separation of the oil from the water. A large proportion of the soap makes the water so thick that it will not flow readily through the fine openings of the rose. A large proportion of oil endangers the plant, while a small proportion is inefficient against the worms. There is one caution, however, to be given: If repeated applications of the mixture are made upon the same plants, the more tender varieties will be destroyed or will be injured. We found, on trial, that where one or two applications were made without injury to the plant, a large number of applications blighted the leaves, more or less, and five applications entirely destroyed the early varieties, while large growing and late varieties seemed uninjured even under severe dosing. The growing cabbage furnishes so many hiding places for worms that we cannot hope to destroy them all with a single application, however thoroughly it may be made. The perfect remedy should destroy the worms wherever it touches them, and should not injure the plant in the least under any number of applications.

During the strawberry season we noticed that a decaying strawberry had a great attraction for the wire worm. We frequently found as many as twenty of these worms beneath a single over-ripe decaying fruit. This suggested that it might be possible to entrap the wire-worm, by placing some sweet substance about plants that are troubled by it. Accordingly, on June 25th we placed small lumps of a mixture of molasses and wheat flour about plants of Sweet William in the flower garden, which, from the early spring, had been the favorite haunts of the wire-worm. On June 29th an examination showed

that our trap was a success, and we counted thirty-five worms under a lump of the mixture, the size of a silver dollar. We next collected a large number of the worms and placed them with a small quantity of soil on an earthen seed-pan, and placed on the soil a lump of the same mixture, with a little Paris green added. The mixture attracted the worms as before, but, to our surprise, it did not kill them. We confined them for a week in the pan, but did not see that they diminished in numbers.

One part of Paris green mixed with 200 parts of ground limestone proved entirely successful against the larvæ of the potato beetle. Great care is, however, required to secure a thorough admixture of the two substances where so small a proportion of the poison is used. In this dilution Paris green seems to lose its danger to the human family, as we can scarcely imagine injurious results coming from its use, to the careful man.

Bisulphide of carbon applied to the soil about the roots of squashes for destroying the squash-borer, *Aegeria cucurbita*, had no visible effect in diminishing their ravages. Paris green, mixed with water, at the rate of 1 part of the former to 600 of the latter, by weight, and carefully applied to the stems of squash plants, seemed to be of benefit. We commenced using about August the 20th, taking great care to first remove every borer from the stems. We have since found but few borers in the plants treated with it, although the plants were of those varieties very subject to their attacks. A careful examination made September 5th, discovered but two borers in 8 plants, while other plants in the same row, to which no application had been made, contained from 1 to 3 borers each. The Paris green and water was applied in this case with a watering-pot having a small

rose with the apertures facing downwards. The stems were wet for a distance of about two feet from the base of the plants.

We have also made another experiment upon the squash-borer, which seems to promise valuable results. This is the application of a solution of a sulphate of iron about the roots. We used this solution upon five vines about August 22nd. The first plant treated was of the Hubbard variety, and four were of the Essex Hybrid. All these vines had been infested by borers, and at the time the application was made four of them were almost destroyed by them. The borers were very carefully removed by splitting the stem lengthwise to the centre and picking out the animal with a pair of tweezers. The solution was then poured about the roots of the plant, sprinkling it upon a circle about four feet in diameter, taking great care not to allow any to touch the leaves. In these plants we have found no borers since the application was made. The vines quickly assumed a deep green colour and are still growing vigorously. The proportion used was one-fourth pound copperas dissolved in a gallon of water, and a gallon of the solution was used for each plant.

We do not deem these experiments with the squash-borer as in any sense conclusive. We hope to make careful verifications of them the coming season. We offer these results of limited trials, hoping that persons interested in the culture of squashes might aid us by practical trial.

E. LEWIS STURTEVANT, Director.

HYDRANGEA PANICULATA GRANDIFLORA is one of the most beautiful of hardy shrubs. It is now producing great massive panicles of pure white blossoms. It is dwarf in habit and flowers most freely.

HOW TO SUCCESSFULLY TRANSPLANT TREES.

