Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.
FRUITS AND FRUIT TREES.

POINTS FOR PRACTICAL TREE PLANTERS,
WITH NOTES ON A FEW VARIETIES

Worthy of Extended Culture.

An Effort to Win Recognition for the Nurseryman's Art, as well in Methods of PROPAGATION, as in the SELECTION of SORTS.

"This is an art
Which does mend nature, change it rather, but
The art itself is nature."—Winter's Tale.

Third Edition.

LOUISIANA, MO.:
STARK BRO'S NURSERY CO.
(Copyrighted.)

From photo. of EARLY SWEETHEART grown on original tree, in the Summer 1890; tree over forty years old.

EARLY SWEETHEART—This beautiful, fair and delicious apple is the choicest dessert early variety known to us. We believe there is now no apple in cultivation its equal in either size or quality—earliness considered. The old tree, over forty years of age, in the orchard of Mr. Griffith, of this county, is vigorous and bears well; Mr. G. says, "it always bears if any apple does." When visiting the orchard the past Summer, Mr. G. called attention to the difference between this and Early Harvest; the former, large, smooth and perfect, without any trace of scab, while E'y Harvest on much younger trees, were small, very scabby, unsightly for market and hardly touched by the family—the Early Sweetheart "we all like so much better." Tree, thrifty, very vigorous, long-lived, productive. Fruit large to very large, roundish oblate, regular; very smooth, waxen yellow; dots large, white, scattered. Flesh, light yellow, fine-grained, tender, melting and juicy. Flavor, aromatic, almost sweet. Quality, best early apple. Use, dessert, and near market. Season, with E'y Harvest.

*See "Whole Root vs. Piece-Root Trees," etc.
MO. STATE HORT. SOCIETY: extracts.

Mr. Kirchbrauer: Would plant Clayton heavily. It produces to perfection; bears young; keeps long.

C. C. Bell (apple shipper): Bought some Clayslton last Fall. Like them. Mr. B. would pay extra price for them. So I'll write for more than I need. Ben Davis. Have just received a letter from Tex., saying Clayton sent there very fine.

Mr. Gano: The Mammon Black Twig stays in North Ark.; not equal to Mo. apples; like the fruit but prefer Clayton as it sells well and is a longer keeper.

Pres't Evans: A buyer and shipper from Ark, told me it was one of the best and most profitable they grow.

Mr. Thompson: It was thought Gano would succeed in S.E. Ark.

Pres't Evans: How much better is Gano than Ben Davis?

Mr. Gano: Very little difference in quality. Most difference is in color.

Vice-pres't Murray: Once I thought I could tell the difference by taste; by trying, got them mixed and now cannot tell the difference until see them.

Sec'y Goodman: The Gano is more beautiful than Ben Davis. A smaller fruit is more equal to favor, good bearer, good keeper; gaining in favor wherever grown; worthy of attention.

Prof. Schott (Connecticut College): York Imperial is one of the best keepers we had in 20 varieties.

Sec'y Goodman: The Minkler and Little Romanite family are the best apples we have for S. W. Mo. They are the best variety for market purposes.

(In the Romanite family are included Romanite (gtopin, Small Romanite, Cuthroat), Minkler, Lankford, Nero, Scarlet cranberry.

Mr. Wild: Minkler is not so profitable as Little Romanite. Lankford is better than Minkler.

Mr. Murray: Market purposes.

Pres't Evans: For W. N. Mo., Winesap in place of Rome Beauty. Mann Black Twig does best for late crops being grown on rich soil and well cultivated. E'y Pennock, good summer apple.

Mr. Gillett: Two trees E'y Pennock and one Wine sap yielded last year $32 bushels.

Mr. Mickens: We pick Jonathan early.

Question from Green Co.: Would you advise planting Clayton for market?

Mr. Kirchbrauer, of Green Co.: Would plant it.

Mr. Bell (apple shipper) of Cooper Co.: Better market apple than Ben Davis. Profitable bearer.

So far as its soil and climate are concerned, the best apples we can grow in South Mo. Ben Davis is producing a family. Watch every good seel'ding. We are going to make a West European F1. Tree is destined to be a great western apple; hope it will equal the Baldwin in the east.


Mr. Blanchard: Chemung Strawberry is excellent. Q. Which is the best apple to produce in that section, and realize $800? Ben Davis is best for evaporating.

Mr. Laughlin: Will it pay to raise apples for market in Mo.? First let us inquire whether it has paid or not to try them in other sections—be FAILURE? Years ago it was too late to harbor doubts as to the productiveness, size, color or quality of certain trees, and I will relate a few.

Orchard planted in 1876; about 500 trees; 250 Ben Davis, 50 Willow Twig, 65 Wine Sap, 48 Romanite, 20 Japan. Gano, and other true varieties, total about 500 trees, sold for $5 a tree, and realized $800. Ben Davis is best for evaporating.

Mr. Laughlin: Will it pay to raise apples for market in Mo.? First let us inquire whether it has paid or not to try them in other sections—be FAILURE? Years ago it was too late to harbor doubts as to the productiveness, size, color or quality of certain trees, and I will relate a few.

Orchard planted in 1876; about 500 trees; 250 Ben Davis, 50 Willow Twig, 65 Wine Sap, 48 Romanite, 20 Japan. Gano, and other true varieties, total about 500 trees, sold for $5 a tree, and realized $800. Ben Davis is best for evaporating.

Mr. Durand: Every fruit grower should evaporate. Lack of proper methods of evaporating—poor apple, and realized $800. Ben Davis is best for evaporating.

Mr. Laughlin: Will it pay to raise apples for market in Mo.? First let us inquire whether it has paid or not to try them in other sections—be FAILURE? Years ago it was too late to harbor doubts as to the productiveness, size, color or quality of certain trees, and I will relate a few.

Orchard planted in 1876; about 500 trees; 250 Ben Davis, 50 Willow Twig, 65 Wine Sap, 48 Romanite, 20 Japan. Gano, and other true varieties, total about 500 trees, sold for $5 a tree, and realized $800. Ben Davis is best for evaporating.

Cultivates in corn for several years, then in clover. Usually pastures with hogs during summer. Is not a severe test, but best for forests between bearing ground, and in case of overlooking the ends of the lower limbs rest in the earth—our pastures.

These reports made in 1882 Mo., had a good crop of apples, and in 1886 more apples than all the balances of the states in the Union put together, the crop of single orchards selling as high as $80,000.

Mr. Murray's statement:

"Eight acres of orchard planted 17 years ago, 24 ft. each way; Ben Davis, Wine Sap and Jonathan. Orchard dedicated to in early life. It lost no trees through the hogs for 3 years. Last 9 years have given clean cultivation. The showing of my books may be briefly told: For the last 9 years average yield of that orchard is $64.12. If entire orchard had been Ben Davis the wage would at least have been $100 per acre. My figures are not competitors.

Mr. Harvey:—That's excellent, carefully thought out.

I am anxious to try to supply from the knowledge of my personal early, about orchard of Mr. Davis, Holt Co.; Mr. Davis has a large orchard, say 1300 trees, of two ages. His present has been corn for first few years, sweet clover, weeds and hogs. He is quite particular as to the time of year when his hogs shall or shall not be among his trees, and now has no damage done by them, but much good. For some years, his only cultivation of the soil was hogs, his only pruning essentially the same as that of Mr. Harvey and of Mr. Murray. Profit ranks those orchards. More apples than all the balances of the states in the Union put together, the crop of single orchards selling as high as $80,000.

Several varieties besides Ben Davis and Wine Sap have done notably well for Mr. Davis. The statement of Mr. Harvey characterizes our orchards very well, and is suggestive. In our region, where he is well known, its accuracy goes without question. Mr. Murray's orchard may not have the same results; but the urge toward better business and the many small businesses which have passed the business and succeeded, or if he has failed, has done so because it would not pay. Cost of labor, of trees, cultivating, budding, loss—set the figures beside each other and see which have paid the best per cent, per profit, these three orchards or the three most successful farms in your county during the same period of years.

(The great importance of at least occasional cultivation of trees was never so well appreciated as in May.)

C. W. Parr, an experienced apple buyer tells us that in this and adjoining counties, orchards that had been even half cultivated, bore good crops, selling at high prices, while those neglected for years were worthless, red top and blue gruss, produced next to nothing."

The following was written us by the late Henry Avery, one of the most sucessful growers in South Mo.

"BURLINGTON, Ia., March 19, 1888.

"Stark Bros.: As to varieties to plant in Colo., I do not feel competent to advise men with so much and long experience as Stark Bros., but I will name varieties that have passed the ordeal and proven most worthy in hardness of tree and quality of fruit here in Ia.; and of such would I would like to see growers in other states adopt. Roman Golden and Roman Stein a most hardy tree here. Oseola is the most profitable so far with me; all my old trees still bear, while most of other kinds were killed out or almost. Roman Golden about three-quarters hardy and, next to Oseola and Roman Stein, most profitable, if the fruit is picked early. As soon as picked, if set in cold cellar, it is put in a dry cold cellar; then no apple superior to it in quality or for profit, but if left on the trees as most early winter apples, they will fall off and be chased among fall apples. Treat as a dwarf tree.

The quality of Grimes Golden and the bearing of the tree is such that I would, if a young man, plant it and the two others named would grow. I could bear two pounds of covered apples besides for winter, confident with cold storage, of controlling the price for such high-quality fruit, dry early. Very hardy; same as Mr. Babbitt of Lowell, I would plant largely, and M. Bush. Of pears, Bezi de la Matte. Of course would try others like White Delaware and Comice, which have done well. We have a hardy here of all tried during past 2 years; both a hardy tree and a good peach. Of plums, Maquoketa, Wolf and Roper's Pride arbors; both hardy, full of fruit. Of pears, Roman Stein, hardy, heavy bearer, good size and quality. Yours truly.

Henry Avery."

Mr. Avery writes later: "Am under promise not to dispose of any quarts or cans of Pears, as has not yet
been disseminated, and so far has only been fruiteed here and, for a number of years, in Union Co., Ill., where I was first impressed with its value."

L. A. Goodman, Jackson Co., Mo. (Sec. Mo. State Horticulturist).

"Friend Stark: Up to this date we have made more money out of Mo. Pippin than any other variety, but the Mo. Pippin is remarkable for quick profits; our 8 yr. old Ben Davis trees have given us one, and Mo. Pippin, same size trees, will half be Ben Davis, fourth Mo. Pippin, eighth Jonathan, eighth York Imperial, and Waller Twist. We are still planting 32 ft. apart east and west and 11 ft. north and south, head low and do but little pruning. Mo. Pippin is not tender with us. We cultivate in corn 4 or 5 years, then do cover. We are not planting Wine Sap any more; it disappoints us every year; too small for western markets. Yours truly.

FRED. WELLHOUSE."

J. A. Bayles, Jackson Co., Mo.: I still adhere to Ben Davis, which is the best apple tree for a planting plant, and then I will be through; this will make 45 acres in orchard, over 400 acres Ben Davis. With us Winthrop More, next year we'll have 100 acres of Mo. Pippin, too small as the trees grow old; Clayton is a good apple, so is York Imperial; Jonathan has great merits where it will be used for canning purposes; have grown many years much in favor; it is the best yellow apple for market."

SPRAYING.—Col. North, of Greene Co., Ill., was late this season but Mr. Whitley, another orchard grower, Col. N., is planting another very large orchard and will continue until he has 200 acres. He recently sold 144 acres. The papers spoke about this being a big thing, and was—for the buyer. The buyer graded the apples, Ben Davis, Pink, No. 1, No. 2, the remainder used for cider, &c.

Why was it that Col. North's apples sold so high? Simply because, though he is not a professional fruit grower, yet he is a business man and looks at things from a business standpoint. He saw that orchardists elsewhere got great results from spraying, and had his trees sprayed twice—a cost of 8c. per tree. He Isa Banker, but just now he is banking more on orchards than anything else, for he figures on buying still another 20 acres, which will make 500 acres of orchard.

ILL. STATE HORT. SOCIETY: extracts:

Apples for Southern Ill.—Early Summer—Benoni, Red Delicious, Wine Sap, Ben Davis, and Mo. Pippin, Brownberry, Lowell, M. Blush, Fall—Jonathan, Mother, Grimes' Golden, Winter—Ben Davis, Wine Sap, Minkler, Fall—Jonathan, Grimes' Golden, Winter—Ben Davis, Lowell, M. Blush, Minkler.

For Central Ill.—Summer—Red Astrachan, Benoni, Delicious, and Golden Sweet also do well. Fall—M. Blush, Wine Sap, Minkler, Winter—Jonathan, Grimes' Golden, Late Winter—Ben Davis, William Twig, Minkler.

For Northern Ill.—Summer—Benoni, Duchess. Fall—M. Blush, Twenty Oz., Fannense, Wealthy, Winter—Jonathan, Ben Davis, Willow Twig, Roman Stein, Minkler.

Central Ill., exhibits for family use—Northern Spy, Minkler, Rome Beauty, Jonathan and Wythe. Premium awarded to each in the annual Premium list, and tree better adapted to the various localities than the other sorts. Northern Spy not worthy of even third place where health and short life and fast age is too slow coming into bearing.

Mr. Webster: Vel. Transparent (Grand Sultan) is an excellent variety, large, beautiful clear skin, almost white, very smooth and fine. Once a Black Twig promises to be good for Southern Ill. We have a variety not generally known, that I think fair to be successful trials of any sort. It is a hybrid and naming them Pickett, Ingram, Smackleford and York Imperial. Illinois is a fine orchard tree."

Presentments of new varieties: committee report, 17 entries, with scarcely an exception all good enough to be recommended; size, color, smoothness, quality, &c., considered. Silver Fir is a new variety for cold localities, which is well adapted for the best hardwood nurseries. Second premium for new variety awarded to Jerry, an apple of good size and color, good quality. Second premium, Shrewsbury, to Mrs. Frederick A. Ferm, of Peoria. Third premium, Pickett, large, dull red, second quality. Committee report applies on exhibition from Ky., Ark. and Mo. that are superior to sorts grown in Ill. for Mr. Morris: Have visited 400 orchards in Champaign and surrounding counties. I find the healthiest trees are those that have low heads—low enough to shade the body of the tree, not too far from the ground high ground and hillsides. Mrs. Blush and some others on a hillside, have stood 35 years and are still sound and Malus. While some trees that have been trained a bear; a good keeper; sells well and in March is not bad to take. Ben Davis is a short lived tree, second class, but first class yielder and seller; trees planted 8 years ago as good as 2 years old. Minkler: A sturdy tree, an even bearer, a rich apple and will thrive on low land. Sops of Wine is also a good tree, a long lived tree, a good bearer; good market apple.

Mr. Gaston: The apple and strawberry are the two fruits of greatest importance. Both can be grown on the same land. We will take, for example, one acre. It can be multiplied by ten, fifty or a hundred, to suit the purpose, by the next season. They must be set 4 ft. apart, then set every eighth row to apple trees, putting trees 10 ft. apart in the rows, about 50 trees per acre. After 4 years the trees will be bearing, and it is a tree from the stem of every other apple tree sometime in the month of June. This will check growth and bring trees into bearing; serve the same way each year; and in 10 or 15 years they will have exhausted their strength and should be cut away, when the other half of the trees will require all the land, making them 40 ft. apart each way. By planting an everother tree Mo. Pippin it will have borne itself to death without ringing by the time the other trees need the land; or plant small growing sorts like Vel. Transparent, Trueblush or Whiteblush, which will never spread out large enough to interfere.

Mr. Minkler: My advice is to go slow on Russian Apple. Beware, Southern Ill. Whiteblush kills apple trees. The most absurd thing on the farm is the orchard. It is horn pruned, then two crops of hay taken off the land, leaving nothing but bare ground, and is starved to death, yet a full crop is expected. Plant your orchard and take care of it and of the soil."

Mr. G. W. Johnson: The Disciplinary Union is a very high minded gentleman, who was down one day, found it a great benefit; consider straw much good. Have tried it around some trees and left ground bare under others. Result, a good crop, as the trees are not loaded. To keep off rabbits and insects, I wash my trees every fall with a solution made of half a bushel stone lime, 1 lb. glue, 1 2b. copperas—enough for 200 of my trees."

Mr. Gregg: What apples should we plant for family use—say 3 each, for summer, fall and winter.

Mr. Leeper: Recommended to Mr. Summer Pearson, E.Y Harvest, Rambo, Milan, Ben Davis, Willow Twig, Jonathan.

Mr. Hammond: Duchess, Red Astrachan, Sops Wine, Wealthy, M. Blush, Porter, Ben Davis, Willow Twig, Jonathan.

Mr. Johnson: Substitute Benoni for Porter and Grimes Golden for Willow Twig, and I like the list better.

Mr. Emerson praised Monte Bello, a local apple; placed 12 years ago, one of the best sorts, large, handsome, fruit clusters all along the branches; very fine in appearance, last in quality and produce bearer; begins ripening Sept. 1st and season lasts until early winter. Every year produced a heavy crop.

Warsaw Hort. Society invited Mr. Emerson's orchard; his way of tree planting is novel and a new departure. He makes a 25 ft. alley of saplings, and with sub-soil plow deepens these checks, at the bottom of which holes are then dug and the trees planted the depth they grow in nursery; next to the trees soil is plowed back 10 or 12 inches more. His orchard, now 7 years old, has never needed replanting, has borne three full crops of fruit, and he has not cut the lower branches of the healthiest orchards in Ill.—a success on Mr. E., location, and well worth the consideration of tree planters. Mr. Emerson has promise to send me some fruit, which I shall be pleased to have on my trees. I prune only in growing season of spring. Don't prune too early; for after buds are burst until leaf is fully grown is the most injurious time to prune. The best and healthiest orchards in Ill.—a success on Mr. E., location, and well worth the consideration of tree planters.

Mr. Emerson cut off last year the 10 ft. or 12 ft. blackheaded—June is best for summer pruning. Feb., and Mar., before buds swell, is best for main pruning; I never cut a large limb, promptness must be unexampled. Try not a large limb, it spoils the tree life. My trees are well cared for, and have nicely balanced heads, with side branches along a strong cedar stock; thus tried they never fail to thrive.

Mr. Rockwell: How many members, if but 25 years old, would plant commercial orchards?

Mr. Hammond: Most would plant hop and hops others would.

Mr. Rockwell: Then, what would you plant?

Mr. Hammond: Ben Davis, principally, unless I found something better.

Mr. Rockwell: Will the demand justify planting?

Mr. Hammond: Yes; always. There are just now many new and satisfactory varieties.

Secy. Johnson: Horticulture is an actual necessity, and demands our very greatest efforts.
Mr. Dunlap: On a trip to Wis. found one of the most promising new apples there is McMahon White; it is plain, large, and the fruit trees at Rib Creek stand in Nursery row; it was selected from a large number of seedlings; fine quality, ripens late, very superior for cider and canning, and with a few peaches to flavor cannot be told from Peaches. For early Summer, Yel. Traders are valuable, but for late 1st our sorts are far ahead of any Russians.

Mr. Gaston: Salome fully meets my expectations; quality, nice; Mr. Shank: Some apples are hard to grow when taken from Nurseries, but once established, are all right. I know fruit here; but for late, some of our sorts are far ahead of any Russians.

Mr. Crane reports, apples worthy of further trial. Mother, excellent quality. Mammoth Black Twigg, tree rapid grower, quality much like Wine Sap, but larger, season about same, a good sort. Red Stripe, excellent quality, ripe in Aug., a perfect beauty.

Mr. Dunlap: Many farmers are deterred from planting fruits through ignorance of culture and an idea that it is beneath their dignity. While there is much to learn, it is easy to make a success of fruit by ordinary culture, a knowledge of which every farmer possesses.

Mr. Piper: Have been experimenting growing apples for more than 35 yrs. I root-grafted with fair success a number of years ago, but until 30 yrs ago, when I lost many root-grafted, I consider those here and there. Exhibition are as fine as can be found anywhere, whether you go to Mich., or N. Y. If I had 10,000 bars of such apples as Salome, there would be a ready sale. It is the best the market had in a year are sold for, and for use in Nov., but a keeper of first quality. Of 30 sets would recommend for early. Red Astrachan, Excelsior, etc., which the people demand for use. Black Twigg, Second rate. Duchess, Gravesend and Strawberry. For; Haas, M. Blush; Jeffers is the best of all Fall apples, as good as a Pear. Winter, Salome, Boy's, Grimes Golden, Colman sweet, Roman Stein and Minken.

Mr. Riehl showed and passed around specimens of Jeffers. It was a fine specimen. He said that the Summer apple we have, mild sub acid, very agreeable to taste, always fair size and perfect shape and always holds fall; a splendid apple for market or family use.

Mr. Minken: Apples that are starved to death. No varieties will stand all abuses and starvation.

—Blue Grass sod, horsecropping, cattle browsing, and the grazing of calves, sheep, rabbits and mice, and hear a heavy crop every year. What is all this blue and very large size. You know how we are from the orchard for 30 years and made no returns whatever. Have not even applied the scriptural injunction to the idea about and dung. You ask the cause of these dying. I repeat it, starvation. You say they winter fall. I say they are starved to death. When I go through my orchard, I count the apples, and there are where I manured heavily last year the apples were beautiful and fair.

Mr. Riehl: Where are we to get fertilizers? Mr. Minken: sow your orchard in clover, and when you have a good strong growth, plow it under; then seed to Buckwheat and plow that under.