Many think it cheaper and better to take up large trees from the woods, and transplant them to their grounds or to the road-side, than to buy nursery trees. As a rule such trees die; they fail because proper precautions have not been taken. In digging up the tree, all the roots outside of a circle a few feet in diameter are cut off, and the tree is reset with its full head of branches. Whoever has seen trees in the forest that were upturned by a tornado, must have been struck by the manner in which the roots run very near to the surface, and to a great distance. When the roots of these trees are cut off at two or three feet from the trunk, few or no fibrous or feeding roots are left; and if the mass of top is left, the expansion of buds in the spring will not be responded to by a supply of sap from the roots, and death must follow. If such trees have the tops completely removed, leaving only a bare pole, they will usually grow when transplanted. The tree is little more than an immense cutting; but there are roots enough left to meet the demand of the few shoots that start from the top, and growth above and below ground are well balanced. We have seen maples, elms, and basswood trees, fifteen feet or more high, transplanted in this manner, without a failure. Some trees treated in this manner were planted in our neighborhood about ten years ago. They have now as fine heads as one would wish, and show no signs of former rough treatment. Trees in pastures, or on the edge of the woods, are better furnished with roots. These should be prepared for transplanting by digging down to the roots, and cutting off all that extend beyond the desired distance. This will cause the formation of fibrous roots near the tree. It will be safer

to take two years for the operation, cutting half of the roots each year. Such trees may be removed in safety, especially if a good share of the top is removed at transplanting.—*American Agriculturist for October.*

PYRETHRUM, OR CHRYSANTHEMUM CORYMBOSUM.

This is a robust herbaceous plant with elegantly cut foliage and white and yellow flower heads, known also in gardens as *Pyrethrum corymbosum*. Under cultivation it grows about 4 feet high, and probably higher in rich soil. It is as hardy and persistent as the allied species, *C. Parthenium*, syn. *Pyrethrum parthenium*, of which the Golden Feather is a variety. In a wild state it grows from 1 to 3 feet high, and it is a common plant in Central and Southern Europe, ranging from Portugal to Switzerland, Austria, and Turkey.

The insecticide and insectifuge qualities of the dried and finely powdered flowerheads of different species of *Pyrethrum* and the harmlessness of the powder to man, to other animals, and to plants, have long since been known. Used against various household pests, under the names "Persian insect powder" or "Dalmatian insect powder," it has hitherto been put up in small bottles or packages and sold at high prices. The so-called Persian powder is made from flowers of *Pyrethrum carneum* and *P. roseum*, while that from *P. cinerariæ-folium*, a native of Dalmatia, Herzegovina, and Montenegro, is more generally known as Dalmatian powder. Some interesting experiments made during past year on different insects by Mr. William Saunders, of London, Ontario, show that the use of this powder may be satisfactorily extended beyond the household, while a series made by Professor Riley in the summer of 1878, with the same powder on the cotton worm, showed it to have striking destructive powers,

the slightest puff of the powder causing certain death and the almost instant dropping of the worm from the plant. Repeated on a still more extensive scale the present year at Columbus, Texas, the powder proved equally satisfactory in the field.

Here, then, we have a remedy far exceeding any other so far known in efficacy and harmlessness to man and plant, and the only question has been to reduce its cost. Mr. Milco, a native of Dalmatia, has been cultivating the *P. cinerariæ-folium* in California in constantly increasing area for the past three years, and deserves great credit for his efforts in introducing it. The insect powders made from the California grown flowers have proved to be very effective.—*Scientific American.*

THE BANANA.

A slight description of the banana as it is seen growing may be interesting to some who enjoy its delicious substance without knowing what form it presents during the primary stages of its growth. The stem of the plant is not woody, but consists of the footstalks of the former leaves wrapped round each other, and it rises to the height of twelve or fifteen feet. The leaves are very large, of a long, oval form, five or six feet in length and beautifully green in color. The middle rib of the leaf is tough and strong, but the rest of its substance is thin and delicate, and is easily torn by the wind alone, in a direction at right angles with the rib.

The manner in which the fruit is developed is quite interesting. From the midst of the leaves, and at the top, appears a large, smooth, purple cone, hanging down gracefully at the end of a stalk. The flowers are all wrapped up in this cone, which consists of a large number of closely packed spathes. By-and-by the uppermost of these

sheathes disengages itself from the rest, curls up, and discloses a row of three or four long blossoms, with the young fruit of each beginning to form.