1. Apple best suited to our climate? Answer: Bonni, Ely Harvest, Duchess, Twenty Oz. M. Blush, Jonathan, Grimes Golden, Minken and Ben Davis. The latter, though always opposed by some, is always a good seller and profitable apple.

Mr. Fry: Southern IL is the most favored region for growth of late. I saw many ships loaded with Winter apples. We are asked if there is not danger of overdoing the apple business. We say most emphatically no. There is nodanger of out-growing the apple business. We are not with Winter apples. It is a well known fact that the old orchards of N. Y. are falling, and in a few years will be unproductive, as the old ones, the fruit inferior. Export trade is increasing; in the foreign market King sold at $8.85 and Ben Davis at $4.75 in Liverpool. Nov., 1st.

When Minken Ben Davis, Jonathan, Willow twig, Gilpin, Rome Beauty, Wine Sap, and about 20 sorts planted because they did well in Ohio. To name a few, we know the market wants, and what are all I would like to plant largely. Rome Beauty is fine, but a shy bearer. We want at least one other Winter Twigg, abundance depends on the size of the orchards. Those who planted whole orchards of Ben Davis have succeeded best.

Mr. Minken: Vaccination of apple trees is the most reliable and profitable. As to next best, no agreement was reached. Some favored Jonathan, others Rome Beauty or Willow Twigg. Minken had many firm friends, not only for its appearance, but extra fine, rich flavor.

**"The Touch of a Vanished Hand."**

To the good judgment and wisdom of our honored and lamented father, the late Wm. Stark (deceased in 1853) more than to all others is due the success of these nurseries. The broad and firm foundation long ago laid, with his whole life given to that work, by his beloved father while yet but a mere boy of 14 yrs. For more than 40 years he successfully labored to advance horticulture in the State of Ohio, making his business that we should be nurserymen has been fulfilled, if not exactly in the way he had planned. Man proposes but God disposes. The first can do but the last cannot. Then too much he indulged his fond pursuit, and in his almost successful efforts to dispel the clouds that lowered upon our house, sacrificed first health, then life itself.

"Oh what a noble heart was here undone, When Science's self destroyed her favorite son!"

We cannot hope to render any adequate tribute to his revered memory—we do what we can. Perhaps we cannot say anything so well or that would be half so expressive as the brief tribute paid by the friend who had known him long and well—Pres. J. C. Evans:

"William Stark was one of the best men I ever knew."

As to the dark times—not one of us now regrets or undervalues the experiences through which we have passed; it is as though we were made to stand firm and prepared for all. But now precious a jewel is worn by the ugly load, adversity.

The following, although published in Mo. State Hort. Reports, July 1878, has been cut and pasted into this work. For the principles advocated by these pioneers, many of whom have gone over to the silent majority, are not for a day, for an age, but for a fortune, and our faith is firm that our work will succeed and be successful.

Mr. Wm. Stark of Louisiana, Vice-Pres., read a Report [1868] for Northern District of Mo: Mr. President and Gentlemen of the Society.

For the consideration of the Committee on the progress of horticulture in this district is offered:

Having been engaged and interested in the pursuits of horticulture for nearly 80 years. For half a century, and having been for more than a quarter of a century engaged in the nursery business here, in the county of Pike, I have had to struggle with many difficulties, with which our noble pursuit has had to contend—a few of which it may not be deemed of place to briefly notice here.

Those conscientious planting orchards for commercial purposes, were sagely told by croakers, and many well-meaning, though short-sighted people, that they would ruin us all and the country. That fruit-growing was certainly being greatly overdone; and many other similar statements were made, and arguments used which often deterred the beginner.

These people could not fully realize the vast extent of our country, and the further all-important facts, that but a small portion of the Great West is yet to be explored, could successfully produce in large quantities, and of fine quality, the most valuable fruits for commercial purposes. Many of our present leaders are disposed, say they, we cannot afford to invest money and labor, so long before we get returns, forgetting that the increase in value of their lands, appropriations of orchards, which are detected and used for the lesser, is greater than the increase of money at compound interest.

Another great drawback has been encountered by beginners, in not knowing what to plant, and further, in being able in many cases to obtain reliable articles, when they had made up their minds what they wanted. Much too many, however, have been made by consulting lists, good enough, perhaps, where made, but entirely unsuited in the localities, in the soils and climate, and of course, with the results it was very difficult, with which our noble pursuit has had to contend—a few of which it may not be deemed of place to briefly notice here.

These conscientious planting orchards for commercial purposes, were sagely told by croakers, and many well-meaning, though short-sighted people, that they would ruin us all and the country. That fruit-growing was certainly being greatly overdone; and many other similar statements were made, and arguments used which often deterred the beginner.

These people could not fully realize the vast extent of our country, and the further all-important facts, that but a small portion of the Great West is yet to be explored, could successfully produce in large quantities, and of fine quality, the most valuable fruits for commercial purposes. Many of our present leaders are disposed, say they, we cannot afford to invest money and labor, so long before we get returns, forgetting that the increase in value of their lands, appropriations of orchards, which are detected and used for the lesser, is greater than the increase of money at compound interest.

Another great drawback has been encountered by beginners, in not knowing what to plant, and further, in being able in many cases to obtain reliable articles, when they had made up their minds what they wanted. Much too many, however, have been made by consulting lists, good enough, perhaps, where made, but entirely unsuited in the localities, in the soils and climate, and of course, with the results it was very difficult, with which our noble pursuit has had to contend—a few of which it may not be deemed of place to briefly notice here.
Small Fruits: All do well in our district. The early apple, with its mild flavor and with proper caution in selection of sorts, and reasonable care in cultivation, success is almost certain. The cultivation of the grape, the most valuable of the small fruits, is at present under cultivation a little, but its bearing and profits to the grower are certain.

The Quince, Pear, Peach and Apple.

The quince, although cultivated in a very limited way, proves almost everywhere a success. The quince, if not neglected, will bear a generous fruit. If this fruit be planted, it promises to be one of the best, and is a wonderful fruit. A fine apple, if you will plant it, is a good apple, and is a good apple, and is a good apple. The quince, if it be planted, is a very good fruit. A fine apple, if you will plant it, is a good apple, and is a good apple, and is a good apple.

The peach is not produced here with quite so much certainty as with our neighbors, a little south of us. The past season, however, has proved an exception to this rule, for, while the crop this year has been most abundant throughout our entire district, it was badly thinned out by the late spring frosts in various localities. Here is where it is, and there is where it is, and there is where it is. A good apple, a fine apple, a very fine apple, a good apple, and a good apple. A fine apple, a very fine apple, a good apple, and a good apple.

The apple is one of the handsomest and best. Another apple, Mr. Higgins, would put it at the head of the list. Only second rate. Large, bears well; brings a good price.

Mr. Hilliard was a prominent fruit fancier. He grew the peach, the apple, and the strawberry. Mr. Clagett: Fine, large size, handsome, good flavor, desirable, and salable.

Mr. Hilliard was one of the handsomest and best. Another apple, Mr. Higgins, would put it at the head of the list. Only second rate. Large, bears well; brings a good price.

Mr. Stark: On good, high, dry land it is profitable. On ordinary soil will not do; should not be raised extensively.

Edwards: I reject it for market, unprofitable. Mr. Clagett moved to add Rome Beauty.

Mr. Stark: Apple development is 14 years. A late fall and early winter apple will keep till March, but loses its flavor. Trees decline to overbear. Rome Beauty grown on strong roots will bear more apples than in Ohio. Hangs well in Jefferson county; one of the best for profit—equals Winesap.

Mr. Edwards: A high culture, on limestone soils, the Newtown Pippin will do, but not for market.

Mr. Stark: On good, high, dry land it is profitable. On ordinary soil will not do; should not be raised extensively.

Mr. Clagett: Huntsman's Favorite is a fine apple; has a fine flavor, very valuable; a good apple. Mr. Whetworth: I brought it into notice in 1843; I went on a visit to Cincinnati in 1844, and exhibited it there. They thought it a fine apple, and gave it some grants. It is the finest apple in Johnson county. A Mr. Hilliard moved to Mo.; stopped at Old Franklin; a friend gave him some seedlings; he planted them, and this was one. The trees were very valuable, and bore well; a long time; pale green, turning to a beautiful clear orange.

Mr. Sanders: I have some trees, good growers, early bearers, might be raised here.

Mr. Rieth: There is money in Gilpin; ships well, makes good cider, and sells well.

Mr. Clagett: I will not plant it when there is no other.

Mr. Stark: We should be cautious about recommending apples for mere money.

Report, 1875, by Wm. Stark, of Louisiana, vice pres.: * * Although the apple crop is of much more value commercially and otherwise, than any other fruit crop, still occasional partial failures urge the importance of cultivating a full line of all the valuable fruits, for often when we have bad crops of some varieties, we have the best of crops of others.

Every family having available ground, should plant and cultivate for the sake of the strawberry, raspberry, gooseberry, currant, grape, plum, cherry, peach, pear and apple. With a crop of all these, ripe fruit can be enjoyed every day during the summer. The apricot succeeds when seasons are favorable, but as an article of commerce it does not do well. Having tried the nectarine during a period of 30 years, I find it is much harder to produce than the peach, and as it does not do well. I am very much partial to the apricot.

Pears did very well, trees suffered but little from blight. Much of this exemption from blight may, I believe, be attributed to the fact of the groves being, for the most part, of dwarf trees which had been thoroughly cultivated every season, having a very heavy crop of splendid fruit. Although the trees had not been pruned for two or three years, before, I think the crop of 78 alone would more than repay the entire cost up to this date, and the early pears, which have been the favorites, gave a very poor yield, both as to quantity and quality. (This has often been the case since, proving that the extra...
early peaches have a mission.] I observed several times during the drought, the orchard of Mr. Miller, near Louis- 
ville, Ky., was bearing a fine crop, unusual in its size, where the trees were bearing very full, would have been worth much more if he had given his trees better cultivation. The new early peaches have mostly fulfilled the high est expectations entertained of them when less known. The apple trees of St. Louis, heavily laden with ripe fruit the 15th of June was a sight never before held so early in the season. Amsden's June and Alexander both bore well, and ripened fruit very soon between it and the June-you 
closely followed by Beatrice, Louise and River's Early; all coming in before Hale's Early, Amsden and Alexander are much the same. Red Delicious and Alexander are the advocates of River's. River's is larger for an early peach, and possesses good quality, but was damaged some by rot. Because it fills the place left by Hale's Early and the June you have this ins' or Ringold Manneth Heath, a new elegantly introd 
troduced from Del., is giving good satisfaction. Some very cheap peaches that have been sold utterly worthless as a fruit—a full-fledged lumbago. Minter plum is very ordinary, though the tree is very hardy and strong, not giving good satisfac 
tion. The fruit is of good size, quality and color and although not entirely proof against the attacks of the euree, as claimed, still it withstands to a very great degree the ravages of that insect. "Forest Ross" is a native plum, very hardy and valuable, round, very dark red, but larger and later than Wild Goose. Very highly esteemed by Hosea's orchard, where it was tested. The disposi 
tion on the part of the farmer to plant a full assortment of fruits, seems to be drifting in the right direction. The great enjoyment that can be derived from a full supply of good fruits almost the entire year, the wonder is that so many have shown themselves laggards in this fruit country.

To take another view of this subject, I feel safe in saying that a good supply of the best "home grown fruits" is very necessary to a thrifty family, and, at the same time, one of the greatest factors in producing health, without which all else is comparatively worthless. In fact, in our many ways in which we can now grow vegetables, we have become more and more, and should be, all with a necessity. There are very many causes contributing to unsatisfactory results in the culture of the vegetable, but one of the chief is that the many valuable varieties, or varieties of comparatively little value, are planted. Another is the want of proper care after planting. Good cultivation is a prime necessity in the produ 
tion of large and continuous crops of good fruit. I do not wish to be understood as advocating culture of (all varieties) every season, but to wish, in the use of unequivocal terms, that to obtain good results, the plants must be so treated as to continue in a vigorous and healthful condition. Then let the watchword be, Cultiva 
tion! Cultivation! Cultivation!

Mo. State Hort. Society, from Report 1878:

THE APPLE.

What to Plant and How to Cultivate the Or 
chard to Make it Profitable for Market.

By William Stark, of Louisiana, Vice-Pres't.

Concerning upon collection might be written on this subject, but I have not space to write to the point. Besides, I must be on my guard for fear I bring into too abrupt conflict with the false teachings of some of our friends. I do not wish to continue. The system of non-pruning, running the orchard in sod, etc.

"I presume you are not expecting anything more than a few short, plain suggestions—a sort of hand-book, preserving the dignity of science. I apprehend we shall not brook the summer apples, such as are marketed in a retail way at home, or shipped only short distances; but merely such as are marketed in large quantities and are bought whole 
se at any market in this country, or even in Europe, that promises the best returns. I shall not un 
derstand you as advocating the growth of the finest varieties, nor do I wish to be understood as conveying the idea that all I do name will succeed well on all sorts of loca 
tions, or in a wide range of latitudes; but I wish to say that suitable and good varieties, as far as I have seen, seem to be of fair size and good bright color, of good general appear 
ance and the larger the better, other conditions being equal—In a word, varieties that can be cultivated.

Size and Appearance.

In the general market, has in men more to do with selling apples than actual quality. They should have sufficient firmness in the skin, but few have. I think they are mostly good keepers, so that when the market is glutted, you may have something that you can hold over a few weeks or months, or ship to some far-off market. Some sorts may be deficient in some of these requisites and possess others in a high degree.

The following list embraces some of the best and most profitable market apples for this latitude: 'Ben Da 
vis,' 'Granny Smith,' 'Beartree,' 'Blaylock,' 'Rhubarb,' 'Rhubur 
souri Pippin,' to which might be added, Winesap, Willow Twy 
g and Clayton. Perhaps somebody will want to know why I have not included some of the very best and most 
profitable apples. If so, my answer is, I know of none that are as profitable as several of the red sorts. The Orthe 
y, White Winter Pearmain and Newton are two very good apples, and they only want protecting sweetness and smooth, will get them very well and matted; but they are too many faults to fill the requirements of a paying market orchard. If such an orchard has room for any of these flavors, it is hard to know which will do the best. We shall see. Jonathan is an apple of fair size, fine quality, and one of the most beautiful apples we have, but it will not fill the market. The fruit is a little too long for most of our apples, before they are ripe enough to gather, half of them have fallen to the ground. Stark is a splendid tree, a good 
fruit of the large size, but I shall not talk of it, as it is not 
 classification for this section. McAfee's Non 
such has good size, fair quality and appearance, but is too subject to scab to be considered a market 
orchard. The standards planted for market have been greatly reduced in value by the use of

**Too Many Sorts—**

And sorts entirely unsuited to the locality where plant 
eds. Many of them are planted for the market and none of them good market sorts in other sections of the country.

In about this latitude, in Ind., Clayton is the most profitable market apple they have; but in Missouri it has not yet been thoroughly tested, but it is a long-lived tree, and will doubtless do well. Having much to say about varieties, we are now ready to gather up the trees. Now is the time, when you have made up your minds what you want, to

That you get the true varieties. A blunder in this can never be remedied without a serious loss of time or mon 
ny, or both. If you do not know the varieties by their appearance, make some test on them. I have said, we are well 
known and above suspicion. Never buy sorts you do not want because the trees look nice, or because the nursery 
manship, being overstocked with this, that or the other. Such sorts might be all right in a family orchard, but all wrong in your market orchard. It would be far better to pay two, three, 
ive, and buy the varieties you want, than to injure your market with bad varieties, or to injure you at a in 
price of varieties, than to take and plant very many sorts that are 
seared to the country, at nothing. I have known parties to plant the wrong sorts, not know what they like and until the trees came into bearing, and then, when their trees ought to have been worth $5 to $10 apiece, they went into an orchard to plant another sort, and have known parties do worse than this—leave such trees to 
other people to take care of the trees, and to keep the land up to a marketable standard. Such trees will make a valuable orchard, but on such locations it requires more labor to care of the trees, and to keep the land up to a market 
value for your orchard. Plant your trees with much care, so that all of them will grow; incline them toward the 2 o'clock sun; whenever any trees are lost, re-plant. Some vari 
ies may be planted from twenty to twenty-four feet, while others, on strong soils, may be allowed thirty—but twenty-five is about right for the state.

**Give your Trees good Cultivation.**

Recall while young. If you should not be allowed to live so long as a time without cultivation. Of course, if the land is good, it may be sowed in clover, and pastured with some of sort of stock, and clover grown, but on a good orchard should not be done. I believe the land in the orchard should be thus treated more than two or three years at any one time; and whether in cultivation or clover, if the land is rich enough, it should be returned to the trees to time—enough to keep the trees in a strong, healthy condition of growth. I do not approve of sowing small seeds in the orchard, especially in the fall. Oats may sometimes be sown in the orchard after it is well grown up, and pastured down with hogs, with but little if any bad effects, but I never seem to work the orchard an injury. I would never, under any circumstances whatever, allow timothy, red-top, blue grass or any other grass to grow. The orchard is not in cultivation, it should be in clover, and kept pretty closely pastured with hogs. If practical, the keep 
heep are well up out of their reach, and horses may often be safely pastured in the orchard in early spring or when
there are no apples, but cattle should never be allowed to enter the orchard. The very best treatment an orchard could have would be good cultivation, and no crops taken off the land. But if you raise a crop of corn, "hog it" and then the corn would be very much the sand for the crop. But where crops are raised and taken off, care must be taken that the soil is not too much impoverished by the corn, or else their future hardiness be prepared to stand the extreme cold, as in 1872, which followed a very wet July and August, causing the trees to remain dormant until spring, since this section of the country was settled. [32 degrees below is the coldest since 1873, and that but once.]

A Little Pruning at the Right Time

Is required on almost every tree, but the operator should know how, when, and how to do the work. In pruning the tops of trees while yet young, all sharp forks should be destroyed by cutting out, as the very change is the source of two or three prominent limbs start from the main stem so close together that their future growth would eventually cause them to clash, one of them should, of course, be cut out altogether. The same may be said of branches that would eventually become large. Very many trees will never entirely get over the bad effects of that winter, when the thermometer touched forty degrees below zero. Some varieties require a more careful manner that the leading branches require shortening back to make the tree grow sufficiently stocky. Others require it not. You may long have it cropped in order to keep the tree in a comedy shape. Just enough should be done to make the wood grow where it is needed. The objections is that to grow large, it will never become necessary to cut off large branches when they get older. To avoid cutting off large branches, or long branches, before they are wanted, never bear a few heavy crops, you must start your branches a little higher than has the practice with many within the last twenty years. Men are ever prone to run to extremes. Fortieth and fifty years ago many of the trees were made to branch very high, and during the interval of twenty or twenty-five years the inclination has been strong toward a lower grade of pruning. A tree, from a half to four and a half feet—say, mostly from three to four feet—I think is about the best height to branch up. The later the branches start the sooner they are rubbed off from time to time while yet small, and all suckers putting up from the roots should be kept off as yet as possible. A little too careful pruning, but those impractical and fainthearted theorists who declare against any and all pruning, for even the most extreme of these theoretical visions will practice it themselves. They can point out to you (and so can a practical orchardist) the bad effects of too much pruning, but the work done at a improper time of the year, and all that; but this is no more a good argument against correct pruning, done by sensible, practical orchardists, than the work of some pretense of a surgeon would be an argument against surgery performed by the skillful surgeon.

Of course the orchardist must keep a sharp look out for the pear tree. It is impossible to remove, and if liable to invade the orchard and damage or ruin the trees. When the young orchard is growing thickly, some pruning work done at an improper time of the year, and all that; but this is no more a good argument against correct pruning, done by sensible, practical orchardists, than the work of some pretense of a surgeon would be an argument against surgery performed by the skillful surgeon.

Of course the orchardist must keep a sharp look out for the pear tree. It is impossible to remove, and if liable to invade the orchard and damage or ruin the trees. When the young orchard is growing thickly, some pruning work done at an improper time of the year, and all that; but this is no more a good argument against correct pruning, done by sensible, practical orchardists, than the work of some pretense of a surgeon would be an argument against surgery performed by the skillful surgeon.

Mr. Husmann: I do not think the list of varieties large enough, would strike off Janet, which is excellent and is being a good bearer. But I think very highly of Huntsman's Favorite for market. Have seen them growing in more than a hundred orchards and know it is very generally unpretentious, and can be grown anywhere. It is one of the best shipping sorts—fruits fleshy, attractive appearance, very large, will allow of a few years on the market. White Pippin is a valuable yellow variety; looks like Newtown Pippin; early and abundant bearer. I would like to have a few varieties of apples for my own consumption; but if you have planted Northern Spy and Yellow Bellaower, and some others of like habits, you should console yourself with the fact that in cultivating such varieties, you are working mainly for the next generation.

Mr. Ragan: It is undoubtedly an advantage to both, I always sell my fruit in that way, when possible.

Mr. Ragan: Boys do the work with straight pliers. Begin work as soon as convenient after the fruit is set, and where the fruit hangs in clusters pick off so as to leave only one in each place. The work to be completed by the time the fruit is one-third grown.

Mr. Minor: What crops grow in your orchard?

Mr. Husmann: I usually prefer some root or vine crops as being less exhaustive. We must keep up the fertility of the soil if we want good crops of fruit. The best time of ripening is when the apple is grown in the orchard it should be "hugged down."

Mr. Ragan: It seems to me that Mr. Evans' figures are altogether too large. He makes an average crop of apples worth $1.50 per acre.

Mr. Evans: I have stated facts as I found them in my own orchard.

Mr. Ragan: Then apples at 5 cents per bushel are worth more than wheat at 81!
BABBITT (Western Baldwin)—In the judgment of Pomologists who know its history and merits, the longed-for ‘coming apple’ is the Babbitt. ‘It ‘stands on a record of FIFTY YEARS,’ and ‘it is ALL 'that is claimed for it’. The following history and description, furnished by R. E. Laughlin, who has been acquainted with the Babbitt for many years and who first brought it to the notice of the Mo. State Horticultural Society, we extract from Report for 1889:

"I. A. Goodman, Sec'y Mo. State Hort. Society: In answer to your request for facts as to the Babbitt Apple [the name of the apple as given in the text is not clear]. The apple was named from New England Baldwin Origin, Tazewell Co., Ill., at least as early as the year 1838. Propagated by G. W. Babbitt in Woodford Co., Ill., 1854 or 1845. In 1851 I saw three trees in the nursery, said to be its variety, and noticed them as the largest trees of their age, among an extensive collection of varieties; also, for the large size of fruit and unusual beauty of the blossoms, there was none to equal them.

"In the Spring of 1858, my father was planting an orchard in Fentom Co., Ill. He allowed me to plant a row of eight Babbitt. Soon I had a row of the very largest and finest trees of their age that I ever saw growing in Northern Illinois, and, in due time, apples were ready to bear, and myself went to Oregon in 1853 to start the first nursery in the then new Territory. Beaten by grasshoppers, we returned to the States, and in 1858 G. W. Laughlin & Sons did start our nursery in Fentom Co. I have best seen it years ago we had the Babbitt sent out from Illinois; and my father and brother each have the trees of that age in their orchards in large variety. For 52 years I have not seen the trees I used to know in Illinois: but to my personal knowledge they proved the memorable and terrible winter of 1859-60; I have been informed that up to 52 years ago they had stood the winters perfectly. The trees of Babbitts have been my apple trees for 52 years in Iowa, and now for six years in Holt County, Mo. During that six years have occurred several among the very worst winters ever known for apple trees; also the great fire of 1868, 1869 and 1870, and not a tree of the Babbitt has been smirched by the winters, nor more than merely held back by the severity of the winter. No other tree has endured all these trials any better, if indeed, as well. In Illinois, Iowa and Missouri, the testing has now been going on half a century. The Babbitt was known as 'Western Baldwin', until our State Society named it 'Babbitt', in honor of the man who propagated it 44 years ago; a tribute to the memory of a man whose life was more devoted to the apple than for himself.

"My father, has in one of his orchards in Page Co., Iowa, 1500 trees planted twenty years ago. The orchard is owned by Ben Davis, Winesap, Willow Twig, Jonathan, &c., with a large number of Babbitt, and is said that the Babbitt trees have up to date borne more per tree than the trees of any other variety; that the apples have sold for more per bushel than any others; and that where they are once sold they sell easily afterward.

"My brother, J. D. Laughlin, bears similar testimony as to trees in his orchard C. E. Babbitt, son of the man for whom the apple was named, now living in Page Co., says that in his large old orchard they are his best trees and his most profitable variety.

"Description.—The tree is a very strong, large grower; shoots large; leaves very large; wood hard and tough. As a support for a load of apples it is mechanically the best tree I know. It scarcely bears at all, but throws out its limbs in a shape and style peculiar to itself. Every limb has an unusual enlargement where it is jointed to the tree or larger limb. I do not remember ever having seen one split in any way. After 42 years acquaintance, in three States in three different latitudes, and growing from three distinctly different soils, I do not hesitate to place myself on record as saying that it is one of the very best trees in either nursery or orchard.

"Fruit, large, one-fourth to one-third larger than its parent, the Baldwin; shape, like its parent, but with more red; flesh, fine-grained, juicy, crisp, rich, and of a peculiarly fine acid, that plainly resembles the acid of the lemon; use, baking, stewing, pies or jelly, for each and all of which it is simply the best; in cooking it literally melts. It is ready to cook as soon as its size but is so acid that few people like to eat it uncooked until the latter part of its season, when it is a free- lief eating apple. Season, 1st of October to April, but can be kept in good condition until May.

"Babbitt, a child worthy to be born in the Great Wide West from seed of the apple that by reason of its real superiority, of tree and fruit has found its highest place in our Great Little East for generations.

"I have not, nor do I expect to have, any pecuniary interest in the sale of trees of Babbitt, directly or indirectly, presently or remotely, to the value of one cent, but I do expect to plant it in orchard heavily. There is no monopoly of this variety, for it has been already sent to be further tested in five or more States. My motive in this matter is the same that moves our best fruit raisers to hasten to tell all they know, and very often to hurry to give away clones, or trees, of their choicest originations or seedlings.

"For my own or for my children's sake, I could poorly afford to trifle with the reputation that I have been so many years earning, by making a misstatement or even a mistake. W. E. LAUGHLIN.

N. F. Murray, Vice-Prest, Mo State Hort. Society, a most successful commercial orchardist, says: "The Babbitt took first premia at the last meeting of the Mo. State Hort. Society in our State, and has received the highest praise from all who have seen it. It has never taken second premia anywhere. I think it will stand in the West where Baldwin does in the East, and to a large extent,.supplant Ben Davis."

A. C. Hammond, Sec'y Ill State Hort. Society, says, "Mr. W. F. Laughlin kindly sent specimens of a promising origin to the illinois State Hort. Society, and has this seedling of Baldwin, which it resembles somewhat, but is finer in texture, and an excellent keeper. Described as follows: 'Size, large; quality best; season, Oct. to May. Tree tested for 45 yrs. from lat. 30 deg. to 40 deg. 30 min. Never injured by Winter. Wood, hard and very tough. Shape and style just right to hang heavy crop on. Heavy bearer. This is a good record, and the fruit indicates that it is all that is claimed for it.'

ARKANSAS BEAUTY

AR.jpg

ARKANSAS BEAUTY.—A recently introduced variety. Mr. Eli Minch, editor Farm and Garden said: "It is not like any apple we know, and is one of the most beautiful we have ever seen. No painting, however perfect in color, can excel it, and for once we have an apple finer than the pictures we see in nurserymen's Plate Books." Size, large; color, beautiful light
crimson in the shade, darker in the sun, with indistinct splashes and stripes over whole surface of dark crimson. Flesh, fine grained, whitish, tinged with red and yellow. Flavor, rich sub-acid. Mr. Wilder says: "Tree an enormous bearer. Quality, very good to best. A commanding market apple. Nov. to March."

ARK. BLACK.—Tree a beautiful upright grower; young wood very dark; an abundant bearer. U. 3. Pomologist Van Deman, in report, 1886, says: "There is scarcely an apple that is more brilliantly colored. Size, 3 1/2 to 3 inches in diameter; round or slightly conical, regular; smooth, glossy, yellow where not covered with deep crimson, almost black; flesh, very yellow, firm, fine grained, juicy; flavor, sub-acid, pleasant, rich." A long keeper, almost equaling the Romanshte-Gilpin. A most profitable and attractive market apple. Has been kept till June and later.


Has been doing exceedingly well in Mo. and Kas., the tree bearing happily and a great bearer of extra fine large golden yellow fruit.

BEN DAVIS (Ky. Pippin, N. Y. Pippin).—Large, roundish, oblong; striped, mostly red; very handsome; mild, sub-acid; not rich. Tree very vigorous, hardy; bears early and continuously. For all sorts of locations in the West, this has been for years, the most profitable market variety grown. Nov. to April.

BOTHEST, QUEEN.—Tree similar to Buckingham or Fall Queen, but more vigorous; fruit also resembles Buckingham, but is larger and more highly colored. Our finest Sept. apple. Sells higher in Nashville than any apple of its season." Ripe with Buckingham or Fall Queen.

CELESTIA.—Tree a good grower. A most excellent bearer. Celestia has often been compared with Fall Pippin, and always to the advantage of the former, for while it is free from the defects of Fall Pippin, it has all its excellences and more besides.

In first introducing the Celestia, Dr. J. A. Warder, Pres't. Ohio Hort. Society, and author of "American Pomology," wrote: "Everyone to whom I showed this fruit agrees with me in according the highest rank, as a dessert fruit, to Celestia. It combines so many excellences that it will be difficult to find its composer.

With greater beauty and perfection in appearance; the Celestia equals, or perhaps excels, the famous Dyer or Pomme Royale. Fruit large, surface smooth, waxen-yellow, core small, flesh yellow, very fine grained, very tender, juicy; flavor sub-acid, very agreeably and spicy, aromatic, delicious; quality, very best; use, table and kitchen; season, Sept."

Mr. Black says: "Time has not only fully sustained all the Doctor's statements above, but has set aside his careful 'perhaps' of 15 years ago. Here in Central Ohio, we have kept Celestia in a pile on the floor of an unused room, with no special care, until after Christmas. Grown north of 40 deg. it will without doubt, be an all-winter fruit. Ten years' careful observation of it in orchard and nursery, and on different soils, warrants the conclusion that it is excelled by none, while it excels most, if not all other varieties. It should be remarked that the tenderness, which makes it so desirable for home use, unites it for marketing."

CHARLOTTEN THALER.—A hardly variety resembling Yellow Transparent, but surpassing that popular early apple in several important points. It is an earlier bearer; fruits in nursery rows, also often bears the same season transplanted; many trees planted past spring matured apples. It is also several days earlier and is larger than Yel. Trans., and in Wis the tree has proved harder. Exceedingly productive; fruit hangs well on the tree. Perhaps the most valuable very early market apple. From H. C. Miller, Crawford Co., Ark., June 28, 1890. — "Two of the Charlotten Thaler trees planted April 15, 1890, each matured a fine apple this season—less than two months after set."

CRAWFORD—Originated in Ark. over 40 years ago. Prof. Van Deman says: "This is an apple worthy of trial. Large, 3 1/2 to 4 inches in diameter, flat, slightly conical, very regular; surface, smooth, yellow, often beautifully blushed; core, very small, flesh, yellow, tender, fine grained, juicy; flavor, sub-acid, rich; season, Dec. to March, or later in Arkansas."
CLAYTON—A valuable late-keeping market apple. Major Ragan, late Pres. Mo. State Hort. Soc., writing us of this apple, said: "My Claytons this year are two to one ahead of the Ben Davis, or anything else in the orchard." L. A. Goodman, in Colman's Rural World writes: "Major Ragan had a beautiful orchard of trees, and among them were Clayton and Ben Davis. Clayton is the best and by far the most productive and the most beautiful apple to one of the Ben Davis in the space of five years, and yet his Ben Davis were fine, large, handsome trees. What would the fruit of the future be if a careful "Plant Davis, or not Ben Davis. Why not do the same in Missouri?" Tree vigorous, long lived, and a wonderful bearner; heavily covered with red; juicy, mild, good. Jan. to May.

COFFELT BEAUTY—"A seedling from Ben Davis, which the writer possesses as one of the good qualities of Ben Davis with none of the bad. A good grower in nursery and orchard; and an abundant and regular bearer. Fruit hangs well on the tree. It is a good apple. Above medium size, resembling the Limber Twig in form, but larger. Beautifully striped and splashed with red, on a yellow ground. A much longer keeper and far superior to Ben Davis in flavor. No new apple has been introduced for years of equal merit, particularly one so well adapted to the western and the middle West. Keeps, with ordinary care, to May. Combining as it does, all the requisites of a first-class market apple, it offers an almost absolute guarantee of success. Referred to as "a gem from Mica. Hort. Society." was exhibited at Boston in the collection that received the Willer Medal Awarded First Premium by the Horticultural Society of New York. On account of its growth and bearing, it is being planted largely where known. Origin: Arkansas. CULLINAN KEEPER—Sent us by Mr. Gries, of Kan., who says: "Of Kansas rig, it is the largest, long keeping, best quality apple to my knowledge; clusters regular; color in every variety except for keeping. While Ortilt is a only a fall apple, Cullins will keep in good condition till July or August; its flesh is tender, crisp and breaking up into a good bearer, in yielding a fruit like a Ben Davis. A variety of such merit, coming in so late, is destined to be the long keeping apple for commercial orchardists. It was favorably received in the last of the season's report. Orchard and Garden describe it as "Keeper! should be Cullins's Keeper, so named by the Kansas Hort. Soc." Dickison, New York, writes from Green of Yellow Bellflower. Large, orange conical; yellow, almost covered with streaks of red; mild, sub-acid, very jucly and agreeable. Unlike Yellow Bellflower, it is a prolific and regular bearer, and similar to most valuable winter apples, wherever Bellflower succeeds. DR. WALKER—A fine seedling of the popular Janetos, or Rawle's Janet, this most promising new apple certainly marks a long step in advance toward the long sought 'perfect apple.' We commend from letters of few well-known Kentucky horticulturists: 'A seedling of Janet, large, brighter, in color, and of superior quality. A very late keeper.' 'Better than Janet, is of finest appearance and keeps the icy.' 'Have fruited Dr. Walker several years, it has the characteristics of Janet, but is much larger and better and keeps longer;' of a mo. and deep red color. 'A seedling of Janet, larger, brighter in color, and of more vigorous growth. Of much value.' 'We think this a very promising new apple, embodying the finest qualities of Janet. Brighter color and better quality. Tree a fine grower.'

EARLY COLTON—"One of the very best early apples. It is entirely hardy, having been grafted in all parts of the West. It has been in Minnesota, Wisconsin, New Hampshire. It is an annual and abundant bearer, never in its history over half a century, it has been known to entirely fail of a crop. It is very prolific, as so good to eat at any time of the year. It flavors early, being keeping a month or more before Red Astrachan or Early Harvest, and continues to ripen for some time, making it very valuable as a table fruit. At best it equals the finest variety; form regular, nearly round, of uniform medium size, color yellowish white, with a tint of carmine where exposed. CRIMSON GIANT—Sent us by Mr. Gries, of Kan., who says: "This is a very promising variety for orchard and home; a handsome ; fruit and color, and equally to them in quality. Owing to fine quality it sells higher than any other." EVERSHEARING ILL. IMPERIAL—A valuable variety from Adams County, Ills. The entire stock has been placed in our hands for dissemination. Tree a superb grower, both in nursery and orchard; harder than Ben Davis, and a regular bearer of remarkably beautiful apples of large size and most excellent quality. A true "All Summer," or Everbearing apple, having green, half-grown, and fully ripe fruit on the tree at the same time. Clear, waxen yellow, shaded and splashed with bright red and delicately striped and penciled with dark red over almost the entire surface—a perfect beauty. Flesh of highest quality; creamy white, fine tender, sub-acid, with a peculiar and most delightful perfume. Begins ripening last of July and continues during three months. Mr. L. A. Goodman, Sec'y Mo. State Hort. Soc'y to Dr. Wadler says: "I am very pleased with your list of new varieties—some may be colored higher, but I am well satisfied with the Wisconsin fruits you offer. You want N W Greening; I measured apples at our last State Fair 12 inches in circumference; will stand beside Wolf River; keeps till spring, makes a fine blushing, red, fine, firm, flavored, sub-acid, aromatic. Mrs. Wadler is the one of the best apples. Tree vigorous, spreading and productive, even while yet young. One of the most profitable market sorts of its season. Dr. Wadler says: "Quality very best; use dessert, too good for aught else." Nov. to Jan., keeps all winter further East and North.
HAAS—FALL QUEEN—This apple, known also here in Mo., where it originated, as Gros Pomier (big apple tree), is a large and handsome red-striped fall apple, of medium quality and large productivity. Tree very hardy. Distinct from Buckingham or Fall Queen—called also Equinety, Ox-Eye, Bachelor, Winter Queen, Ky. Queen and a host of other names.

HUNTSMAN'S FAVORITE—Origin. Mo. Worthy of special mention, being very fine. Very large, flat; golden yellow, bronzed on the sunny side, fine grained, aromatic and of excellent flavor. The most profitable yellow market apple, having been, for several years past, quoted higher in the St. Louis market than any other variety. Tree a good grower and bearer; harder than W. P. Pearmain, and fruit thought by many growers to be in quality. Dec. to April.

INGRAVE—Origin. St. Lawrence Co., N. Y. A large, rich, moderately productive apple; recommended. See December issue Horticulturist.

JANET—Origin. Netherlands, Janet, which it resembles in form, but is much larger and higher colored; also a better keeper, lasting until May. A very popular apple where it is known. Like its parent, an abundant bearer. Tree a good grower.

IVANHOE—"Bears early, often at 2 and 3 years of age, and bears abundantly every year. Fruit excellent, crisp and sprightly. Medium to large. A light golden yellow, occasionally a slight blush. Fruit hangs very late on the tree. Keeps all the year round."

From Southern Planter, Richmond, Va.: "We have had a large crop of Ivanhoe this fall, after the likeness of Newton Pippin; very juicy, and of a very rich in flavor. A fine apple and should be propagated."

From The Horticulturist, Bridgeton, N. J.: "We think that this year has been decided upon as the year for the new or best winter apples. Originating south of us (Virginia) it is the one being one of the best keepers there, when it is brought up to this latitude its keeping qualities are enhanced and it will keep better there than here; vice versa take an apple from the North and bring it here, if a winter apple there, becomes a late fall apple here, and if a fall apple there, then it becomes an early fruit apple here. The Lankford Seeding, one of our best keepers, originated at Lankford Bay, Maryland."

Notwithstanding the tenor of the above we do not feel justified in passing without comment; for, although we have not fruit it, yet we do believe Ivanhoe will prove generally satisfactory.

JONATHAN—Medium size, round to oblong, sometimes conical, deep red; flesh tender, juicy and rich. Tree a moderate grower, slender and spreading, but productive. An excellent family apple, and very profitable for market in many localities. Oct. to Jan.

JONES'S SEEDLING—A long-keeping Southern apple, highly recommended. Origin. Tennessee. "A very abundant bearer, blooming late. Large, round to conical; color light red stripes on yellow ground. Believed to be a cross between Limbertwig and Pearmain [McAfee]. Rich, mild, pleasant sub-acid, almost sweet. Keeps well till April. I have 25 trees in bearing and the more I see of it the more I am convinced of its great value. The earliest and most constant bearer, of any good sort we grow. Large, good quality, and the best keeper of any large apple we have. Tree hardy and wood very tough." Will doubtless prove even a later keeper further north.

From "Proceedings of Davidson Co. Fruit Growers' Association" Mr. Smith presented a Northern grown Bethel; he says "it has all the valuable characteristics, that valuable variety; also a sample of Jones' Seeding. The latter was in excellent condition, and upon c-comparison with Ben Davis, the most marked unanioms in giving the preference to Jones' Seeding. The latter has only one point of its keeping qualities, but for superior flavor, large size and attractive appearance.

KIDD'S BEAUTY—Much the finest early to mid-winter apple we know. Fruit medium to large, roundish oblate; skin yellow, almost covered with dark red or crimson; flesh yellow, fine grained, tender, rich, juicy, aromatic most excellent. No apple grown is of better quality. Tree vigorous and bears young, thought to be a seedling of Wine Sap, and is worthy of such parentage. This apple was shown before the Mo. State Hort Society and the committee report: "We recommend Kinnaird's Choice, a very high-colored, red apple of medium size and first quality, and don't Isles a good keeper. We cannot say too much for this variety. Should the tree prove a good grower, hardy, and prolific bearer, it will take a prominent place among the apples of Mo." It is all of these; the original tree, in Williamson Co., Tenn., was of great size and unknown age, and productive until it blew down in 1885.

KOSSUTH.—A long-keeping Southern sweet apple from Aris. This tree bears late, and is generally known. The tree here is either late or never known. The tree is an early and abundant bearer and long keeper. They were kept on the tables in New Orleans until the 4th of July. A good apple. Am Pippin, but is larger and a bright red. Flesh tender and crisp from first to last; unequalled for rich, delicate, saccharine flavor.

LADY'S SWEET—One of the favorite sweet apples, and as such describes it in his great book: "One of the finest Winter sweet apples yet known in this country. Its handsome appearance, delightful perfume, sprightly flavor and the long time it remains in perfection, render it universally admired wherever it is known, and no orchard should be without it. Bears abundantly; fruit large; skin very smooth, nearly covered with red in the sun. Flesh white, exceedingly tender, juicy, and crisp, with a delicious, sprightly, agreeably perfumed flavor. Quality best; keeps without shriveling or losing its flavor, till May."

LANKFORD SEEDLING.—Origin. Md. Randolph Peters, says of this valuable sort: "A seedling of great promise. Large size, red and striped, and for Southern culture possesses more good qualities than any apple with which I am acquainted. Tree hardy and a good grower; bears annual crops; fruit of excellent quality and its superior keeping qualities recommend it to all. Keeps until May and June with ordinary treatment, where the "Baldwin" raised in the same section will not keep longer than Christmas. No farmer or fruit grower should be without this apple."

LAWYER (Del. Red Winter)—"An important addition to the list of winter apples and especially for the South. Medium to large, round, bright red. Highly colored; flesh fine grained, crisp, juicy, excellent, sub-acid; remarkable for its long-keeping qualities, having been kept in good condition until August. A good grower, and abundant and early bearer. We think it will be to the South what the Baldwin has been to New England, and the Northern Spy to West New York. A valuable characteristic of this apple is its remarkable early bearing, coming into bearing as soon as a peach."