While this row of fruit is tender, the spathe remains hanging over it like a roof, but when the fruit has acquired some size and strength the protecting shield drops off, and the next in order rises up, with a similar row of young fruit, over which it stands in the same watchful attitude, till it also drops off to be succeeded by another. When one circle of fruit is completed, another is commenced below, and in due time another; while the common stem around which the fruit is disposed grows constantly longer and the cone of spathes diminishes in size till it is all unfolded, and a monstrous bunch of bananas is finished, which seldom weighs less than twenty or thirty pounds and sometimes as much as seventy or eighty. Of all kinds of vegetable nutriment the banana is perhaps the most productive, and most easily raised.

After a plant has produced its bunch of fruit, the stem is either cut, or is suffered to wither and fall on the spot. In the former case, it is good fodder for cattle; in the latter it forms good manure for the young shoots which are springing from the root, and which are soon ready to bear fruit in their turn. From these shoots or sprouts the plant is propagated.—*Michigan Farmer.*

THE SOUTHERN FRUIT SHOW.

At the great fruit show made at the Southern (Louisville) Exposition on August 29th the Fern Creek (Ky.) Fruit Growers' Association took the first premium of \$500 for the best display of fruit, having over 1,700 plates of fruit on exhibition. The Davidson County (Tenn.) Society took all the premiums for the best ten varieties of

apples, and also first premium on several single varieties.

The display of grapes is said have to been very fine indeed, comprising over one hundred varieties. The premium for the best new grape was awarded to the "Julia," a seedling grape originated by John Hege, of Tennessee, said to be much larger than the Concord or Worden, and in quality fully equaling either of these sorts. The variety which can thus stand prominent above all others out of over fifty new kinds, each claiming excellence in some marked particular, must indeed be a fine grape, and we shall wait with interest to learn more of its character and merits.

MIMULUS CUPREUS BRILLIANT.

The pretty little coppery red *Mimulus* has been a favourite with most people ever since it has been introduced from the Chilian Andes, and the attention bestowed upon the raising of it from seed has resulted in obtaining several distinct and beautiful varieties. The older forms of it are *tigrinus* and *variegatus*, both with flowers quaintly and brightly spotted, and the double variety or rather a hose-in-hose kind. All these are distinct from the type itself, an extremely pretty plant, but all surpassed in brilliancy, neat and compact growth, and floriferousness by the new variety which Messrs. Carter have obtained and named Brilliant. We lately saw a broad mass of this *Mimulus* in full flower at their St. Osyth seed grounds, and thought at the time that we had rarely seen a more glorious bit of colouring, viz., a glowing crimson-red inclined to orange as near as one can describe it. There were thousands of plants in the quarter just alluded to, all without exception being not more than from 4 inches to 6 inches in height, spreading, and forming a dense tuft, pro-

fusely studded with flowers. It is, indeed, a valuable plant, and one that could be made to produce a bright effect in a garden if properly placed; but to obtain the best results from it, it must be seen *en masse*, say in a bed 6 feet square, and it never looks better than when placed in a retiring nook, not too shaded, on a lawn surrounded by greenery, and rising from a carpet of grass. It is a plant which does best in a moist loamy soil, and which well repays good culture. It is a perennial, and quite hardy enough in England to last several seasons, and the best plan is to raise seedlings of it in autumn and plant them out the following spring.—W. G. in *The Garden*.

THE EARLY PEACHES.

A few years ago we counted up about fifty named varieties of the very early peaches, a considerable number of which claimed to be earlier than all the rest, and all as early as the Amsden. H. M. Engle of Marietta, Pa., wrote to the *Gardener's Monthly* a year ago, that he had fruited twenty-six varieties of these early peaches and they had borne on his grounds from two to ten years. He regards the method which he adopted as the only true one for testing comparative earliness, namely, fruiting them on trees of other varieties ripening at the same period. Dates of ripening have been changed every year, and he has given up saying positively which is the earliest, but he is satisfied that the twenty-six sorts tested do not vary three days in maturity. His experience of this year confirms this opinion. In size, appearance and quality, they prove to be so near alike, that he is sure he could select specimens of any which would puzzle good judges. He is still waiting for a freestone to make its appearance as fine and as early as the earliest. In his statement last year, he named the following which did not vary

three days, namely, Amsden, Alexander, Wilder, Musser, Bowers' Early, Baker's Early, Alpha, Governor Garland, Sherfey's Early, Nectar, Early Canada, Waterloo, Downing, Saunders, Cumberland, Honeywell, Climax, Briggs' May. The first eleven named have leaves with globose glands, Waterloo has reniform glands, and the six named last are glandless with cut leaves. Mr. Engle finds that comparative earliness varies in different seasons with the same varieties, on the same ground, and in the same trees; and hence we may conclude that some years will yet be required to place all in their true position for merit and early maturity.—*Country Gentleman*.

HARDY FERNS FOR SHADED GARDEN.

One frequently hears the remark made that plants do not succeed in certain gardens, but on inquiry it generally turns out that the plants selected have not been suited to the positions they occupy. Although some plants delight in abundant sunlight, others are equally at home in deep shade, and it is only by observation as to what conditions are most favorable for certain plants, and selecting them accordingly that success can be achieved. In this locality, wherever the situation is open to sunshine, bright-flowering plants are the favorites, and thus many of our villa gardens are kept gay nearly the whole year round, the latest *Chrysanthemum* not being long removed before early flowering bulbs and many other plants are in blossom. But all gardens cannot have full south aspects, and it is refreshing on bright summer days to find instead of summer bedding plants gardens in shady places filled with the verdant foliage of hardy Ferns and of other plants that dislike sunshine. When well established it is surprising how effective even the commonest of our

native Ferns are planted in shade, and how beautiful they make many an otherwise uninteresting corner look; even little borders by hard paved yards or ground beneath large trees where nothing else will grow may be made cheerful by means of Ferns. Get together a few of the largest and roughest stones that can be obtained, and a load or two of good soil; make irregular mounds here and there, and on these plant the Ferns. Intermix with them a few dwarf trailing plants, keep them well watered, and they will soon produce a striking effect.— J. GROOM, *in the Garden.*

AUTUMN HINTS FOR KITCHEN GARDEN.

In a well-managed garden, as soon as one crop is off, the ground is made ready for another, if the season allows. In stiff soils, especially, plowing or spading, and leaving them rough through the winter, greatly improves them.

Preserving roots in winter.—Parsnips, salsify, and horseradish are not injured by hard freezing: all others must be stored for the winter, and a sufficient supply of the hardy kinds should also be taken up. We have described various methods of storing roots in back numbers of the *American Agriculturist*. If the cellar is not too warm, a supply for present use may be kept in boxes or barrels, and covered with earth, to prevent shriveling.

Cabbages.—The usual method is to pull the cabbages, set them in a dry place, heads downwards, and on the approach of cold weather, cover with a coating of leaves up to the ends of the roots; light soil often used instead of leaves. For family use, it is convenient to dig a trench where water will not stand, and set the cabbages, with what soil adheres to the roots, close together, upright, in this. Make a sloping cover-

ing with boards. As cold weather comes on, place a layer of leaves or straw over the heads. Soft cabbages thus treated will very often form firm heads by spring.

Asparagus and Rhubarb.—Though these plants are quite hardy, the beds will produce all the better and earlier if they have a covering of three or four inches of manure. All litter should be first cleared off, and if not already done, the asparagus tops should be burned.

Crops Wintered in the Ground, such as spinach, sprouts, onion sets, etc., will need two or three inches of leaves, straw, or marsh hay, as a protection during winter, in all but very mild localities.

Cold Frames.—Novices are more apt to injure the cabbages, cauliflower, and lettuce plants wintered in these by keeping them too warm than by too much cold. The object of the frames is, not only to prevent too severe freezing, but all growth, and to keep the plants in a perfectly quiet or dormant state. The sashes should not be put on until really freezing weather, and on mild days must be tilted, to allow ventilation.—DR. GEORGE THURBER, *in American Agriculturist for November.*

ELÆOCARPUS CYANEUS.