We clip the above from a N. J. catalogue. Since it has conclusively transpired that the Del. Winter is merely the well-known Lawyer, under a new name, it has been a mystery to us how, of all varieties, the ridiculous claim of "early bearing," etc., could be urged in favor of this apple. For, on the contrary, it is well understood in the West at least, that the Lawyer is one of the latest of winter apples. We have some trees in our orchard, it years planted, which have hardly produced an average of one apple each since planted—many of them not at all. It also bears the fruit very thickly, and not as the trees attain age. Still it is only fair to state that on high sunny locations and clayey soil it is often very satisfactory, the fruit perfect and very high colored. Has been grown in Colorado, New Mexico, and sometime in Arizona. Doubtless also produced on the southward, and along the foot hills in Cal., it is highly satisfactory. We are especially glad to know this, as we introduced it years ago from a Nursery in Germany.

LONGFIELD—"One of the imported Russian varieties; early and abundant bearer; fruit medium to large. Yellow, brownish; sub-acid; rich, sprightly, sub-acid. Dec. to March."

Of value chiefly for the extreme North and Northwest, although somewhat later than the late varieties. Not grown much in the South, except in the Louisiana region. Generally known as the "New Orleans winter apple."
MAMMOTH BLACK TWIG (Arkansas, Paragon)—Resembles the Wine Sap in every way, except the tree is a better and much more vigorous grower, more hardy, and the fruit is much larger, many specimens being 12 inches in circumference; color even a darker red, flesh firmer, and most important of all, a longer keeper. Flavor milder, more of a pleasant sub-acid, but fully equal to the Wine Sap.

All who know the Wine Sap's value, the chief objection being its small size, will understand at once the great prize found in this new variety, equal to Wine Sap in all, and excelling it in so many most important points.

There being so much confusion about this apple, some claiming it to be the same as a variety grown in Tennessee, etc., that in order to be sure that our stock was genuine, we specially procured all our cions from N. W. Arkansas, the region where this variety has made so much stir among fruit growers. The "Paragon," when first cut for grafting, was accidentally mixed with Wine Sap, by the introducer; hence too much care cannot be used to get pure stock.

Mr. Babcock, of Ark., in charge of the State collection at the New Orleans Exposition, says: "This apple came to my notice while making collections for the nursery. The tree resembles Wine Sap but is very much larger and superior in flavor. The tree resembles Wine Sap in nothing except in color of young wood. It is the strongest grower in the nursery, a strongly rooted tree, while its parent, the Wine Sap, is poorly rooted. The tree bears early and abundantly, holding its load well. I entered it at New Orleans for the premium offered for the best new apple. But Arkansas was taking too many preminos—the 'State that could not grow apples'—and it became necessary to cry halt at some point, and it was accordingly done. An apple called 'Rankin,' from Missouri was awarded the premium. I was com-

From Farm and Garden:—"We give a cat of a promising new apple we saw at New Orleans. The apple from which the cat was taken was one of the smallest; we got it ourselves in New Orleans for the purpose of making an accurate cut. Being a Southern apple, it would when planted in the middle section of the United States, be ready for picking by the middle of April, our season being so much later. The color is a bright red, the texture fine, and the flavor a pleasant, sub-acid, and it is a remarkably heavy and a good keeper. Our illustration gives the color and shape, size of seeds, core, etc., all of which are carefully reproduced.

MAMMOTH PIPPIN—A strong rival of Shannon and its superior in several important respects. Mr. Vineeheller, of N. W. Ark., writes as: 'Mammoth Pippin is a good grower and a regular, even bearer; fruit, uniform and very large, larger than Shannon; hangs well, and is a good commercial apple. It will please anyone who wants a large, showy apple. One of our best Pippins; spacy, acid, season, Oct. [in Ark.] Plants here set five times as many Mammoth Pippins as Shannon. The latter is our famous slipper apple about some specimens are very large, but it hangs its fruit badly, in fact is shy as to yield; still everybody plants a Shannon or two, but never as a large order. While it sells well, its shyness makes it unprofitable.'

MARSHALL RED (Marshall's Seedling, Red Bellflower)—The California State Horticultural Society has changed the name of this fine apple to Marshall Red, there being another and inferior apple called Red Bellflower. It is a cross between the Yellow Bellflower and Red Jane. Introduced by Leonard Coates, Napa, Cal., one of the most reliable California nursemen and horticulturists. Mr. Coates claims it is the finest market apple in California, and comes in at a season when good apples are always scarce. Has the deep brillian color of the Red Bellflower, but yet has a sub-acid flavor, but the exact shape of Yellow Bellflower, although the tree is of more upright growth, and a regular and heavy bearer. We do not hesitate to risk our reputation in recommending this apple to all planters. In a letter to us, Mr. C. adds: 'Marshall Red is very large, bright red, ever, ripening about with Yellow Bellflower. The original tree, and two others are grafted, therefore it bears hearty every year.' Being a good bearer, while Bellflower is not, and of finest red color, and equal in every respect, Marshall Red is rich with promise.

MASON'S ORANGE—Also sent us by Mr. Greis; he says: "A Kas. Seedling. When first exhibited at Bigmack Fair years ago, it excited the admiration of expert fruit growers, because its closeness resembles that of Yellow Bellflower in appearance, that it was thought identical with that excellent kind, but closer examination revealed a difference in outline and taste. The original tree sold the fruit to a man who soon after sold out and went to Oregon, when I again tried but succeeded in buying some. Mr. Mason wrote: This apple may be a seedling of the Yellow Bellflower, it certainly has very close resemblance to it except in point of productiveness; in which particular it excels all others in my orchard, which is composed of all leading sorts; it never fails in full growth, and I have never seen so many, and that is more than my other kinds have done; it retains its rich juiciness through all season, which makes it the most desirable of all my varieties. The trees in nursery are vigorous and quite distinct."
as far as, or farther north, than its parent. Tree very hardy, long-lived, and a good bearer. Season, early to mid-winter, or longer.

McKinley—Description from Dr. Warder’s Annual Pomological Report: “Highly esteemed by Reuben Ragan of Indiana, who finds it profitable. Fruit, medium; roundish; slightly conic; dull red or greenish yellow. Flesh breaking, very fine textured, very juicy. Very productive. Bears in Dec. and Jan.”

McAlmon White—A new Wisconsin seedling. Large, beautiful glossy white, often with delicate crimson check. Flesh white, rather fine grained; juicy with lively tartish flavor, extra for cooking and good for dessert. Autumn, in Wls., but picked early keeps into Winter. Tree ironclad, said to be the hardiest known, vigorous, early, regular, profuse bearer. In Wisconsin and other Northern States it has proved very profitable in orchard culture.

Mo. Pippin—Large, oblong; bright red, with darker red stripes; very handsome and of fair quality, slightly better than Ben Davis; tree not quite so hardy. A good grower and an early and immense bearer; for years past we have not failed to find apples on trees in nursery rows, only two years from graft—the earliest bearer known to us among apples. Should be the first to be planted on any farm where there are no apples. Also a very profitable market sort. Judge Wellhouse, of Leavenworth Co., Kas., who has over 500 acres in orchard, plants only Ben Davis and Mo. Pippin—16 by 32 ft.—says, ‘at 8 years old Mo. Pippin has given three profitable crops and Ben Davis but one.’ Being so prolific, the tree is short-lived, and as it attains age overbear, so that the fruit is too small. Dec. to April.

Nansemond Beauty—From Va.; one of the best winter apples for the South. Said to excel the Wine Sap in beauty, size, and keeping: its uniform size and handsome appearance form a desirable fruit market. The fruit is large, uniform, of a beautiful crimson red, somewhat shaded with yellow; flesh quite white, crisp, tender, juicy. Since its first introduction this variety has been steadily growing in favor, and from many sections we are now receiving favorable reports as to its value. Dec. to April.

Nero—Randolph Peters says: ‘A very beautiful winter apple. Tree a good grower, and a prolific bearer. Extremely popular in N. J., where it is sought after and planted largely. Prize for its good size, fine appearance and remarkable keeping quality. A seedling of Pippin, retaining all the fine qualities of its parent, but much larger in size. No orchard in Maryland, Delaware, or the South, can afford to be without this apple, when a long-keeper and a good and beautiful apple is desired.’

Pres’t E. A. Rieth wrote us: ‘I have only found the Nero among our early winter apple trees. It appears to be a very fine tree, and though similar to the Negro, is evidently a distinct variety. I am favorably impressed with it and shall plant more trees.’ Nero, has taken premiums offered by the Ill. State Hort. Soc. for two years past.

Ohio—Regarded in Ind., was brought into note by Henry Ward Beecher, who did much to stimulate fruit culture while a resident of that State. Dr. Warder said, ‘This variety does not seem to have won its way into public favor to the extent that was expected for it some years ago.’ The reason is not far to seek: the tree is a poor grower in the nursery, hence discarded for inferior sorts, that are cheaper to propagate. The variety was almost extinct until brought to our notice by Mr. Henry Avery, (recently deceased) the experienced Iowa orchardist, who says it has proven his most valuable ironclad Fruit large, somewhat like Willow Twig in form but much higher colored, being splashed and striped with red; skin, firm, red, and very mild, very good. Jan. to March.

Pickard’s Reserve—Trees of this variety were planted in the vicinity of St. Joseph, Mo., in 31 years ago by Mr. Stewart, who says: ‘They bore good crops annually, until for 5 years when they began to fail, though still bearing more or less good fruit every year. The trees have been the best and most profitable of anything I have ever grown. The specimens which I send you I picked up under the old trees to-day (Oct. 26, 87), and of course they do not indicate what the fruit is when grown on perfect trees.’ The specified fruits, were large, flat; surface smooth, pale yellow. Flesh yellow, fine grained, tender, juicy, with a sub-acid, aromatic flavor, making this, as Dr. Warder says, ‘a fruit of first quality for table and kitchen use.’ Dec. to Feb. The original tree of this valuable apple is still standing in Parke Co., Ind., proving it a hardy and long lived variety.


Rainbow—The most profitable apple of its season. Over twenty years ago, Mr. Wells, of this county, now past 80 years old, sent us clones to be grafted for him of his ‘best apple.’ In clearing the block, two trees were left to bear; also trees of Chenango, Ren Davis, Benoni, Hubbardston, Jonathan, Lowell, M. Blush and others. All have been in bearing for years. The Rainbow has been for years conspicuously a ‘barrel-filler,’ surpassing any of the sorts named—except that some years Hubbardston has borne as much. This year the Rainbow has even exceeded its past record, bearing fully twice as much as any of the sorts of same age, and selling for a higher price. The trees produced more than twice as many barrels per tree as M. Blush, and fully five times as much as Chenango—and the Rainbow has the advantage of Chenango in that it is nearly twice as large and ripens very evenly. The entire crop can be gathered and barred at one picking. Very large, conical, yellow, striped and splashed scarlet and red. Flesh, firm, yellow, juicy. Flavor aromatic, good. Ripens just ahead of M. Blush. Not only the most profitable market apple of its season, but is preferred for the table by those who have tested it: ‘I never liked summer apples before, but this tastes just like a winter apple;’—‘I like it better than any other summer apple.’

On Aug. 7th, we sent samples of Rainbow to U. S. Pomologist Van Deman, who writes us, August 25th, 1890: ‘Your letter came during my absence and answer has been delayed. I have examined the specimens of the new Apple, Rainbow, and judging from its appearance, flavor, good size, shape, and vigorous growth, it promises to be a very good apple. The size of the fruit and its prodigality, it is at least worthy of general trial. Of course you know that any apple ripening at the same time of year does not have some remarkable points in its favor to warrant its introduction. I think you have acted very judiciously in not uprooting it from the public ground without considerable trial, and as you have done this, I would recommend that it be named Rainbow and placed in the Experiment Station and see how it will grow in all ways. I think the trial course it will have to compete with Chenango, specimens of which you have sent, and some other apples ripening at the same time.’

Rebel—Origin Va. ‘We unhappily claim this to be the proudest apple that grows, and in quality it does not fall a particle below its beauty. Large size, round, bright, clear red, on yellow ground; covered with a fine bloom; flesh yellowish white, rich, with an
agreed mingling of saccharine and acid." Another Va. horticulturist writes: "The Rebel is a new and very valuable sort for table use, one of the choicest apples we have. Season, in Va. Sept. to Nov.

RED BETGIEMER—A German sort. A very large and beautiful early Fall apple, bright purple and crimson all over; wonderfully handsome; flesh white, firm, sub-acid, with a brick, pleasant flavor; takes well and keeps well in storage. Tree is round headed, has tough wood, large, thick, leather-like leaf, and is as hardy as a wild crab. Fruit hangs tenaciously to the tree and withstands winds that scatter other varieties to the ground. Jan. to June." We find it hardy and productive, a long keeper and fruit good quality; rather small and light colored for a market apple.

SCARLET CRANBERRY (Robnett)—"A large winter apple from Virginia, and such a remarkable keeper that it will remain in good condition a whole year after picked. Color light red, shaded to deep red and striped with mahogany; flesh yellow, sub-acid, rather dry and good enough; a long grower and will be productive. Its antiseptic properties are so great that when cut to pieces it will dry perfectly in the shade without decaying Of great value, especially in the South" Mr. Robnett writes us: "Tree very hardy, a vigorous grower, bears annually, being loaded from top to bottom with apples of enormous size, often weighing over one pound. Flesh, yellow, sub-acid, with a rich, spicy flavor found in no other apple. Will keep a whole year without any signs of decay. It is the largest keeping apple we know of, and unequalled for beauty and quality."

SCOTT'S WINTER—Origin, Vermont Hardy in all climates. Tree thrifty grower; an early bearer. Fruit medium, round, surface deep and light red in blotches and streaks; flesh yellowish white, slightly reddened near the skin; acid; good in quality. Pronounced by Dr. Hoakins, Of Vt., his most profitable market apple; Prof Buud and Mr. Gibb also speak highly of it. Keeps well in the North

SHACKLEFORD—Awarded 1st prize at Ill. State Hort. Soc 1884, as 'The Best New Apple.' Has taken numerous prizes since. In our orchard this season surpassed Ben Davis in size and productiveness; form, less conical, quality very good, far surpassing Ben Davis and entirely distinct in flavor—in fact there are few keeping apples so good. We value it highly. Native of N. E. Mo., tree hardy, a moderate grower, and an early and profuse bearer. Fruit large, well colored; flesh yellowish; flavor, mild sub-acid, aromatic. Dec. to May. Boys say Clark county, Va., says: "My tree four years old this fall is bearing its second crop, and has on it now (Aug. 16) 143 large, smooth apples," J. T. Newcomb, Clark Co., Mo., says: "Have had trees in bearing in my orchard the past year and am perfectly delighted with them and their fruit. Tree entirely hardy, grows large, and is a most prolific bearer. It is better even than that 'King of the West,' Ben Davis. Apples large, high color, fine flavor, good keepers. In my judgment the coming apple of the great west—shall plant like that of Osage in the Spring."

SHANNON—This is the great prize winner at the World's Exposition, New Orleans, taking three first premiums. The tree has the habit in the nursery and orchard of R. I. Greening, being a poor grower; rather shy bearer. Very large, golden yellow, sub-acid, sprightly, pleasant, good quality. A very popular apple. See Mammoth Pippin.

SONOMA—(Cook's Scolding)—Origin, Sonoma Co. Cal. A very large, round apple, exceptionally rich flavor. One of our best apples "Long keeper."

SPENCER—This is an apple found in the oldest orchards in Howard Co., Mo., many trees being over 50 years old. Mr. Kingsbury, the largest orchardist in the county, says: "It has outlived all other trees; have never known it to fail to bear, and generally very full, too; a slow grower, but very hardy; blooms unusually late; very large, bright red, ready for market the latter part of August, when there is a vacuum, and brings many more money than any other variety I have, in its season, as popular as Jonathan is later. I want 500 of the trees to plant in new orchard." It is a slow-growing and difficult sort to propagate, hence but few nurseries will ever get it. But where known the trees will always be wanted.

STARK—Large, oblong, partly covered with red; flavor mild, sub-acid; agreeable, resembling Janetos. Tree one of the very strongest growers, hardy and a most regular annual bearer; in our orchard has not failed in 14 years. It has also proved a very profitable market sort throughout the West, and is in great demand, even in Canada. A leading orchardist in Calhoun Co., Ill., who bought Stark trees of us which are now in full bearing, lately ordered 500 Bc Davis and 500 Stark; another in Scott Co., Ill., orders two-thousand Stark. The Committee of the Missouri Horticultural Society report thus on Stark: "Very fine."

STUART'S GOLDEN—"This delicious long-keeping dessert apple recommends itself to all who appreciate fruit of the best quality. It has been disseminated only in a limited way, but wherever tried it has given the true satisfaction. We are now growing it. Its keeping properties are so great that when cut to pieces it will dry perfectly in the shade without decaying. Of great value, especially in the South." Mr. Olds writes us: "Tree very hardy, a vigorous grower, bears annually, being loaded from top to bottom with apples of enormous size, often weighing over one pound. Flesh, yellow, sub-acid, with a rich, spicy flavor found in no other apple. Will keep a whole year without any signs of decay. It is the largest keeping apple we know of, and unequalled for beauty and quality."

TUTTLE'S BEAUTY—Medium to large, roundish, waxy yellow striped with deep carmine; flesh white, sub-acid; tender, juicy, good Tree a free grower, vigorous and productive. O E Hadwen says: "It is proving the peer of the Hubbardston Ncach, in some respects even better; has more character, is far more tender and juicy, better color and keeps later."

WATER WONDER—Mr. Thomas Meehan, late the veteran and conservator editor of the Gardener's Monthly, says: "It is over 20 years ago since we called attention to this wonderful apple, and yet little is known of it to-day. It is fully the equal of Smith's Cider in everything, and is besides a good grower. We reproduce a cut we gave of it at the time. It is a very productive apple, and it is hoped that those interested in introducing good apples to orchard planters may give it attention."

Coming from so high an authority, this is a most valuable endorsement.

WEALTHY—An apple of fine appearance and quality, an early and too profuse bearer A good market apple of its season. Tree nearly as hardy as Duchess. Its chief fault is killing itself by its early and excessive bearing. Its keeping quality, if gathered early and carefully handled, is pretty good in the North, but farther south it is only a fine Fall apple, ripening with us in September. In size and beauty it equals Baldwin, and a better dessert apple.

WESTERN BEAUTY—Again we quote from
Dr. Warder's hook: "A valuable fruit. Tree vigorous, of good culinary quality; leaves large, bright green; fruit large, bountiful, not disposed to rot, except when attacked by the birds, which are very fond of it; peels easily, skin thick, flesh very juicy, full of flavor, with the combination of a bright red with a bright yellow and orange; when half-grown in the month of June, the fruit is golden, then it turns a rich scarlet before hardening; is very large, glossy, of the best of quality, and is best kept in the same manner as the other apples."

WHITE PIPPIN—A fine, large winter Pippin, closely resembling the Newtown Pippin and often mistaken for it, but unlike the Newtown, it is heavy and hardy, and will stand long periods of frost in early spring. The fruit is of medium size, good color, and a very good keeper. The tree is a large, fine bearer, and a very good apple for planting in the northern states and Canada. It was introduced into Maine in 1840, and is now one of the best varieties grown in that state. It is also grown in New Hampshire and Vermont.

GIBB (Golden) — Mr. Gibb of St. Paul, Minn., has introduced a new apple, which is known as the "Golden". It is a large, fine bearer, and is hardy. The fruit is of medium size, of a golden color, and is very good in quality. It is a fine variety for planting in the northern states and Canada.

CRABS.

FLORENCE — Originated in Minn., by Peter M. Gideon, who says: "The fruit is large, fine, and a good profuse bearer. When in full fruit the most ornamental tree we grow. Color, light yellow, covered with a bright red blush. Size, large;

CRABS.

FLORENCE — Originated in Minn., by Peter M. Gideon, who says: "The fruit is large, fine, and a good profuse bearer. When in full fruit the most ornamental tree we grow. Color, light yellow, covered with a bright red blush. Size, large.
the Wis. State Hort. Society, and both sorts prove excel-
 lent with us. Sweet Russet is almost equal to a good
 pear in quality; and while it is the best of its season, Gil
 van Wyk Sweet.—From Dutchess Co., N.
 Y., where it is considered an exceedingly valuable sort. Flav-
 ous, rich, moderately tart, very sweet and tender; core small. Tree fair grower; productive.

 WINTER GOLDEN SWEET.—Fruit large, one-
half larger than Transcendent, flattened, a beautiful golden color, skin smooth, juicy, firm, rich—sweet—a peculiar condensed sweet sciondom in
 any apple; entirely free from astringency or "crabbi-
 ness." Becomes very large. A standard variety. 8 years.

 Yates (Red Warrior).—Fruit very large for a
 crab; dark red; flesh yellow, firm, juicy and very aro-
 matic. Immense bearer and a long keeper. Valuable for
 both cider and dessert—especially South.

 PEARs.

 To PEAR GROWERS: Plant Standard Pears on
 strong yellow or red clay soil; cultivate well for four
 years, but do not open it for clover, and leave it. Cultivation invites the blight, and should be
 stopped as soon as the trees have a fair start. Mow the
grow a second season and let it lie. Scatter manure broad-
cast every winter after the trees begin to bear. There's
 dollars in this advice.