A COMPACT-GROWING, free-blooming, very sweetscented plant, well suited for greenhouse cultivation, and easily kept in health. We have recently seen several specimens of this species, both at Kew and elsewhere, clothed with pretty drooping, deeply fringed flowers, and surrounded with a most delicious fragrance. The blooming period for this plant extends over two or three months of the summer, and is followed by a thick crop of bluish berries like small Sloes, and which are in themselves very attractive. Taken altogether, this plant is deserving of a much more prominent position as a garden plant than

it appears to occupy at present. It reminds one of an old favorite greenhouse plant, viz., *Clethra arborea*, but surpasses it in its crop of ornamental berries and the pleasing fragrance of its flowers. Although there are about half a dozen specific names attached to this genus in gardens, they are capable of being reduced to two, viz., *E. dentatus* and the subject of our article. Altogether there are some fifty species of *Elæocarpus* distributed over Tropical Asia and Australia. Many of them are found in India, where they form beautiful trees, bearing in many cases racemes of berries as large as a Black Hamburg Grape. The freedom with which they produce their flowers in a young state renders them available for pot cultivation, and where room can be spared for them to develop themselves they form handsome evergreen shrubs when planted out in a greenhouse border.

E. CYANEUS is an old garden plant, having been cultivated at Kew and elsewhere eighty years ago. Its foliage is very leathery in texture, and the nerves are conspicuously reticulate. The flowers are pure white, and each petal is divided into about a dozen acute lobes, which give the flowers a most delicately fringed appearance. The figure in the *Botanical Register* named *E. reticulatus* is *E. cyaneus*. It is a native of Australia, about Queensland, New South Wales, and Victoria.

E. DENTATUS is an Indian species, distinguished from the above by its brown bark, the silkiness of its branches when young, and the silky down which clothes the underside of the foliage. The flowers are smaller than those of *E. cyaneus* and not so deeply fringed.

The propagation of these plants may be effected by means of cuttings, which strike freely at any season of the year, or by sowing the berries in the spring,

when they germinate freely and grow quickly into flowering plants. A loamy soil suits them, and plenty of water should be given at all seasons of the year. An ordinary greenhouse temperature will be found suitable for them.—*The Garden.*

BOOK NOTICES.

TRANSACTIONS AND REPORTS of the Fruit Growers' Association of Nova Scotia, 1883.

PROCEEDINGS of the American Association of Nurserymen, Florists and Salesmen for 1883.

AMERICAN TREASURY OF FACTS, statistical, financial and political. H. H. Warner & Co., Rochester, N. Y.

MINERAL RESOURCES of the Dominion of Canada, specially adapted for capitalists and settlers: Ottawa, 1882.

THE CALLIGRAPH QUARTERLY, 25cts. per annum, A. J. Henderson, 77 St. Patrick street, Toronto, General Agent for Canada.

BOOK OF ENGRAVINGS, by A. Blanc, 314 North 11th Street, Philadelphia, 1884, electrotypes of which are for sale by the publisher.

SHORTHAND WRITER.—A monthly eight page paper devoted to the interests of shorthand writers, published by D. P. Lindsley, Plainfield, New Jersey.

FORESTRY IN EUROPE, and other papers, by B. G. Northrop, Secretary of the Board of Education, published by Tuttle, Morehouse & Taylor, New Haven, Connecticut.

THE FLORAL WORLD is a new monthly, published at Highland Park, Illinois, at \$1 a year. The first number is well filled with information of special interest to the lovers of flowers.

AUTUMN DESCRIPTIVE CATALOGUE and price list of American grape vines, small fruit plants, trees, &c., of George

S. Josselyn, Fredonia, N. Y., the introducer of Fays' Prolific Currant.

THE SWINE BREEDER'S MANUAL.—A treatise by Phil. M. Springer, Springfield, Illinois. Price 25 cents. Treats of selecting stock, care of young pigs, guarding against disease, &c., &c.

CATALOGUE OF FOREST PRODUCTS, Grasses and other Forage Plants, minerals and products of the mines of Alabama as shewn at the Southern Exposition, Louisville, Kentucky, prepared by Dr. Chas. Mohr, of Mobile.

DIO LEWIS' MONTHLY for October has very interesting papers on the Human Brain, Treatment of Prisoners, Treatment of the Insane, House Drainage, The Check Rein, Beer, Nursing, &c. They will well repay careful consideration.

WILLIAM RENNIE'S AUTUMN CATALOGUE of choice Holland Bulbs, imported by Mr. Rennie, Seed Merchant, corner Adelaide and Jarvis Street, Toronto, 1883, contains hints on the cultivation of the hyacinth, tulips, crocus, &c., and will be sent free to any of our subscribers on application.

REPORT of the Department of Agriculture and statistics of the Province of Manitoba for the year 1882. At page 47 it is stated that the Champion Grape is the best variety for cultivation in that Province, that this variety introduced there under the name of Beaconsfield does not require to be covered in winter.