 W. A. Blum, of Columbus, Ohio: Experience of 32 years. Planted
 4,000 pears. Mistakes: planted too many sorts, and
 too close together. Find more money in Kieffer than in any
 other pear. Better than any three fruits in spite of blight and other obstacles. Packed firm, ships to
 large city, sells wholesale. Packed pears soon as they will
 separate from the bough, never send unpeeled. Never cultivate the pear after it begins to bear, but keep in
clover.

 Mr. Stoner, of La.: Experience with 1,200 pears in La.
 County. Says: "I have never found a pear that was more
 profitable fruit to grow. Cuts off the late summer
 sappy growth in fall and avoids all blight; says it is a
 sure way to grow a pear.

 Ill. State Hort. Society: extracts Report, 1889;
 Mr. Rhode: Kieffer and Gerber are mentioned. Kieffer
 has been run down on account of quality; have done so
 myself. Mr. A. C. Kieffer, of La., is the finest; is the best for
 very good pears; others pronounced them the same. Very
 productive; very large and beautiful; it is a good thing.
 Wish I had thousands growing. Icecaps is a better pear
 than the Ill. the blight I have.

 Mr. Dennis: What about Idaho?

 Mr. Rhode: It is a pear of excellent quality.

 R. Washburn, of Edwards Co.: Cannot say much for
 Kieffer has a tendency to overbear. For bearing and quality, it is
 like Ben Davis among apples. I planted a pear orchard in
 1872, and have the finest pear on 50 ft. tree.

 Mr. Thomas: Have been growing pears many
 years; don't use anything on the trees. Just plant them on the
 east side of the field where they get no afternoon sun, and
 they don't blight.

 Mr. Dennis: If you want to plant Kieffer as a dwarf,
 plant it two ft. high. With me it grows about 10 ft. in two
cos.

 Question: What is the proper culture for pears and
 what varieties are most profitable?

 Mr. Rhode: Cultivate 4 years, then seed down, mow-
ing the grass twice a year. Culture encourages blight and
 should cease as soon as the trees get a fair start. Have not had a plow in my pear orchard for 15
 years. Not enough digging of the soil. Mr. Kieffer, Mr.
 Howel has always done just as well. A good early pear
 is Tyson. Kieffer is unsucessful for canning. Capping
 howel's good, but it is too late to get to market.

 Mr. Jackson: What is best to seed orchard with?

 Mr. Rhode: Mix grass seed and sow thick. Kind of grass is little better, just so it covers ground and kills
 out weeds.

 Dr. Ballou: There has been a great revolution in a
 half century in the culture of the pear by use of methods
 shortening time for coming into bearing more than four-
fifths, by propagating on the quince. The failure of pears
 is largely due to the lack of skill in digging the trees.
The nurseryman lets petty questions govern regard-

 increased labor in digging. The planter is disappointed
 and charged. Have seen such trees linger footley
 through three or four seasons then die. All this might be
 prevented by some people who are interested, both at the dig-
ging. Pear soil must be dry and deep. Well
 rotted stable compost is the latest nourishment for pear
 trees. Pears by the poor. Mr. Rhode: Will not buy fruit already ripe to be kept for several
days for sale to the retailers, who in turn must keep it on
 for another year.

 Sec'y Hammond: There are certain localities in
 Northern Ill. adapted to growing the pear. Dr. Ballou
 is deeply situated in one of the best small pear orchard near Sandwich which has been in ex-
 istency for 25 years or more and has borne more or less
care of the tree this year.

 Dr. Ballou: As soon as the blight appears, it should
 be pruned off. When 1st came to Northern Ill., many
 years ago, I shipped in $800 worth of pear trees and
 failed some of them to farmers, many of whom have
 made quite a success. I myself have been successful, and
 shall plant more pear trees.

 Mr. Wilson: Our crop this season was good. For
 several years pears have done fully as well as apples.

 Mr. Dulanp: Pear trees should be seeded down to
growers; they are better for them. They are not
 cultural by blue grass. They blight less when in sod than under
 cultivation. The list given by the State Society is good:
 Fleshy beauty, Howel, and the finest Kieffer.

 Mo. State Hort Society: extracts

 Sorts recommended: Bartlett, Chalgeon, Duchess, Kieffer, Lawrence, Seckel, Sheldon, White Doyenne. Kieffer was urged more for Missouri.

 Mr. Brodieck: Mr. Luckhardt is about the most suc-
cessful pear grower in Holt county. Mr. Luckhardt
 says pears which are a success, must be a bit
 very little blight, are Anjon, Chapp's, Tyson, White Doy-
 enne—the very best Standards; while Boussock and Shel-
on are good. Seckel, Duchess, Seckel, White Doy-
 enne, Superfine, [see description Fred Capp.] Mr. L's
 original orchard consisted of 300 Standard, and 700 Dwarf.
 In addition to this, for the past two years, keeps, well
 trimmed, then stops cultivating and pruning again. Pears set in 1887 have averaged $75 to $800 per acre for
twenty-eight years, of the varieties mentioned. Let no one think it is very easy to build up a crop. He
 believes the blight has about run its course; epidemic
diseases rage for a while in both animal and vegetable
 kingdom, and then subside.

 Dr. Bates had only succeeded with Bartlett.

 Vice-President Murray had only succeeded with Bart-
 lett, Seckel and Duchess.

 Mr. Durkes recommends to plant more kinds and
 make pears as cheap as apples.

 Mr. A. B. Riehl, of St. Louis, Mo., does not think pears
 will succeed in his locality.

 Secretary Goodman did not agree with Mr. Grover.

 Mr. Rebes: There will only plant Dwarf Pears hereafter. Mr.
 Blumer has never had an acre of sugar pears, and has never
 missed a crop until this year. Thinks the pear does as well in South East Missouri as anywhere in the
 world.

 President: R. Arnold, of Ellisville, says the 1887 season
 was one of the best ever had. Observa-
 tion, that the pear is doing well in the Ozarks.

 Mr. Kaufman, of Oregon county, says the pear bears
 every other year there, and some trees have been bearing
 for twenty years.

 Mr. Gilbert knows a pear tree now over forty years
 old that is never missed a crop.

 Dr. Bates succeeds only with native kinds and Bart-
 lett.

 Mr. Leutz has not heard of any blight in Butler
 county, and no entire failure of the pear crop.

 Mr. Lewis says pears do well about Springfield, and
 believes will do well throughout this state.

 Mr. Muftmfeld: Bartlett, Duchess and Seckel do well
 in St. Louis Co.; crop was very large, especially of Seckel.

 Swan's orange did fairly well.

 Mr. Leutz has received a new interest in pear grow-
 in Holt Co., Mr. Luckhardt succeeds well with pears.

 Vice-Pres' Murray: Pears should be planted on deep
 soil. I have learned by experience of the trials, so much the better, as it
 is, in a measure, an antitude to blight. Cultivate 5
 years, then sow in grass and let them remain, digging around the tree to enhance the growth of
 matter. Dwarf pears should be planted on good, deep, rich
 sand. Should have continuous cultivation not more than one
 inch deep, for two inches above a top dressing of man-
 nure at least once in two years. With proper selection of
 sorts and intelligent culture, pear growing in Mo. has
 proved remunerative; it is a shanty, by any Missouri
 plans, with a soil and climate capable of producing the
 largest, finest and best flavored pears on this continent,
 leave our large cities to be supplied with Cal. pears.

 Mr. Hollister: Have found only one party who puts
his pears up in social shape to sell. Missouri people ought to have their pears as do the California growers. He had visited those vineyards, and in my opinion their climate is much superior.

Mr. Durkes: Mo. pears are left on the tree too long; are packed in large packages, hence bruised. Should be picked when ripe and sold by the bushel.

Mr. Gano: Why does Mr. Murray cut back pear trees every second or third year? Why not every year?

Mr. Durkes: It is better to cut them back every two years, for, if they have grown too thick in the center, and the fruit will be dull colored. Cut half or third each year early in the spring, before the leaves are out, but for the dwarf stand, not thick enough, and comes at a season when there is a demand for just such fruit. "Tree very hardy and good bearer, quite large, very attractive color, grows well on every kind of soil. A very lustrous crimson and early ripening, make it of immense value as a shipper."

**BARTLETT.** One of the most popular pears; large, buttery flavor, with a rich musky flavor. A good grower; bears young and abundantly. Very profitable for market, notwithstanding it is subject to blight. Resembles Seckel, and is grown as a second pear, the best of all the Russian varieties yet tested, was sent out by the Iowa Agricultural College.

Mr. Grundy: The dwarf is an excellent size for our place. One will grow in the orchard in abundant pears. One will grow well, but for the dwarf stand, not thick enough, and comes at a season when there is a demand for just such fruit. "Tree very hardy and good bearer, quite large, very attractive color, grows well on every kind of soil. A very lustrous crimson and early ripening, make it of immense value as a shipper."

**ANJOU (Beurre d’).**—A large, handsome pear, but-

**ANJOU (Beurre d’).**—A large, handsome pear, but-

tery and melting, with sprightly vinous flavor. Tree hardly and good bearer. Have no hesitation in pre-
ducing it. I have found it hardy, and it grows well.

**ANNE OGEREAU.—** "The most beautiful pear known!" Almost a counterpart of Vermont Beauty in fruit and culture. The fruits are of an apple shape, and are spread and brought to market.

Mr. Ambrose: Best results come from cutting back the young wood of dwarfs each year.

Capt. Hynes: Pears planted 10 years ago in rich gardens are very small, but not very rich, are good yet.

Mr. Murray: Where the soil is very strong, much cultivation would be bad. Cultivate so as to have the trees open, and do not crowd them. Otherwise they have not formed very well.

Mr. Ambrose: Good cultivation gives a good crop; no cultivation, no crop. Kiefer bears well.

Mr. B. Hogue: If we would have more fine pears, we would not place less care on the dwarf pear. The dwarf pear has been grown in the orchard in abundant pears. One will grow well, but for the dwarf stand, not thick enough, and comes at a season when there is a demand for just such fruit. "Tree very hardy and good bearer, quite large, very attractive color, grows well on every kind of soil. A very lustrous crimson and early ripening, make it of immense value as a shipper."

**BOURDEAUX (Beurre de Bourdeaux),**—Large new winter pear, costly ripened and of good quality, large to very large; skin thick, green, changing to yellow, flesh white, tender and sweet; tree very productive, and a very good shipper. Especially valuable in the South. Feb. to April.

**BUFFEE.**—The original Buffum is still a grand old pear, over a hundred years old, and produces a good crop annually. Resembles Seckel and is frequently sold in the market under that name, but only to the unin-
formed. Still it is a good pear. A dense tree, and bears well, but for the dwarf stand, not thick enough, and comes at a season when there is a demand for just such fruit. "Tree very hardy and bear-

**CLAIRGEAU (Beurre C.).—** Very large; yellow and red; handsome and attractive. Fair quality; keeps sound long. Good for the South and West, and can be planted for

**DANA'S HOVEY (Winter Seckel).—** A mediumsized pear of fine flavor and shape, but suffers from the disease to which it much resembles, except it is one-half larger. One of the most valuable pears, always commanding the very highest prices. Has been in general use in New England for the most popular sorts in Cal., and Prof. Thos. Meehan says it bore a full crop in 1890, when nearly every other sort failed. A large, handsome pear, and well suited to market. Large to very large; skin thick, green, changing to yellow, flesh white, tender and sweet; tree very productive, and a very good shipper. Especially valuable in the South. Feb. to April.

**FLEMISH BEAUTY.** One of the most popular old sorts. Large, beautiful, melting and sweet. Tree very hardy and fruitful. In good soils and open situations the Flemish Beauty, when in perfection, is one of the most superb pears. The fruit should be gathered sooner than most pears, and ripened in the house; they are then always tender and sweet. One of the best of the nursery

**FRED CLAPP.—** "Size above medium; skin thin, smooth, clear lemon yellow; flesh fine-grained, very juicy and melting; flavor sprightly, rich and aromatic; fruit large; very productive; best pear to ripen in the fall. Committee of the Mass. Hort. Society have reported favorably for years. Of its quality they state: "It was pronounced the best pear, and well worthy of recommendation, by all who have seen it as the highest bred and most refined of all the many seedlings by Messrs. Clapp. We find it too much inclined to blight."

**GARBERT (Beurre de l'Anjou).—** One of my favorite pears, grown in the Rural World, says: "Immensely productive; bears at 3 years from the nursery. On a branch an inch thick I counted 25 pears on 25 inches of the limb, and they averaged half a pound each; it took just 80 of them to make a heaped bushel. Yellow as an orange, larger than Kiefer, better in quality, and four weeks earlier. If there is any tree of the pear family free from blight, I think this is it. When I saw the original tree in 1881, it was one mass of fruit. Grows upright, like the Lombardy

17
Poplar, with heavy, dark-green glittering foliage. Well worth planting on a lawn for its beauty alone, if it bore neither flower nor fruit." A year later: "The Garber again has a fine crop of handsome pears. The tree is a perfect beauty, has never shown a sign of blight, and is the most rapid grower on my place. Two years later: "Garber's leaves are very attractive, and if the tree seems to be free from blight, for Le Conte, budded onto it, has succumbed to the blight and been sawed off, while the main Garber tree has not a sign of the disease." Still later: "Garber will soon come to the front, on account of large size and good quality, as well as excellence for canning and preserving. My Garbers sold for $4 per bushel, while others only brought $2.

Hon. E. A. Rehle, ex-Presid. III. State Hort. Society, writes: "While Garber's Hybrid and perhaps Kieffer, the most profitable pears for market purposes, Garber's Hybrid is the best and handsomest of all the varieties, is earlier than Kieffer, better quality, and makes the best cooking. Any person who knows the fruit, can. Tree bears young and abundantly, and has shown no blight so far. The ironical hardiness of the tree is another great point. There are other valuable pears in our list; but (excepting, perhaps, the Idaho), Garber is our first choice for fine pears and bushels of them.

HARDY (Beurre).

Large, melting and fine. Tree remarkable for its fruitfulness and productive of the finest pears, deserving much more attention than it has hitherto received—except in California, where they know what good pears are. Lately the Kieffers have been shipping almost as many car loads of Hardy Pears east as of the old favorite Bartlett.

HOWELL.—A grand and beautiful pear. A fine grower and well developed as a dwarf standard—especially fine as a dwarf. Ellwanger & Barry say, "One of the finest American pears; large, handsome and productive."

IDAHO.—This remarkable pear has more endorsements than any new fruit ever introduced. It is a fine shipping pear, and has been sent through the mails to experiment stations all over the country, and in arriving in perfect order. Sent out by the Idaho Pear Co., from whom we obtained our start, at a cost of $300 per box. A young tree of 20 years old, is of an unknown fine, large, red-checkered pear—most probably Bartlett. The young tree bore at 4 years from seed—also the old Bartlett tree. Tree is of a right and vigorous grower and a continuous and heavy bearer. The only objection known to the tree is that it bears too heavily. It has endured 32 below zero, and flourishes better during the hot, dry summers than any other variety. Four pears sent to the N. J. Fair weighed 13, 15, 21, and 23 ounces. They were tested by a body of vigorous men, and averaged the best prize. Flesh fine, melting, high-flavored, vinous, spicy and excellent; almost seedless and coreless.

From IDAHO PEAR CO., Oct. 20, 90: "Gentlemen: We have just received your previous letter with plain instructions as to shipping the 900 2-yr. Idaho, everything is straight as far as we know. We very much regret that we omitted you from the list of those who we sent samples to, and are fully aware that some of our finest specimens would have done us more good in your hands than in those of the so-called horticulturists or even hort. editors. However, we will now do the best we can, and mail you to-day 2 cans, each containing an Idaho Pear. The larger Idaho is the one raised by the 1st raised by the Issaquah and small quince bush in June '88. It is the scrubbist one of the lot, and we had retained it to distinguish any possible differences between these two on foot and Quince: The other two were sent, one to Mr. Carman, of the Rural New Yorker, and one to U. S. Pomologist Van Damn, who had many specimens of over one pound. One peculiarity of the Idaho we find to be that small bears poorly grown fruit develops better eating qualities when ripened than other varieties,—and it is mainly to show you this feature we send you the Idaho.

"Mr. Van Damn requested us to send him specimens of fruit some two weeks ago, when we had no good ones left, those we sent you, and you say that they were not good. Here is what he says in letter received this morning: "The largest specimen sent, in flavor is very fine and rem- marks. The tree is Barton, except the flesh of the former is firmer in quality. I think it will rank fully with this old standard variety, if not a little above it. In size and shape, Kieffer bears too full and must be thickened, ripened in a cool room, where the quality is—well, Judge Miller again says: "The more I see of it and eat of the fruit the more I become impressed with it." P. J. Bickers is says: "No fall pear has given such profitable returns as Kieffer; its wonderful fertility is
surprising. Many trees planted 4 years ago have each yielded 3 bushels of perfect fruit. It is unfortunate the remonstrants of this pear have been under-estimated. When allowed to hang on the tree until Oct. and then ripened and cooked, the fruit becomes highly attractive; in quality it combines extreme juiciness with sprightly sub-acid flavor and the peculiar aroma of the Bartlett; it is then an excellent dessert or table fruit. Cultivar—which after being harvested, 51 per bushel has been realized wholesale; retail readily at 75c, to $1 per dozen, on city fruit stands. So far no cuculles has appeared, and the trees now growing were worked on seedling pear stocks; trees now 10 years old.

As the period of the season, the whole discussion might easily resolve itself into: "Much Ado About Nothing." "As You Like It." or "What You Will," but "Richard's eider" will be long to come.

LAWRENCE.—Medium size, golden yellow, melting and sweet. Ripens with little ear; should be in every orchard. Early winter.

LAWSON (Court.)—Like Early Harvest, Jefferson and others of this class, Lawson is large, early, very beautiful; bears and sells well but is coarse and poor in quality after the planes were planted they stood 40 degrees below zero, and made a growth of 2 to 3 ft. the next season; did not winter-kill nor blight, and that he had no winter-kill; that if he was not native to Wisconsin; that he has been thoroughly tested as to hardiness of tree and quality of fruit. The tree is very hardy and considered excellent for the climate. I have recommended a number of years, and he is widely cultivated in this State because it is more adaptable to the climate of the Northwest.

And another practical life-long nurseryman writes: "I have often wondered why some one has not taken hold of the Longworth No. 1 before now. It has everything requisite for our climate, is far harder than Kieffer, and if grown, would be a first-class bearer, and is an exceptionally good grower. I am satisfied if you should take hold and push it, you would make a success beyond your expectations."

We know better than to expect the latter from any new sort. Besides, our experience leads us to believe Longworth is not good enough in quality to recommend, unless for the extreme North. Garber is equally hardy in tree, bears younger, more abundantly, and is much larger, handsome, and of vastly better quality.

LOIS GENESEE.—A large beautiful pear, yellow, with a very rich, melting, juicy and rich. Bears heavily as a dwarf, and will yield only as a dwarf, its only fault is that it often blights badly a few years after coming in.

MARGARET (Ey Margaret).—An extra early new pear, now conceded to be the finest and best early sort of the season. The fruit is beautifully fair, solid and delicious, Flesh fine, melting, juicy, vinous, and of first quality; hardly surpassed by any pear ever grown. It rusts in storage, since no other early pear is of best quality, many of them, such as Early Harvest, Jefferson and Lawson—being absolutely poor. Tree a vigorous, upright grower, and an early and abundant bearer. Succeeds admirably as a standard or dwarf. Edwanger & Barry say "It is the finest pear of its season, and worthy of special attention." The Ann. Pomological Society says: "This tree to super-

MT. VERNON (Walker's Seeding).—A new American pear, the very best of its season. Seedling of Winter Pearl, which looks like any other hardy and healthy, no blight, but heavier and colored and averages more than twice as large. Flesh yellow, juicy, vinous and aromatic. Tree large, a strong grower, has been always a bimarily bearer, being lightly loaded down with fine, perfect fruit. A most valuable variety. We have gathered over six dozen from three trees planted and nearly as much from dwarfs. Has also done well in many other places. Strongly recom- 

OLD BAY HOME (Crow's Choice).—A hardy seeluding pear, originated in this Co. nearly 60 years ago, by the father of Judge Martin Crow; the latter's daughter writes: "I will try to look after the seedling, my description of the tree as my father tells me. The seed was brought from Ky, and planted in the spring of 1831; the pears were high; the fruit from which the seed was taken, although another of its kind, was distinctly a pear, and had a very different and inferior pear. The tree bore almost every year, usually very abundantly. The pear resembled the Lawson, but was of different color; it has ripened to ripen about Aug. 20 and lasted about a month. They kept well when properly packed, made beautiful preserves, &c., and the tree was a great bear and tree bearer. Those who came while the fruit was ripe, would speak of it being so fine, that my grandmother always insisted upon giving them 'as much as he could take.'"

Tree the strongest grower we have, and unquestionably very hardy and long-lived. We believe its good qualities make it the finest for the West.

PRESIDENT BOURJARD. —This is the most remarkable variety ever tested on our grounds. Introduc-

BUTTER (Smith-hutter).—Entirely distinct from Smith's Hybrid; months later, and far superior. Has fruited in our orchard a number of years and proved one of the most profitable and delicious of all. Tree of great hardiness, perfectly healthy, as vigorous as Kieffer, and a great bearer, begins to fruit

SHELDON.—An American pear of first quality in every respect. Large, russet, handsome; melting, rich, delicious. "It is the finest pear of the season, even the smallest pears on the tree are always delicious," Tree hardy and vigorous, and bears well as a standard.