HORSES, THEIR FEED AND THEIR FEET, is a valuable duodecimo of 150 pages, written by a physician who has studied the physiology of horses, and here discusses the relation of feed to work, the best kinds of feed, when and how to feed, diseases and treatment, &c. Published by Fowler & Wells, 753 Broadway, New York. Paper 50c., cloth 75c.

THE AMERICAN AGRICULTURIST for November has been received. The editors claim that it is not only superior to any other issue of that periodical issued during its forty-three years of existence, but is far superior to any number of any similar journal in the world. They certainly have presented an amount and variety of matter which, considering the price of the periodical, is remarkable.

EXPERIMENTS IN AMBER CANE, and the ensilage of fodders, at the Experimental Farm of the University of Wisconsin, Second Annual Report, containing also instructions concerning the soil best adapted to the cane, use of fertilizers, preparation of the soil, selection of seed, variety to plant, planting, cultivation, stripping, cutting, care of the cane after cutting, &c. It appears that there was made in the State of Wisconsin in 1882 four hundred and ninety-one thousand and two hundred gallons of syrup. In the report on experiments with ensilage, we find that thirteen rows of fodder corn converted into ensilage lasted two cows seventy days, the same quantity equal every way to that made into ensilage, but shocked, bound into bundles and housed, lasted two cows forty-seven days. The two cows fed with dry fodder yielded in 42 days, 1,322 lbs. 15 oz. of milk and 53 lbs. 5 oz. of butter; the two fed ensilage yielded in the same time 1,456 lbs. 8 oz. of milk and 59 lbs. 8 oz. of butter.

ANNUAL ADDRESS of President Marshall P. Wilder before the American Pomological Society at its session in Philadelphia, September, 1883. The following portion of his address is not only deserving of careful perusal, but should stimulate our Canadian Fruit Growers to renewed and continued efforts to produce new fruits:

"It is now more than thirty years

since I first called the attention of this Society to the great importance of producing fruit from seed, in order to originate and obtain such varieties as might be adapted to the varied climate and sections of our ever-increasing and immense territory.

"It has long been known that varieties raised on our own soils, and in our localities, are generally better suited to our various regions than those from foreign lands, and although we have some varieties from abroad of great excellence and wide adaptation, there are, comparatively, only a few out of the thousands of foreign kinds which we have proved in the last fifty years, that now remain in general cultivation. Formerly the accessions to our catalogue were from the Old World; now they are mostly of American origin, and so it will continue to be in future time. These are benefactions not only to our country, but the world. He that originates a new and valuable fruit, suited to general cultivation, is as much a benefactor of mankind as he who discovers a new principle in science which increases the comfort and happiness of our race.

"Natural fertilization, unaided by the hand of man, is as old as creation; but the knowledge of manual fertilization, the ability of man to assist nature in the process of improvement, seems to have been mostly withheld from us until the present age. Wonderful is this fact, but it is not more so than the unlimited extent to which it may be carried by the genius and sagacity of him who would co-operate with nature in this enchanting labor.

"Strange, indeed, that this art should have been held in suspense for so many ages, nor until our own time to be brought into practical use. But, thanks to the Disposer of all temporal concerns, it has now come as the harbinger

of a progress which is to revolutionize and improve the fruits of the earth while time shall last. Thanks, too, to Knight, Herbert, Lindley, Darwin, Gray, and other teachers of later time, for the lessons of wisdom, which have encouraged us to prosecute this most noble work.

"The process of fecundation was known far back in the centuries of the past, but not for the production of new and improved varieties of plants. From the days of Pliny, to the present time, the custom of suspending the blossoms of the date palm over the trusses of the fruit-bearing trees, was known to be necessary for the production of fruit. So Tournefort and Linnaeus understood the sexual order of plants; but we have no facts to show, so far as I know, that either of these writers had a knowledge that the crossing of different species and varieties would produce from the seed a new variety which would possess in a greater or less degree the characteristics of the parent plants, and it is doubtful whether Duhamel, Van Mons, or Noisette, was acquainted with this wonderful art for the indefinite improvement of our fruits.