SMITH'S HYBRID.—See Le Conte.

SUMMER.—A Wy. strain of the 'Bartlett.' Early, very sweet, good size, firm, not melting, desirable in the market. Tree of good hardiness, and bears every year. The original tree is nearly 100 years old, and still bears.

WHITE DOYENNE (Virelaen).—A well-known variety of the highest excellence. Tree vigorous, productive, extremely hardy; medium; yellow and red.
CHERRIES.

BELLE de MONTREAL.—This new cherry was sent out by the largest nurseries in France, and very highly recommended. There are yet but few trees in the U. S. "Fruit very large, round, marbled with red, flesh firm, deep red; a new, unique variety." It ripens in a few days later than Reine Hortense, and has the great advantage of being of even greater production than that variety.

Cherries for Profit.—Plant the highest, poorest soil as well as the best, and all roads will lead to Heart and Bigarreau cherries, such as Early La Maurcie and Napoleon are called "Sweets." Dukes such as Royal Duke and Reine Hortense, and Morellos such as Early Richmond, Mont. Ort. and Suda, are called "Sours," all being more or less acid; the sour is the best for cooking, preserves and canning; the sweets fine for eating fresh. The Morellos are the hardest, the Duke next. Plant SOURS for Profit; the sweets sometimes are attacked by curculio, and often rot in wet weather, and the trees are less hardy, though often very profitable on rich, dry soil; still the sour fruits yield two to one better results.

The surest list for market, in order of ripening, is Dyehouse, Northwest, Early Richmond, Mont. Ort., Eng. Morello, Wrag, Ostheimer and Sudan. Branch sweet; see under Napoleon and Windsor.

BLACK MASTODON.—From California, "The largest cherries ever seen. They have a shaped, round, short, firm, full, deep red; flesh very firm and sweet. In size it is enormous. Ripens just after Black Tartaridan, and for a shelf in the market it is unsurpassed."

CALIFORNIA FRUITS.—"This is not a chance seedling, but one raised with the specific purpose of producing an improvement on the parent—Early Purple. It is a large cherry, larger than the Black Tartarian, and trolley ripe and a week earlier; color almost black. Already a great demand is being created for it in the early fruit season, and this year a very fine army is well known and recommended." Earliest sweet sort.

CENTENNIAL.—"A seedling of Napoleon, larger than its parent, and far superior in bloom, form, and firm, having also a much more pronounced flavor. The crop is very large, and will prove better next season if properly protected."

DUKE, MAY.—A popular old sort and does well on the best light, dry cherry soil, but generally is not quite hardy enough. Often dying just when large enough to bear large crops.

DUKE, ROYAL.—One of the largest and finest Duke Cherries; harder than May Duke. We find it very liable to rot; otherwise fine.

DYEHOUSE.—The earliest cherry. From Iowa State as the name implies. After ripening 7 years, it is a much more valuable variety than the much famed Early Richmond. Its points of excellence are: 1. Earliness 2. Quality 3. Flavor. The crop is all picked and marketed before the first crop of Early Richmond on the same ground. Fully ten days earlier. In size it is always larger, and in quality better, than the Early Richmond. Dyehouse trees therefore yield nine bushels per acre, being three times the normal yield. It is perfectly hardy, and a splendid keeper; free from knots. For tarts, pies, and especially canning; it has no equal competitor among cherries, and the splendid market is largely taken by it as well as morello cherries, as it is said to do by many nurseries; is true a Morello as Early Richmond, being even a more slender grower. Be careful how you handle it; it is a large, beautiful tree.

EARLY LA MAURICE.—Bigarreau de Remont.—This is a big cherry, and is earlier and a better cherry. The earliest sweet cherry except Cal. Advance. In California, where the cherry business is a big one, it is considered the most desirable tree that can be grown, and is the most universally desired for all purposes. It is earlier than any other variety that is hardy, but is earlier and a better cherry. The earliest sweet cherry except Cal. Advance. In California, where the cherry business is a big one, it is considered the most desirable tree that can be grown, and is the most universally desired for all purposes.

EARLY MARCH.—A very fine variety, and the best of the Duke Cherries. Tree vigorous; comes into bearing early and produces great crops. The foliage is large and glossy, and is used in the garden for ornamentation. It ripens about the same time as the morello cherries, and is a very fine keeper, remaining in the market until after the morello cherries. As a fruiting variety it is much superior to the other kinds of cherries. It is one of the finest of the Duke Cherries, and is recommended for all purposes. It is a very fine keeper, and ripens in the market about the same time as the morello cherries, and is a very fine fruiting variety. It is a very fine keeper, and ripens in the market about the same time as the morello cherries, and is a very fine fruiting variety.

ELTEN (Escl. Christéer).—A remarkable variety, from Germany. Ripens three to four distinct crops during the summer. Its first crop ripens with the May Duke and is very similar in tree and flavor of fruit, being a real Duke. One of the strongest growers of the Duke class. N. F. Murray, Vice Pres., Mo. State Hort. Society, says: "This is the only variety [of the Duke] that I have seen that has proved perfectly hardy. Large, purple, nearly black when fully ripe; firm; extra good." Topped F. Philpott 5 years and discarded. With us, it proves neither productive nor hardy.

MONTMORENCY ORD.—Grand every way, and the finest cherry in the list till we come to Wragg, Ostheimer and Sudan, all much better, as they cannot produce so many fine cherries. It is a larger, better and firmer cherry than any other in the market, and the beauty and hardness of the tree. Although a stilt, it is a slow grower, and costs nearly double as much, so you must have to pay to get it, but the profits will grow it: otherwise its eminent superiority would speedily place it ahead of the popular Early Richmond. Enough as a curiosity, but not for market. Barby says: "I have tried the Montmorency and it is much larger and firmer than Early Richmond, being extraordinarily prolific and very hardy, it can be recommended as a very great, fine tree, but not for market."

We find the latter are far too good judges to pass it wholly by; but probably its light color until almost ripe, defies nature somewhat.

MONTMORENCY LARGE.—A large, acid cherry of excellent quality; does not bear so early nor so abundantly as Mont. Ord., nor is it so hardy. A fine market

sort, and should be given a more prominent place for family collection; not quite productive enough for market. Tree is not so good a grower as Mont. Ord.

OSTHEIMER (Royale).—This is a very fine Bigarreau cherry of large size; flesh very firm, juicy and sweet. Tree a vigorous, erect grower, and bears large crops. This is a large cherry, California. Plant here in Mo., on good cherry soil. Judge Miller writes: "This splendid variety brings me better returns than any other. Reine Haff these cases not the equal of this. Its one Napoleon tree I picked 3½ bushels; last season this same tree netted me $10. The form of the tree is in the pot, it being over 10 ft. high and 3½ ft. in diameter, and is not over 16 ft. feet; one foot in diameter at the ground. It was budded on Malahleb stock, which never shocked like Morello, and is very productive, and crooked on soils where the Mazzard wholly fails; and for the South any other stock is worthless. The original tree sprung up where Napoleon fought his last battle, one of the small field of Washington." (2nd.)

NORTHWEST.—Originated in northern Illinois, the best out of thousands of seedlings. "Tree hardly, vigorous, no larger than the large, rich acid, firm and fine for canning. Ripens one week ahead of Early Richmond." M. J. Graham, Dallas Co., says: "I have had my tree with me here this year and fully sustains all the claims made for it. Can you furnish me more trees? Want to plant more N. W. in our cherry orchard, also want trees to send to some collection for market."

OLIVET.—Large; very shining, deep red, tender, rich and visous, with a very sweet, sub-acidulous flavor; promising. Half dozen olive trees in our cherry orchard, the first season bore a fine crop, while Mont. Ord., in the next year, of same age, bore more than as many gallons. Even Mont. Large is far more valuable for that purpose. This tree grows on any soil, is highly productive, while Mont. Ord. is beyond comparison.

OSTHEIMER (Russian).—Grown in Minn. and quite generally throughout the world. Tree is pleasingly round, bears quite long and pointed; very hardy. Fruit small, oblate, similar to the common black Morello; only half the size of Ostheimer, and inferior in quality.

OSTHEIMER (Ostheimer Wechsel).—This magnificent late cherry was taken to Germany from France in 1815, and brought from there to Kansas, where it was beginning to attract much attention about the time the Ostheimer, a much inferior sort, was heralded abroad; when without any apparent cause kept the similarity of the two varieties together, it was found that the name had been changed to be identical—the loss of cherry culture generally. The Ostheimer has done remarkably well with us; both it and Sudan Fruit Trees, F. C. Foster, have done exceedingly well, both here and in Colo.,—where, etc. Richmond bears too early, being usually killed by late frosts. Mr. Holshiger, the eminent fruit specialist, says: "It is the best, most valuable and productive sort I have. Good grower, bears early, is very productive; fruit red, large, and rich, almost sweet."

PURITY.—"So named because of its waxy and almost transparent appearance. A Cal. seedling of Elton, very productive. May be grafted on the same rootstock as the other tree."

REINE HORTENSE.—A French cherry of great excellence. The hardest and longest-lived Duke sort we have yet tested; trees 24 years old are still productive.
Very large, bright red, tender, juicy, nearly sweet, delicious. Should go into every collection.

**SUDDA HARDY.**—Perhaps the most valuable late cherry in the list. The original tree, 22 years old, stands in the garden of Capt. Suds, Louisiana, Mo., and has not failed to bear every year for 20 years. Fruit growers about Louisiana all know this great record and the remarkable character of the fruit, and seem to think there is no other cherry, at least they all want Suds trees and won't take anything else. Large, nearly black when full ripe, rich, juicy, and unsurpassed for all uses. The latest cherry we grow; if covered with mosquit-netting against the birds, will be in use very late. Never trees. Very hardy, similar to Eng. Morello.

**THOMPSON TARTARIAN.**—A Cal., "seeding of Black Tartarian, which it much resembles, but the fruit is larger, and the tree hardier and a better bearer."

**WINDSOR.**—From Canada. "Large, remarkably firm and of fine quality. Tree hardy and prolific, a valuable late variety." We find the fruit of largest size, so to the pound, a fine shipper, and tree decidedly harder than Black Tartarian or any other black sweet cherry; will succeed in many parts of the west, if headed low—the true system of training for the west, for both sweet cherries andstandard pears. See Napoleon.

**WRAGG.**—This new famous cherry originated in Dallas Co., Tex., 20 years ago, and was named by the Iowa Hort. Soc., and recommended for general culture. The original tree, when small, was removed to the open prairie, where it has withstood the severe Iowa climate and never failed to bear a crop annually for 17 years past. Tree vigorous, iron-chai, bears young and is remarkably productive. Fruit large, very dark red or purple, with highly colored juice and much richer in grape sugar than Richmond or Eng. Morello. Ripes very late and hangs long on the tree. Mr. Graham, a well-known fruit grower of Dallas Co., Tex., writes to the Hort. Art Journal: "Wrang is larger, later and more productive than Eng. Morello, and our tree of Wrang, six years old, will produce more cherries than fifty Ey. Richmond of same age. You may think this putting it very strong, but I have the trees growing together, and from experience.

**WHITE WESTERN SWEETHEART.**—This is the only sweet cherry that has uniformly done well here during the past ten years, though Windsor and Central are good producers. This is the only proper cherry soil—have been doing famously. White West is a very large cherry, pale yellow, with a firm, juicy, and tender flesh. It is one of the best, most beautiful and valuable light-colored cherries. Tree hardy for a sweet cherry, and should be planted in all localities where the peach tree will stand. Where one does not hardy plant only the Morello class, and this class is everywhere the most profitable for market—except only on the Pacific coast.

**PLUMS.**

**ABUNDANCE PLUM.**—Showing size and form. There are two distinct varieties of Japan plums, both known as "Botan." The first or Sweet Botan averages about 2½ inches in diameter, skin green, with a dull purple blush. Flesh, yellowish, little coarse, firm, sugary to sub-acid, slightly adherent; quality good.

The second or Yellow-fleshed Botan is somewhat the larger, is more irregular in form, varying from quite round to sharply pointed. Skin yellow, washed purplish carmine, with a few red dots; flesh yellow, sub-acid, with an apricot flavor; quite firm; skin tough; clingstone; quality best. Ripes three to five days after Sweet Botan, and is one of the very best early plums. Trees of Abundance, from the "discoverer" prove identical with the Yellow-fleshed Botan, and even though—"that which we call a rose

"By any other name would smell as sweet."

it is doubtful if buyers of Abundance will quite appreciate this, our native plum—"and it is valuable, almost beyond belief, when, to quote the discoverer's identical words (referring, however, to the Del. Winter or Lawyer apple), "they have the pleasure (?) of learning it is an old variety under a new name only."

In order to avoid confusion likely to arise from growing two varieties of "Botan," we shall continue to propagate the last described and better sort, as Abundance, the other as Botan or Sweet Botan.

**Am. Ass'n Nurserymen.**—Chicago, 1889; extracts. Mr. Palmer, of O.: Would like to ask Mr. Willard his opinion of 'Marianne', a new variety. Mr. Willard, of N. Y.: Can only say we have been disappointed in Moore's Arctic. The tree with us is not tender and a variety that we will not recommend, it nor would it pay us to raise it for market. Mr. Plumb, of Wis.: Dr. Hoskins, of Vermont, says it is the only commercially valuable variety there. Mr. Willard: This is one of those things governed by latitude. A variety accounted hardly in some higher latitudes is a success in lower. Others have had the same experience. One reason is the foliage drops badly and a tree of this kind inevitably proves tender.

Mr. Chase, of N. Y.: Moore's Arctic is tender with us but in Maine etc., is hardy. Possibly it is impossible to tell what the plums that sell, we cannot tell why: there is a great demand for it, more than the supply. It is productive. Mr. Willard: Under more severe conditions the tree is not productive. Our experience is the foliage drops so badly the fruit fails to mature.

Mr. Augustus M.: Will some of our Western nurseriesmen tell us of a plum that will do well with us? The European sorts are of no value in our section. We have Wild Goose and Wolf, and would give more for an acre of these than 10 acres of the Europeans. Wild Goose is a good bearer when fertilized, and so is Wolf, but they are not the same color, and do not sell. Mr. Budd is here, who is likely to have made discoveries that will be valuable to us.

Prof. Budd: I do not agree entirely with other Western growers. All native plums of American race are hardy; among those that bear best are De Soto, Wolf Free and Roolstone. These bear continuously from the time they flower in the spring until the first frost, some of them have been bearing now for 8 years. Of the Chickasaw race, the two varieties that bear continuously and seem to be hardiest in very hot localities are FOREST ROSE and Muquoketa. Forest Rose originated with Stark Bro's. of Mo. Nurserymen should form a trust to propagate this fine plum largely. Forest Garden is hardy, but peculiarly liable to abortive fruit. Weaver believes in the same way. Wild Goose and Miranda are Siouxi when in P. I. or Montana, and have endured a severe frost, and in addition to that a hard blow of 4 days, but still it held its blossoms and is bearing fruit. Have 'Budd' bearing its first fruit. Mr. Green: Which, Prof. Budd, are the hardest European, or Domestic, plums?

Prof. Budd: I speak of those which have stood the hard winters. Early Red (Russian No. 3) has fruitied in many places, and seems to be a remarkably good local and of good quality.

Mr. Green: Which, Prof. Buddard? Prof. Buddard is tender north of the 40th parallel, but south of that is doing pretty well. We are on the 42nd parallel, I will say in regard to wild it will be valuable or not, according to locality. Its native home is a dry interior climate. It will endure heat and dryness, but not extreme cold. On dry soil it is a valuable trust.

Mr. Patten, of Iowa: Not a single European plum is able to endure a large portion of the Northwest, and if nurserymen are sold these their names, then applying to the suggestion of our friend Bougus, we could rectify very many evils. If nurserymen, knowing a fruit is a valuable one, but not to another, will bargain that their agents sell only sorts adapted to each locality, a large part of the complaints will be done away with.
There is not a single plum which is successful in the East that is of any value in Iowa on the 43rd parallel. A gentleman speaks of Wild Goose being hardy in 1a. On this 43rd parallel it is absolutely the case, and the large part of Iowa. P. Simoni is not hardy where I live. Of the plums, De Soto and Forest Garden, mentioned by Pribram, have the best success in my experience, is too much given to blight. De Soto is our best plum for Wis. Wild Goose proved tender for 2 years, then hardened up; but it won't bear once plain to the acre. The wild goose seems to be the great品种 of the Siouxi American, from N. J. They were not a worth cent an acre. Some of you have it in your catalogues yet.

Mr. Platt, speaking of Kelsey plum being tender. We have had it 3 years in the nursery and it is hardy as Lombard.

[Image 0x0 to 425x645]

Mr. Gries, of Chicago: The tree is hardy with us.

[Image 0x0 to 425x645]

Mr. Van Lindley, of N. C.: Kelsey is a very valuable plum where hardy. South of Va, it does well, also thought the bunch of seed from 10 years tree is yet quite young. Hardy in N. C.—and we have some pretty cold weather, though rarely below zero.

Mr. H. A. At Bloomington Simoni is perfectly hardy, but Kelsey, especially if it is far from life and is warm, is very tender.

Mr. Willard: Botan [Botan] and Ogon have many tendering plum and these trees hardy. (Mr. Willard has since planted 150 trees of Botan or Abundance in his plum orchards, and thinks very highly of the fruit. He is officious on hardy plum trees in the Middle States. In my paper I mentioned Garfield, a native plum possessing very marked keeping qualities. Simpson, has been a favorite in Ohio for several years and is grown in other States but sometimes has a cloudy skin. It is very beautiful and very good, but I especially noted its keeping qualities. It keeps until December, and there is a demand for anything like a plum at that season of the year. If Garfield is productive and hardy, with its keeping qualities, it ought to become a favorite.

[Image 0x0 to 425x645]

Mr. Plum, of Wis.: In regard to Kelsey: While visiting in Missouri I asked the president of the local society of Kelsey if he had a tree of Kelsey, which he took me to a tree where Kelsey was grafted on a hardy native plum. "There," he said, "I think that Kelsey trees grafted on these hardy native plums are going to be a success here." This matter of adaptation is a very important feature. Good results can be obtained if varieties like Kelsey are worked on some hardy varieties and then these plums are adopted at least to a latitude one or two degrees further north.

Am. Ass'n Nurserymen, N. Y. City, 1890; extracts:

Hon. E. V. Van Deman, U.S. Pomologist: The Japanese plum season is rapidly approaching. We have examined a number of specimens of Botan [Botan] from several places, the most northerly Conn.; it matures that far north and seems to have escaped the blight. Everywhere I have seen it give a fair test. The Ogon has been sent to me from Conn., also from the west. I think it will prove hardy in Wisconsin. "The wild goose was hardened up,"" says Mr. Nash, "the wild goose is 3 inches in diameter. Will not mature north of Tenn., according to my observation, and I doubt if the tree will prove hardy there."

Mr. Nash: It is a small plumm, medium in size, not much larger than Wild Goose, color exceedingly brilliant crimson purple, very handsome. I think it is a very promising variety.

Mr. Willard: Is the Satsuma hardy?

Mr. Van Deman: I think it will be hardy in the Middle States. The Ogon and Satsuma will grow well in Wis. and Mich. I have had 100 trees of Wild Goose, P. Simoni is poor in quality; would not recommend it for general culture. Wolf and Pothabatian are also hardy, but I have seen plums in garden round; dark color outside, and dark cherry red inside; very small stone. Chrysanthemum out of California, true variety; I think they are all excellent for the market. I sent out by Leonard Coates, Napa City, Cal.

Mr. Stark, of Mo.: The Satsumas on peach trees killed to the ground the past winter in our orchards in Colo., but M. Blush, Mo. Pippin, and apples of like hardness were also badly injured. It is perfectly hardy with us in Mo. Chrysanthemum is entirely hardy at Denver.

Questions: Do these plums check for Japanese plums?

Mr. Stark, of Mo.: Marima.

Mr. Lovett, of N. J.: We have used the Peach, but find the Marima plums the best.

Mo. Soc. Hort. J. Mr. Jacob Faith: Have given blackberries and plums much attention. Some will laugh at the idea of growing blackberries in the orchard. Their laugh won't hurt me, and the berries bring the money, and when the blackberries are thin, I kill the blackberries by cutting them while in bloom. Have grown strawberris and raspberries in orchards, but prefer having the orchard filled with fruit trees. Shallower afterwards. Have 2000 plum trees, 15 sorts. It is wonderful to visiters, the way they are laded with fruit. I propagate our peach trees from peach white roots; they succeed well. Can grow more plums per acre than corn, and can grow them cheaper to feed hogs.


Mr. Snell: I have sent many Prunus Ser, St. Cattarine, Tragedy, French, Fellenberg, also Satsuma, Kelsey and Burbank, Japan Plums; seller's Orange Cling Pech.

Mr. Coates: Prune D'Agen is quite distinct from French Prune; will not thrive on Peach stocks, like the Prune French. Wood, superficial, and the wood is more juicy. The tree, being very hardy, has a natural, black, satiny gloss, which is sought after in the markets. D'Agen Prune is identical with the fancy Prunes packed in glass jars which come from Napa Co. in大批. The tree is hardy as in Napa Co. Tragedy Prune a fine early variety for shipping fresh.