"This is the art that doth help nature, and great as has been the progress in our time, it is but as the dawn of that day when every section of our varied climes shall be furnished with products of the earth as well adapted to each as the people who inhabit them. How grand the acquisitions of this art in our day! It is only about fifty years since Mr. Hovey, myself, or other cultivators of our country, attempted the hybridization of fruits or flowers. Now the knowledge of this art is as well understood as the cultivation of the soil. These are the means provided by an all-wise Providence for the improvement of our fruits. Would that Prince, Downing, Brinckle, and those other pioneers who have gone before us, could now

witness the amazing advances which have resulted from their labors in this cause. O that I could live to participate a little longer in the glorious harvest which is to be gathered from the influence of this art in improving the fruits of our land. These are benefactions which you will leave for the generations that are to follow you—memorials of your love of nature, of home and kindred, which shall live in the hearts of grateful millions, long after you shall have been sleeping in the dust.

"Thus have I spoken for a long course of years of the importance of this branch of our duty. Thus would I preach while life may last. *'Plant the most mature and perfect seeds of the most hardy, vigorous and valuable varieties, and as a shorter process, insuring more certain and happy results, cross and hybridize our finest kinds for greater excellence.'* And should my muse be able to reach you from the spirit land, she would, as with telephonic voice, still chant in your ears the same old song,—

"Plant the best seeds of every good fruit,
 Good fruits to raise, some lands to suit;
 Fruits which shall live, their bounties to
 shed,
 On millions of souls, when you shall be dead.
 These are creations that do the world good,
 Treasures and pleasures, with health in your
 food;
 Pleasures which leave in the mem'ry no
 sting,
 No grief on the soul, no stain on Time's
 wing."

BEST WAY OF FEEDING ROSES.—Mr. Pettigrew, of Cardiff Castle, who lately received the gold medal of the National Rose Society and a silver cup for the excellence of his rose blooms, told me the other day that he never at any time dug amongst his rose trees, but fed them sumptuously by means of surface mulching and heavy top-dressings. That this treatment suits them admirably there can be no doubt, as of all the rose plants I

have seen this season or for some years back none have been so strong and healthy as those at Cardiff Castle.—CAMERIAN, in *The Garden*.

JACKMAN'S CLEMATIS.—This well-tried old variety is of all garden Clematises perhaps, so far, the best for general decoration. It grows freely in rich deep soils and is at home everywhere in beds or borders, on wires or other trellis work, or on old tree stumps, dead bushes, or as trained on walls. The other day I saw a plant of it which had been planted along with the silvery-leaved variety of *Acer negundo*, and the effect was very pretty; but on a wall, along with golden-leaved ivy, the plant is still more showy, and in Battersea Park it is effectively combined with bushes of the golden-leaved Elder. Now, of course, we shall all be very anxious to secure the white-flowered *C. Jackmanni alba*, for which Mr. Noble received a first-class certificate at South Kensington quite recently. Planted together, the purple and white forms would be most charming. How rarely now-a-days do we see the double variety of *C. Viticella*, which is most floriferous and of a mouse-coloured purple hue.—*The Garden*.

ROSA RUGOSA.—Mr. Harvey, Aigburth, Liverpool, sends us some uncommonly fine fruiting and flowering specimens of this valuable Japanese Rose cut from a bush two yards across. On the same branch with the hips are some flowers and buds, and these will be continually produced until late in the autumn. All who do not know this rose should make its acquaintance next season. Also flowers of this rose, both white and crimson, together with some very fine clusters of other fruits, have been sent to us by Lady Parker, from her garden at Stawell House, Richmond, Surrey, where this rose is now in great beauty. The fruits or hips are particularly handsome; they are as large as the largest sized Cherries, but more depressed in form, and of a bright orange-red colour, which contrasts strikingly with the deep green of the broad foliage. These are by far the handsomest rose hips we know of, and even if this rose did not bear such beautiful flowers as it does, it would be well worth growing for the beauty of the hips alone.—*The Garden*.

THE LAY OF THE ANCIENT HYBRIDIST.

BY P. E. BUCKE, OTTAWA.

A comic scientific poem, read before the winter meeting of the Fruit Growers Association at Toronto, February, 1883.

In the days of Columbus, so well known to fame,
Who over to Cuba did gallantly pass,
There lived a botanical, physicist, man,
Who did much to improve our whole garden "sass."

He lived in the light of sunnier climes,
Some thousands of miles from this beautiful town:
He grew luscious greens for the sake of the dimes,
And he met with a large and increasing renown.