Mr. Hardy, of Say: Have secured fine prices for Hungarian Prune; but it is valueless in some localities.

Mr. Coates: Satsuma is of superior color and flavor. Both at 25c. lb. will be shipped by July. Kilauball; Prune D'Agen is very fine. Sold it during the Chicago, for 3e. more per lb. than French Prune.

Mr. Simoni: It is very early and good a fair early shipping plum. Royal Native is too sour.

Mr. Coates: Chymian has exceeded expectations, P. Simoni are hardy, also in some sections, but where perfect, brought high prices on account of its extraordinary shipping qualities.

Extract from letter on varieties fruiting in Cal. orchards, in 1890; in "Littleton, Colo., Oct. 4, 1890."

Herewith I give you list of plums that fruited this season; Prune D'Agen, Davay's Green Cage, Prufier Fleur, Forrest Rose, De Soto, Weaver. There were also two or three other sorts, which will name when you return the record. Prune D'Agen was very fine. Weaver was ripe and De Soto almost just turned red. There were also some apples—mainly Duchess, Ben Davis and Shaeckflickter, the latter bearing twice as much as Ben Davis. In this latter variety, the fruit is large and in the market. M. Blush, Loy and York Imperial are the tenderest trees we have; don't think they will do any good here. G. C. a little better; but they are not hardy; G. Golden is the tenderest of the three.

Curculio. —U. S. Dept. of Agriculture's Bulletin says: "Concerning the well-known statement that native Americana and Chikasea plums are curculio proof: the insect attacks the fruit freely, but few of the eggs hatch. The native plums are vigorous and grow very rapidly, hence are able to drown out or squeeze to death any egg laid in them during their most rapid growth. The few eggs which mature each year in the orchard are laid after the fruit has somewhat slackened in size, and has begun to ripen. This is the usual form and substance of "curculio proof" plums. The curculio could soon be exterminated by planting only native and Japanese plums, or else catching the larvae cage, some of the young larvae, and inserting it in the fruit, and when mature it will."

CLYMAN. — Introduced by Leonard Coates, Napa, Cal., "Raised from seed in Napa Valley, many years ago. For a long time it has been the wonder of the neighbors. Ripening so far ahead of other plums, and being of such excellent quality and good size. Mr. J. M. Bassford, of Vallejo, implies that it is a cross between the fruit and the tree, and their color, and their 

U. S. Pomologist Van Deman, Report Dept. Agr. 1888: The Chymian is not only a novelty, but a noteworthy departure in the usual type of plums. The fruit is borne in clusters, and are of the garden plum of Europe—Prunus domestica. It grew from a seed planted in 1868, by Mrs. Chymian in Napa Valley, Calif. Mr. C. V. Waddell, of Waddell, Calif., said he had an old peach plum. It first attracted attention by maturing its fruit long before any other plum of this family, being about with Wild Goose. The original tree having
outgrown its surroundings three sprouts were dug from the roots, which were planted in Napa City, Cal., on June 13, which is fully four to six weeks in advance of ordinary plums. Of course it may be expected to be subject to the attacks of the curculio, and this makes it still more necessary that immunity exists, or by those who expect to use defensive means against this dread enemy. The fruit is round, skin dark red, flesh close, wood quill brown. The skin is a dark purple, with a heavy bloom over all, which gives it a rich bluish color. The fruit has to be thoroughly washed before eating, as the fruit fly is prevalent here. The principal merit over the old varieties lies in its earliness, which makes it profitable for market purposes long before any other plum is on the market.

Being a supposed seedling of the tender Peach plum, the hardiness of the tree is an agreeable surprise to us; it is certainly almost as hardy as the best of the Bush plums near Denver, when M. Blush apple trees were badly hurt.

DAMSON, Freestone.—Of all Domestic plums the Damson is the hardest and least affected by insects. The original Freestone Damson tree grows in Charles Co., Mo., and we have bought the sole right of propagation. Tree slender while young, but soon makes a fine orchard tree, and is a most productive. Fruit similar to Blue Damson, medium, juicy. Very rich quality, and hard, freely from the stone; seed unusually small. Delicious for eating fresh and for canning or preserving.

DAMSON, Red Arctic.—A valuable acquisition, of late years, of the Pacific slope, and in a few seasons will be most productive. Fruit medium, dark copper color, with a rich bloom. The best Damson known to this Preliminary. The season opens two weeks later than Shirazome and Blue Damson.

DAMSON, Shiras.—A medium sized, dark purple sort, but little superior to Blue Damson. Tree vigorous, but much less hardy than the other Damsons; much less productive. Cuts and roots each stocks, but on hardy plum stocks is not so tender.

DAROJO.—An early and productive bearer: large, yellow, oval or round, flesh firm and sweet, and well adapted for planting near Wild Goose, or others requiring fertilization of blossoms. Tree iron-clad; fruit almost as large as Wild Goose, while it is so much better than if ripening at the same time, the W. Goose would hardly be touched.

Forest Garden, Miner, Pottawattamie, Quaker, and Robinson we discarded from our grading lists this season. After fruiting these sorts, we find there are others much better in every way, which should supersede the above and all other desirable kinds. De Soto, Forest Rose, Hawkeye, Ill., Prune, Loquats, and Damson list highest here.

POOKE’S PRIDE (Kroh).—A native seedling (P. Cichaea), originated on the farm of Mr. Pooke, Union Co., Ill., at the beginning of the Nineteenth Century. Large, round, bright red, very productive. This is most promising native plum at Burlington, and on his advice we secured control of the variety from the original fruiting stock. Great care was taken with this variety, and it now yields best of all. Pooke says, "I grew it in preference to any other. It never fails to bear. The frost and freezes never injure the blooms. An excellent bearer. A late fruiting plum. We have had the most promising native plum at Burlington, and on his advice we secured control of the variety from the original fruiting stock. Great care was taken with this variety, and it now yields best of all. Pooke writes us: "I grow it in preference to any other. It never fails to bear. The frost and freezes never injure the blooms. An excellent bearer. A late fruiting plum. We have had the most promising native plum at Burlington, and on his advice we secured control of the variety from the original fruiting stock. Great care was taken with this variety, and it now yields best of all. Pooke writes us: "I grow it in preference to any other. It never fails to bear. The frost and freezes never injure the blooms. An excellent bearer. A late fruiting plum. We have had the most promising native plum at Burlington, and on his advice we secured control of the variety from the original fruiting stock. Great care was taken with this variety, and it now yields best of all. Pooke writes us: "I grow it in preference to any other. It never fails to bear. The frost and freezes never injure the blooms. An excellent bearer. A late fruiting plum. We have had the most promising native plum at Burlington, and on his advice we secured control of the variety from the original fruiting stock. Great care was taken with this variety, and it now yields best of all. Pooke writes us: "I grow it in preference to any other. It never fails to bear. The frost and freezes never injure the blooms. An excellent bearer. A late fruiting plum. We have had the most promising native plum at Burlington, and on his advice we secured control of the variety from the original fruiting stock. Great care was taken with this variety, and it now yields best of all. Pooke writes us: "I grow it in preference to any other. It never fails to bear. The frost and freezes never injure the blooms. An excellent bearer. A late fruiting plum. We have had the most promising native plum at Burlington, and on his advice we secured control of the variety from the original fruiting stock. Great care was taken with this variety, and it now yields best of all. Pooke writes us: "I grow it in preference to any other. It never fails to bear. The frost and freezes never injure the blooms. An excellent bearer. A late fruiting plum. We have had the most promising native plum at Burlington, and on his advice we secured control of the variety from the original fruiting stock. Great care was taken with this variety, and it now yields best of all. Pooke writes us: "I grow it in preference to any other. It never fails to bear. The frost and freezes never injure the blooms. An excellent bearer. A late fruiting plum. We have had the most promising native plum at Burlington, and on his advice we secured control of the variety from the original fruiting stock. Great care was taken with this variety, and it now yields best of all. Pooke writes us: "I grow it in preference to any other. It never
far crops of fine fruit. We obtained the right of propagation in 1884, and, although some of the trees died out is a phenomenon on that fine plum, being larger and quicker carrier. This fruit has an even form; extremely vigorous; and, often bears at a young age the highest value of any other plum of its season.—Frisier Flower and Poole's Pride—are the two most valuable in cultivation.

CULTIVATION.—Air. Felix Gillet, the eminent prune expert of Cal., says: "This is the kind that produces the famous French prune, shipped all over the world from Bordeaux; and it is the variety cultivated in the fruit of the west, will do well for an entretot. Medium to large size, sometimes quite large, generally pear-shaped or pyriform, broad at the center of the fruit, and narrow towards the calyx-shield, skin thin, with heavy bloom; violet red. Pulp yellow, sweet, juicy; but not to excess. Tree vigorous, very productive, hardy, and thrifty; roots very deep."

W. R. Strong & Co., of Cal., say: "Very likely the Petite or French prune, only larger and more desirable. It was introduced into this State in 1844, and will bear as heavy crops as the French or Petite Prune, and is as much larger and equally as good quality, it is of course the more valuable of the two. There has been some fears that it might be thorny, but this fear has been dispelled. Many trees are now bearing heavy crops in this State. It will not grow on peach root, but must be grown on plum root. This is the same prune recommended by Felix Gillet, of Nevada City."

We find the tree a moderate grower, but very hardy—hardier than peach, and both in buds and bloom, and far more prolific—in short, a better variety. For this and all other prunes and plums, the Mari- vana is the best. The bark is very close and therefore believe it to be also gain-resistant. See "Proctor's Stocks," and especially see "Whole Root vs. Piece Root Trees."

PRUNE, GOLDEN.—Highly recommended new prune from Oregon, a seeding of Italian Prune. "Very large, oval, deep yellow, with a rich yellow skin. Makes the finest dried prunes known. Tree strong, upright, right grower, hardy and a great bearer."

Grafted from Oregon. "The fruit is about a six-simile of Coce's Golden Drop, and It is yet a question whether it should be called a prune or a plum. A very desirable and applicable produces an excellent dried fruit, either pitted or unpitted, and makes a splendid prune. Said to have a smaller pit than Coce's."

PRUNE, TRAGEDY.—A new prune, originated near Sacramento, Cal. Thought to be a cross between German Prune and Purple Dume. W. R. Strong & Co., extensive Cal, fruit shippers, say: "Fruit medium size, nearly as large as Purple Dume plum, looks much like it, much harder than it; skin dark, both in buds and bloom, and far more prolific, in short, a better variety."

AMERICA.—Very long, conical, white and crimson; juicy, melting, vinous, sweet, and of high flavor. Too tender for shipping; but perfect for fresh eating. The tree is unusually hardy and a good bearer. Originated in Yolo Co., Cal. This is totally distinct from Winter's Cling, which is "almost a fac simile of Henry's All Alum and should never be confused with other good plum. So far it has no rivals. They who first get orchards of this, will make fortunes."

Peaches.

ALPHA CLING.—From Cal. "A magnificent new peach, the earliest and best yellow cling; ripens with Crawford Early. Large, rich yellow with red cheek. Fine quality; very valuable for shipping."

JUXTIN WASH.—From Wash. (Wash. King)."Latest of all the yellow clingstones. Tree hardy and a good bearer. Originated in Yolo Co., Cal. This is totally distinct from Winter's Cling, which is "almost a fac simile of Henry's All Alum and should never be confused with other good plum. So far it has no rivals. They who first get orchards of this, will make fortunes."

SATSUIMA, OR BLOOD PLUM.—Large, skin dark yellow with rich red blush, a very sharp point. Flesh firm, juicy, dark red or blood color, well flavored, good; pit small, Ripens about three weeks before other plums. A very desirable and abundant bearer; hardy in Iowa and endures Texas drought to perfection."

STUBBY, OR BLOOD PLUM.—Large, skin dark yellow and maroon, and quite bitter; a sharp point. Flesh firm, sweet, and deep red color, well flavored, good; pit small, Ripens about three weeks before other prunes. A very desirable and abundant bearer; hardy in Iowa and endures Texas drought to perfection."

SAPLING.—This was also discovered in N. J., and is extolled by the great "discoverer" in the wonderful catalogue which gives "honest descriptions"—so the author finds it necessary to assure the public. Surely this catalogue ought to be honest; for, as a member of the largest nursery Co. in Ohio said, after visiting the establishment: "I never was so disappointed; the most of his nursery is in his catalogue; reminded me more than anything else a very big dog guarding a very small bone; it is easy to see why the man has never been brought to justice since he once told us when at our place—in blowing his own horn."

We condensed from the honest catalogue: "Has been fruiting for over a score of years, never failing to produce a crop, and so enormous as to bend the limb in large fruit. He is truly a showy tree, being as exceptional in its vigor as a Kleieter pear. Fruit large, exceedingly firm, of sugary sweetness and great richness from the time it is thoroughly cured and canned, it presents not only an attractive appearance, but the quality is simply superb."

SPANISH KING.—Recommended highly in Iowa, whence we received it. "Tree vigorous, hardy and very productive. Fruit large, oval, purplish red, with blue bloom. Resembles Lombard, but harder. Is much more profitable than any of the native sorts."

WOLF FREE.—Prof. Baude says: "This has been fruiting for over 25 years, and is now considered one of the best ripening and in quantity. It might be called a plum, now very largely grown in our orchards."

WORLD BEATER.—The last named plum, "taken from Tenn., to Northwest Mo., more than 25 years ago, it has never failed to bear at least a partial crop. Mr. Stevens only one tree, has obtained this plum from a tree 5 years old. One tree 5 years old measures nearly 5 feet, and is as sound as a silver dollar; peduncles have the proper color and texture. It is of the finest shape, and so rich on the market. Bears in nursery rows; cure-culio sting it, but do no injury. Quality best; skin literally heals itself; keeps its color; weight is perfect; preserves a year old retain the fragrance of the ripe fruit. Ripen in Sept., but hangs on until frost; very firm; long keeper."

SOUTHERN PEACHES.

Yolo fruit of this variety as grown here, in Dallas Co., Iowa, in Utah, and elsewhere, it has risen somewhat in our estimation. It is from a dry western highly grown, having some of the best regions, where only it is an abundant bearer—shy bearer elsewhere. A desirable ornamental tree, askle from its fruit, and especially in the south, to be grafted only when propagated on peach or myroloban stocks. Still, we would nowhere plant it for market, because a shy bearer. This tree is very productive and abundant bearer; hardy in Iowa and endures Texas drought to perfection."

SOUTHERN PEACHES.

ARIZONA.—Tree hardy and a great bearer. Originated in Yolo Co., Cal. This is totally distinct from Winter's Cling, which is "almost a fac simile of Henry's All Alum and should never be confused with other good plum. So far it has no rivals. They who first get orchards of this, will make fortunes."

LATER, Sept. 2, 1888.—My peaches are now netting me $2 per bushel. The Superb we have just shipped, and a
grand good peach it is. If I were planting another peach orchard, I would plant it largely. It is a large white peach, very productive, and always fair and smooth; never saw any of them cracked or spotted with fungus, as is the case with so many peaches. It is large for its fruit on the market. Season last half of August. Cleopatra’s Late, ripening before Smack and Salway ripening after it, are sorts that should be in every home orchard. I have been at the same time I got the Superb, is also a very fine peach, like Heath, but ripening earlier. It should be propagated. I think I would do the same in plums and pears? I intend planting more of both.

BISHOP’S EARLY. — Valued highly in Cal.; large, yellow, flesh very hard and handsome, yellow cling: orange, with deep crimson cheek.

CHAIRMAN. — See Stark Heath.

COLD. — See under Amelia.

HYMNE’S SURPRISE. — Ripens soon after Early Rivers; a true freestone. The best and least inclined to rot of any of the Hale’s type; large, red, good, gritty, juicy, and a good bearer.

WEST. N. Y. Hort. Soc. Mr. Snow—Have any peaches been more exempt from freezing than others?

Mr. Williams says that if he had planted Early Rivers, believe he has a hardy fruit bud, and will stand more cold than others; also Hill and Hillard’s Jacquies’; R. L. Foster’s in Hill’s and Hill’s hill good crops when others failed.

Mr. Arnold: Add HYMNE’S SURPRISE.

It proves very hardy and late. See addensis.

JENNIE WORTHEN.—First introduced by W. W. Foster; and is proved to be one of the finest peaches known. Very large, yellow, sweet, juicy, and very hardy. It has been introduced by Mr. W. W. Foster, Hancock Co., Ill.—latitude of southern Iowa— and is harder than most yellow peaches. Large size, deep yellow, with a bright crimson cheek, covering half the fruit; very hardy, of highest quality. Quite late; but still more so when the tree is well headed back. We have distributed Jennie Worthen from Mass., to Tex., and Cal., and with scarce an exception it has taken front rank wherever it flourished.

JONES’ SEEDLING.— A fine new Cal. peach, ripening after Smack and Salway and ripening the same season. Very large, white and crimson; freestone.

LADY — A new peach, not nearly so early as claimed. Infrared to Early St. John (May Beauty).

LOVE ALL.— A Cal. seedling ripening between Pleasant’s Lane and the Fall; is a large, crimson cling. The fruit is one of the largest and best known; ripens near a month after Crawford Late.

McKEETH CLING.— A Cal. seedling. Large, pure white—white to the pit—flavor very good. Freestone, excellent, and of unsurpassed quality for canning or drying.

COE.—An improvement on Smock, which it resembles, but is larger, later, and even more profitable. Largely planted in Del. and Md.

MCVEIGHT CLING.—A Cal. seedling. Large, pure white—white to the pit—flavor very good. Freestone, excellent, and of unsurpassed quality for canning or drying.

MUIR.—The most valuable peach known for canning and drying; 4 lbs. will make 1 b. of dried peeled pears. Crawford Late is next; but this is not equal to MUIR.

WORTHEN.— For canning and drying, for which it is more largely planted than any other peach. Mr. Contes, of Cal., the introducer, writes us: As to Muir’s, the best I have ever seen them both fruiting together. There has been a long controversy about it, in which Mr. Thissell, of Yolo Co., proved himself the most learned on the subject.

NORTH AM. APRICOT.—Mr. W. J. Boggs, Saline Co., Kan., writes us: “The peach I sent you 3 years ago has been fruitful by me in Kan. 16 yrs. Its history dates back over a century. Not far from Lake Michigan, in northern Ind., in my boyhood, I first knew it. I lost track of it for some years, but procured some trees, and in 1875 they bore this crop, which was the best they have ever had. The fruit is delicious and wholesome. The color is yellow, in size like a common apricot, flesh yellow, rather soft, but keeps well and makes a very good canning apricot.”

New apricot, a very valuable kind, which ought to be planted extensively. It ripens before Stump, is a good canning and drying variety, and was first introduced by Mr. A. H. Morey of Yolo Co., Calif. It is a very hardy variety, and make a very handsome tree with a red cheek; flesh yellow, buttery, rich, sweet and of the highest flavor. Seldom fails to bear, and after ripening is very suitable for canning and drying.

PRIZE.—Very large, yellow, with bright red cheek; quality delicious, equal to any yellow-flushed peach I have known. Where known it is eagerly sought for and largely planted as a most profitable market variety. Ripens shortly before Salway.
earlier than Globe and the best judges concede it a finer peach and better market variety. Mr. Cochran, a large fruit grower, says: "I have the highest praise for Walker’s eating and planting tree. If Walker’s are two of the best and most profitable peaches in cultivation.

ORANGE CLING—From Cal., "Very large round, white, with red cheek. Excellent canning and shipping peach."

LEES ORANGE CLING—A Cal. seedling of Orange Cling; larger and finer. Has been more planted than any other clingstone. The canners greatly prefer Seller’s, though they often label them "Lemon," perhaps finding them more uniform. All have excellent yellow freestone cloths "Crawford," yellow cloths "Lemon," and white cloths "Heath,"—they say they must call their fruits by the name under which they market them. The best is the usual "Heath." The latter

SHIPLEY LATE RED—One of the most beautiful late peaches. Owing to the fine appearance of this seedling it has been introduced through the Philadelphia and New England markets—tests in California have been of the highest character.

J. H. Hale, the great Conn. peach grower, whose great success is now of national fame, says: "In Conn. every grower tries hard to grow the one perfect, sweet, and hard; it is a hard fight to get peaches here any way, so the main question is how to get them, and not what to do with the variety. The search for the superior apples Alexander have never failed. They are all semi-cling, fairly good flavor, inclined to decay, but sometimes bring a fancy price. Not in hardiness comes Snow, much better than Snow, but hardier than Rome at the same time. Next in hardiness comes Stump, Oldmixon and Stevens Rareripe, while the Crawfords are most tender of all—l would neither plant nor recommend them anywhere in New England.

STARK HEATH (Pride of Pike).—The largest and most superb Heath peach ever fruited in this section. Raised from seed by the late Wm. McLeod, an early pioneer, and first grown in our nurseries upwards of 30 years ago. Some years later the stock was accidentally lost, and was not again recovered until 1882, when a farmer of this vicinity was exhibiting on our streets and presenting to the local editors and others, ourselves among the number, what all agreed were the largest peaches ever seen here, and in appearance and quality superior to the well-known Heath Cling. Investigation disclosed the fact that the tree was a Stark Heath purchased from our nurseries about the beginning of the war and, although then over 20 years of age, it was still healthy and productive. Mr. Wm. Cutter, then of II., but now of Wm. Cutter & Sons, nurserymen, Junction City, Kas., who was at our nurseries in 1865, obtained a start of this fine peach, and was greatly impressed with its superiority over all other varieties of the Heath known to him, but unfortunately he, too, lost the stock. Tree vigorous, hardy and long-lived, and a remarkable bearer, especially for a Heath. Fruit of immense size, oblong but not so tapering as Heath Cling; creamy white, with a blush or tinge of delicate pink on the side, a large pit, white, juicy, with a very exeedingly juley, with a rich, lich and most luscious flavor. Ripens soon after Heath Cling, and will keep for a month after gathering.