But selections and hybrids were chiefly his plans,
To secure the results which his mind had conceived,
He didn't care much for old nature's poor shams;
In the best that would flourish he only believed.

He thought on this question by night and by day,
In the old Alexandrian lib'ry he read
All those classical books which philosophers say
Would addle one's fancy, or quite turn your head.

In the study of Greek he made a long pause
Over Anaximander, that wonderful man,
Who believed that condensation of air was the cause
Of the world bodies formed on an aeriform plan.

His conceptions were clear, fundamental and bold,
The development theory he knew to be true,
And by deep cosmological knowledge he told
That the spheres when first formed were excessively few.

Heraclites, that sage was no myth to his mind;
In currents dame nature conceived, was his view;
The father of all was the struggle of kind,
Perpetual change making everything new.

Empedoclese taught accidental conjuncture
Of forces which act and react, was the cause
Of the first genus of life on this globular structure,
Which slowly developed by physical laws.

That the forms which existed in ages of old
Were produced out of matter which never has rest,
And that those which survived were the fittest he
Told,
To exist in the future as being the best.

The conclusion he came to when study was o'er,
Was to "go it alone," as we say in this age;
Cut out a new road in the hybridist lore,
So that next generations might call him a sage.

So he set himself down to steady hard work,
To cross a large fowl with a suitable vine,
And he swore that his duty he never would shirk
Until mind and matter closely combine.

To come at this wonderful comical trick,
Of a miracle, chemical, monstrosity,
He thought himself hoarse, and he got pretty sick,
It haunted him so in the land by the sea.

The pollen he chose was the yolk of an egg,
Hard boiled and rubbed down into powder so fine.
That it looked like the stuff which sticks to the peg,
Or the style of a flower on which the bees dine.

A gourd was procured with a stamen whose cavern
Could swallow whole gravel and not mind the load,
Into this our scientist brushed in his pollen,
And waited results with the patience of Job.

To his joy one fine day at the end of September
He passed by his gourd on his way to his swine,
When he heard the "cheep, cheep," of a chick
Young and tender,
And he knew it came from his hybridized vine.

To say that he sprang twenty feet in the air,
Would perhaps be a little o'erstepping the mark;
But surprise and confusion did raise up his hair,
And his sensitive organs gave him a rough jerk.

But collecting his senses and looking around,
He found that his brain-box had led him astray,
For the old "yallar" hen that was lost had been found,
Having made her a nest in the cool on the clay.

Like Jonah, she hatched in the shade of her vine,
And brought out her chickens in comfort and ease;
She never once thought of the science sublime,
Which grows drumhead cabbage on root of sweet peas.

The man of deep thinking was awfully sold,
Kept dark on his plans for improving the race,
Lest his friends should combine, and turn him out in
The cold,
And his enemies give him a much warmer place.

MORAL.

Stick closer to nature, you then may succeed
In developing something that's really some good;
But to cross a shanghai with a pumpkin indeed,
Would produce wings and giblets, but next to no food.

NOTE.—Anaximander, who lived 625 B. C., assumed that out of infinity of matter through eternal revolutions, numerous world-bodies came into being as condensations of the air, and that the earth, too, as one of these world-bodies, issued out of a state originally fluid and afterwards aeriform. He also taught the theory that the earliest living creatures on this globe originated in water from the action of the sun. From these creatures, later on, were developed the land inhabiting plants and animals, which left the water and adapted themselves to life on dry land. Man likewise, gradually worked himself up from animal organism, and, in reality, from fish-like aquatic animals.

One hundred years later, Heraclites of Ephesus, propounded the principle that a great uninterrupted process of development pervaded the whole universal world, that all forms are involved in everlasting currents, and that struggle is "the father of all things," seeing that nowhere in the world exists absolute rest; that all standing still is but apparent, we are compelled everywhere to assume a perpetual change of matter, a constant variation of form. One form thrusting out its predecessor, the new usurping the place of the old.

Later on, Empedoclese of Agrigent in Sicily, assumed that the everlasting universal struggle was caused by the laws of attraction and repulsion of atoms. He also taught that purposive forms or organisms came into existence through the accidental conjunction of counteracting forces. Out of this great struggle the living forms now existing have issued victoriously, because they were best prepared for the battle, and therefore most capable of life.