SUMMER SNOW (White Heath — incorrectly; English Heath, Jo. Bowmans, Mo. Summer Snow Heath) —For 40 years this has been the most popular and largely planted peach in this county—Why? Because it has never failed to reproduce true from seed; tree the hardest, longest-lived, sweetest and most prolific bearer, fruit the most beautiful and best in quality. A modest claim, is it not? Yet it is all true. The original tree sprung up on the old "English" farm (since passed into and lost), and has never been planted with a large Pearl orchard. and soon made a stir; was visited by the late Judge Stark and a son, more than 40 years ago, who soon discovered that it unfailingly came "true from the seed." Aware of the value of this characteristic, he propagated it in no other way; hence its quality of always reproducing itself from seed was not impaired.

Notwithstanding the uncertainty of a Peach seed crop here, we have hitherto steadily resisted the temptation to rapidly increase our stock by budding—nor shall we now vary from the wise plan outlined so long ago.

In 1850 the late Wm. Stark planted a peach orchard of some 6 acres on the highest of the many high hills surrounding Louisiana; about one-fourth Summer Snow, one-fourth Snow, and one-fourth other varieties. The other varieties bore, but the Summer Snow was nearly a full crop, while all the rest of the orchard bore not bushel. After other good crops, this orchard was sold to the late R. J. Henry in 1868, who the same year sold peaches enough to more than pay for it—and other profitable crops afterwards, the Summer Snow always leading. Another peach orchard of 11 acres was planted by Wm. Stark in 1860, one-fourth Summer Snow, the other sorts being Stark Heath, Crawford Eye, Hypolock and the peach since called Future Great. Here, too, the Summer Snow bore when others were a failure. But in the year 1868, all the peaches, except Crawford, and great prices were realized. Old see'ty yet on file show that Stark Heath and Future Great never failed and up per one-third bushel box Summer Snow, of course, not being a peach of such enormous size, sold for, though it too brought large returns. The largest and finest peaches it has ever been the fortune of the writer to see were the Stark Heath grown that year—trees bending to the ground with the most magnificent peaches, gloriously beautiful with their delicate sun-kissed cheeks. Here he, a boy of 13 years, with a younger brother, gathered from the trees, packed in boxes and mailed 20 boxes of Stark Heath in part of one afternoon.

The fruit of the SUMMER SNOW is snowy white; the foliage a deep green, wood a russet red, trunk a light green, like the common Snow peach—which is a freestone, but a desirable sort. No tinge of red on either twigs or blossoms. Tree very hardy and prolific, and bears when all others fail. Wm. McIroy, who has many trees over 20 years old, says: "In 1890, the Snow Heaths bore twice as much as any other trees in our orchard which is all seedlings, not a budded tree left in it."

It is THE one great canning peach in this county, being always preferred to the late Heath Cling—when the latter happens to bear. A clingstone, full medium to large, quite large on young trees; perfectly round; skin clear transparent white; always beautifully fair, and unaffected by fungus or any other disease which is remarkably small; very firm, yet extremely juley, rich and luscious. Flavor—the sweetest peach grown. Known by everybody here as requiring but half the usual quantity of sugar in canning. Elpines nearly Stump the World. Many seasons we have no trees—because of failure of peach crop the preceding year. When trees are for sale at all they are almost seedlings, propagated true from the seed.

SUPERB CLING—See under Amelia, where, among other things, Gillis & Fish says of this sort: 'A grand, good peach. Turns all kinds of fruits red at high prices, if planting another peach orchard, should plant it largely. Large size, white, with beautiful blush; red at some. Of fine quality, very productive and always fair and smooth; never saw any of them cracked or spotted with fungus as is the case with many other peaches. I consider it the ONE OF THE BEST, whether for home use or for market.'

The identity of this fine variety is unknown. We obtained it from years ago, but the latter is a freestone, and this proved to be a cling—and a most superb one—therefore not Van Zandt.

ULATS (Col. Advance).—"I have for years given up propagating such varieties as Anisdale, Briggs’s May, &c., as in comparison with Alexander they were neither earlier nor as good. A seedling originated near Vaneville, Cal., has for some time claimed the attention of the few who were aware of its existence, and it is now an undisputed fact that this peach is superior to its parent, the Alexander. It ripens a few days earlier.

26
but that is not its chief recommendation, which is its great firmness, even after it is fully ripe, its large size, smoother skin, handsomer appearance, and superior quality. The best early shipping variety. It seems perfect, and will supersede Alexander.

Seedlings and peach grower, says: "At a late meeting of horticulturists in Ill., the Alexander peach and its near kindred were brought up for trial, and found not a friend to speak a good word for them. A common apple grower, in the same discussion, said that his peach trees, with which he had been associated for many years, were all in the same way, and that view is the one quite prevalent among fruit growers. For my part I hope the feeling will grow until the extra early varieties are planted, and that we are safe with the inferior kinds."

I have found them far superior to any others, and I have more profit from them than any others. I have sold them in market as high as $1.50 per bushel, never have I shipped them so low as a dollar, but not worse than some others; for instance, Crawford Early and Early Rivers. The extra early are for very early, but are of a sort where the grower can afford to lose half the crop, under the fear or expectation of injury, and still make more money than from most other sorts. My orchard of 1,000 trees, made up of all the standard sorts, while in full bloom, was struck by a heavy frost and a considerable freeze, March, 1888. The extra early bore a full crop, while all the others together did not bear a bushel."

**WAGER**—Origin Ontario Co., N.Y. Large, yellow, low, thick set, less firm, less sweet, and rather coarse, and fine flavor. Very hardy in tree and bud; bears when most other sorts fail. The late Henry Avery, of Burlington, Ia., wrote us: "Wager trees are hardy here; may peach fried during past 52 years."

**WALKER'S VARIETIES TREE**—Large, when ripe. Full set with white check, "beautiful peach": heavy bearer of uniform fruit. A profitable market variety and one of the best peaches in the list.

**APRICOTS.**

**ALEXANDER**—(Emperor Alexander)—Large, yellow and red, flesh also tinged red. Sweet and delicious. Alexander and Bud are both fine, but of the three, Alexander is the best. In my opinion. See "Proper Stocks."—Unnamed or ordinary seedling Russian Apricots necessarily vary greatly, those of the large pits, and never tinged, are always of large size, pale yellow, sweet, ripening early. But now that the trees bearing the best fruit have been selected, named and propagated from them, it is better that the propagation of mixed and unknown seedlings should cease.

Prof. L. H. Bailey, editor Am. Garden, has secured a vast array of opinions on the Russian apricots, which are published in issue of Nov. 1890. We extract:

**CONCLUSIONS.—**The following statements appear to be the opinions of the best authorities:

1. The Russian apricot is somewhat harder than the peach, and may be expected to endure the climate a degree or two north of the peach belt.

2. The seedlings are extremely liable to injury from late spring frosts.

3. Seedlings vary widely; many are worthless.

4. The best and most universally useful of the best sorts, is much inferior to that of the older and better known apricot sorts.

5. There is promise of considerable improvement and development of the plum and apricot families.

6. It is particularly liable to attacks of the curculio and plum gouty.

7. It works well upon common plum, upon Prunus Americana, Mariana, peach and myrobolan. It is probable that Mariana or some other of the native plums will be found most effective of all. For my part I have grown the wild plums and they make excellent fruit in my own garden.

8. In general, it appears that on the northern limits of peach culture the best varieties of Russian apricot are worth culturing, provided they can be protected from injury and they may increase in value with further attention.

G. M. STARK, Stark Nurseries, Louisiana, Mo., in Am. Garden—Russian apricots are quite hardier; we have planted 10 acres of them this spring. They improve every year, and are the best sort of apricot tree. The best sort is doubtless the Shense: then Golden Russia, Alexander, Alexis and Bud; Gibb and Catharine. The latter is a large fruit, and makes the best plum. Smith, Byran and Renner are identical with the five last named, Mr. Renner distributed clones both to nurserymen and persons interested in the apricot industry. In my zoo knowledge of the other, hence there was no intentional deception upon the part of introducers. The Kas, man obtained clones a year ahead, but lost them; so the Neb. collection was sent out first.

Perhaps it is too soon to say how much farther north than the common French apricots the Russians will prove valuable; but it is not a question of hardiness in tree, simply of early blooming and consequent liability to blight injury by early frosts. It is true, however, that the apricot is a very occasional crop, especially when trained on walls, etc., where it would be hopeless but for the Russians.

Peach seedling, which is a native of India. It is a vigorous grower, and takes a similar treatment to the Russian, native plums are good, except that they sucker, and are variable as to hardness. We believe the best stock, not only for the fruit, but also for the seed, is the Mariana plum. Five years ago we sent apricots to several places in California and other States, and planted them here, and thus far they have proved in perfect health and vigor.

**ALEXIS**—(Grand Duke Alexander)—Large, very yellow, and red; sweet, sub-acid, rich and balsamic. Buds: April 26; blooms: May 1; fruit ripens: July 21.

**BUDD**—L. Budd—Named in honor of Prof. Budd. Buds: April 23; blooms: May 1; fruit: July 14.

**LEWIS**—(French Apricot)—In Cal. this is said to be "superseding all others; very large, good flavor, firm, ripens evenly on both sides; a good shipper, and highly esteemed for canning and drying. A regular and prolific bearer. Ripens with Royal; very popular." Skin thick, orange yellow, washed and dotted with deep crimson; flesh yellow, delicate, aromatic, very tender, large and juicy, with a delicious flavor.

**NEW CASTLE EARLY**—From Newcastle, Cal. "By far the best very early Apricot. Nearly as large as Royal and two weeks earlier; very valuable on account of carliness; ships well. Tree a large bearer."

**PEACH**—Imperial—Downing wrote of this: "From Piedmont, France. Has long been considered the finest variety. With the exception of the oriental sort cultivated, finer and earlier than Moorpark."

**ROYAL**—A French sort. Nearly as large as Moorpark and tender, aromatic, delicious. Buds: April 27; blooms: May 4; fruit: July 17.

**SHENSE**—(Acea)—The pit from which this wonderful new apricot grew, was sent to Prof. Budd, by an English Missionary from the Province of Shense, in north-west China, via the Western Union Telegraph line. Prof. Budd writes to me: "Six years ago I wrote that in parts of Shense and Mongolia an apricot was grown that reproduced itself. In June, 1888, I received of this new variety five trees, which I have planted at L'etoile, near Paris. I have found that these trees bear fruit, which the apricots he had seen in England and France. Later he sent me pits; only one grew, from which came the Shense. It is much like the best apricots of California; this season I am more convinced than ever of its value over a very large part of the country east of the Rocky Mountains. This variety, which I first sent out marked 'Chinese Apricot,' and later named 'Shense,' is now called 'Acea' by —, nurserymen of Neb., and others. This will result in confusion, and I hope the prior name of Shense will be used. This is the more important as this is the most valuable variety of the apricot yet grown and fostered in the prairie states."

**QUINCES.**

**ANGERS**—Later than the Orange, not so large, cooks well; tree stronger grower and fruit ripens too late to be valuable, except south.

**MECH**—(Mech) In Botanic Garden Society of London, said to be an early and abundant bearer and the fruit to be of very large, beautiful appearance and delicious flavor.

**MO. MAMMOTH**—Endorsed by the Mo. Valley Hort. Society as a quince of great merit. "Large size, perfect shape, very rich and aromatic; tree vigorous, productive, and of late bearing; blights, and other diseases common to the quince."

**ORANGE**—The most popular and extensively cultivated variety. Very large, rich, golden yellow, excellent quality.

**RENA MAMMOTH**—Elwanger & Barry say: "A very early, large and fine variety. Strong grower and productive. World's best quince, it is the Mammoth. We have found it unexcelled; hardier and earlier than Orange, more productive, bearing fine crops at 3 years old." Quince, the earliest quince.

**MO. STATE HORT. SOCIETY**—extracts: Mr. Kirchbauer: On one kind of fruit big profits may be made. They are not hard to grow, but are much neglected.

Mr. Eschenb.: Is Mo. Mammot Quince valuable? Prof. Eschenb.: Yes, Eschenb.: Quince, the only good quince we have ever grown in Mo. It is hardy at Kansas City.

See's Goldman: We sold all our Mammot Quince, we could grow for 10 cents each.

Mr. Holman: Champion, with me, blights like Bartlett pear. Orange does not blight, nor Mo. Mammot. 27
"A Tree's a Tree?" Yes, but then—there are Trees, and TREES.

You see, sweet maid, we marry
A gentler cion to the wildest stock
And make conceive a bank of baser kind
By bull of nobler race; this is an art
While that which you would marry, is rather, but,
The art itself is nature.—Shakespeare.

In Trees there are the same variations in quality found in every other line of goods. But owing to a somewhat wide-spread misapprehension on the part of many tree planters, with regard to the comparative merits of seedlings and stocks,言论, it is worth while to explain at some length a few of the points of difference between Whole Root and piece root materials on reach for plants, and on Maritane plum stocks, etc., and to quote the matured opinion expressed, after long years of experience, with trees, and with trees of every kind, by men pre-eminent in the science of Horticulture, such as Chas. Downing, Dr. Warder, P. Barry, J. J. Thomas and many others,—than which no more discriminating critics have ever lived in America—or in the world!

Whole Root Trees are best, and the demand grows with each recurring year. And it will continue to grow, as with the wisdom born of experience, and with the mistakes of the past to guide them, practical and far-sighted men, by wise precaution, go to guard against repeating past mistakes in the orchards of the future. We do not wish to be led in the matter of Whole Root trees, by the tawdry claim that we do the utmost. We know, hence, we have, year after year, largely increased our annual propagation of Whole Root trees, while cutting down the proportion that be devoted to stocks planted.

We say, that while we prefer, by a large margin, other stop growing piece-root trees, for the reason that it would be ruinous to our pecuniary interests to do so, for there are planters who are "pennypincher and petty fiend," who will not be convinced that one tree is not just as good as another. They will tell you that "a tree is a tree," and while it would not speak so of the property in this way—a colt for instance. Yet there is as much difference in proportion between trees as colts. What the buyer has to do is to judge the trees, to see, by careful observation, whether the buyer of trees must wait for years before he sees what the tree is; and the colt if not wanted, may be sold in a month. But with the whole-root tree the wait out to be a disappointment, it is beyond all remedy.

Our Piece Root Trees are as good as any grown, and while purchasers want and will have them, we will continue to supply these cheaper trees as of good quality, as can be produced. But while we wish to make money now, we are more anxious still to build up a trade for the future and do the best we can for our customers by sending out such trees as will make lasting and profitable orchards; and it is as much for this reason as for the reasons given above, that we do not recommend trees to allow on a large scale or a small, but especially orchardists who plant for profit, not to plant piece-root trees.

In his book, "American Pomology," says: "A most serious fault of nurserymen is the too common error of crowding the trees." Our Whole Root Trees have been thoroughly developed under the six greatest Growers in the world, and the full and free development of root and branch. And although Whole Root trees, grown with ample room to allow of the fullest development of both roots and shoots, are of necessity more costly, they are worth incaulculably more, to planters who plant for fruit, than the slender, ill-developed product of the crowding, close-planting, and grafting methods of the grafts of all competitors by a cent or two on the tree. What profit is it to the orchardist if he save a cent on the first cost of his trees, and after the food of nature, lose three quarters of the trees? If you do not come early into bearing, that will withstand the severest winters and protracted droughts. To produce such a tree it is of the utmost importance, not only that it should be well grown, but that it should also have the advantage of full, natural roots. The original collar of the seedling stock is the only possible foundation to a successful tree. The differences between the aerial and terrestrial portions of trees should, or can be, made. Trees propagated by this method, we are confirmed in our opinion that it should be so, and the fruits produced will be in the winter than others of the same varieties, which have been grafted in the root, and come sooner into bearing. It has been demonstrated that whole root trees bear more and better fruit. And why? For the reasons, almost innumerable, given herein—

"—spectacular roots will furnish plenty of moisture, even during a prolonged drought, and bring nourishment to tree and fruit from far and near.

In the face of the overwhelming testimony he must be a dull and uncomplimentary if he does not consider to his customers that piece-root trees are "just as good as any"! It is of course useless to try to convince men that have long been accustomed to such, and I still further proof of the excellence of Whole Root trees, which is of itself convincing to all observant minds, is found in the incredible quantities, and wide distribution in the country, almost without exception perfectly healthy, and bearing heavy crops of fruit, notwithstanding many of them have passed their hundredth year. Along the Hudson River and the Connecticut Valley there are found the most experienced orchardists in America, men who have made fruit growing a life business, as did their fathers before them, and who have so much cherished from consideration now to plant a piece-root grafted tree. Observation of their old seedling orchards, and costly experiences for the piece-rooted trees, makes the realization of the utter worthlessness for permanent orchards of these so-called "improved root-grafted trees." As a consequence they now seek trees in the production of which the immutable laws of Nature herself have not been grossly violated. And in California, where fruit growing is better understood, is a greater business, which is a very different thing. Here the fruit is carried to a higher degree of perfection than anywhere else in the world, the best orchardists absolutely will not buy or plant any but whole-root trees. They have thereby come to California every season; latterly, almost every order has been for Whole Root Grafts.

In Western Missouri and the adjacent regions, many trees, just now beginning to bear, suffered permanent injury, and in some cases the orchards perished, in a terrible blight of July, which made its appearance near the surface of the ground—for in removing the dead trees, also by observing those uprooted by storms, it was discovered that the young trees had lost their roots, running parallel with the surface. The essential bruising and deep-penetrating roots were cut off. This was attended by a sudden and severe blight, which destroyed the young trees of Northern and Central Illinois; and these young trees were ruined because of the same important lack. In the vicinity of the orchards named in both these cases are seedling orchards, made up of fruit bearing trees, nurtured by nature herself—and they are standing unharmed to-day. Indeed, this whole matter of the effect of drouth and heat on cold and cold on extremely misunderstood. The effect of drouth on quick-growing field crops is readily seen and keenly appreciated, but the effect on fruit trees is not so easily noticed or so quickly felt by the owners. Drouth usually affects field crops only one year, but often undermires the constitution of a tree. No effect can be shown that bears more weight, then the truth is attributed to the severe winter. Trees which have been poorly supplied with moisture through the summer become weakened, and are then subjected to many more hardships.

The lessened vitality of the leaves in time of drouth makes them more subject to rusts and other fungus diseases, and the growth is not uniform, or growth uneven, and often causes a second growth to be made after the fall rains come; then there is not time for the new growth to mature before the first frosts come. The cold of winter starts the tree far on the road toward premature death. Whole-root trees withstand drouth so much better because they root deeper; and for the reason just cited, they are also less subject to injury, by cold winters, sun-scall, blight and numerous other diseases. Then, again, growths which stand by very little side by side—the whole-root trees remarkable for their almost invariable fine and uniform size, strong sturdy bodies very thick and stocky at the ground, are much superior to the tall spindly growth of the piece-root trees of the same age, on the same soil, and receiving the same care and culture. Were we to give away any of our one to one trees by the bunch, of the same age, 2 yrs. old, saying growing side by side, after looking around you, would probably remark, as they are so very unlike, have doubts whether the piece-root must be two-year and the whole-root three-year trees; yet the whole-root trees look much smoother, stockier and better.
B. Hathaway, Cass Co., Mich., an experienced horticulturist, writes the "Prairie Farmer": "That whole root-grafted trees have often, if not always, shown a better rate of growth than those propagated in the same varieties as root-grafted, cannot be questioned. My own experience, extending over a period of more than 40 years, shows that this is true."

"At a meeting of the Northwestern Fruitgrowers' Association, held in Chicago more than 20 years ago, I announced to the assembled fruitmen the result of my experiments in root-grafting, and I was told that such a method of root-grafting would have to be abandoned. But the meeting, composed principally of nurserymen, neglected the data of experience. The general method of root-grafting, would have nothing of it.

"I could only say: 'Gentlemen, I concede your right to have this question from discussion, but not your wisdom in doing so. I have tried it, and I can see nothing wrong. But you will listen to the logic of experience before twenty years have gone by.'"

"There is much happening—that of more early productivity. This has been demonstrated true and again all by experience. And for certain varieties, the root-grafting is especially pronounced. I have raised and managed and figured on thousands of peach trees grown by these three modes, and also hundreds of orchards in Cass and adjoining counties, I had the best possible opportunity for a just comparison; and for all the less hardy varieties the whole stock, whether budded or grafted, had unequivocally the advantage in both hardiness and productiveness.

"Yet nine of ten would take the root-grafted instead of the whole stock trees, because of the five cents a tree added to the price of the latter.""

"There is much happening—that of more early productivity."

J. J. Arthur, in "Journal of Agriculture": "I give my experience and mistakes as a horticulturist. Life is too short to make another mistake in this pursuit, and by telling our mistakes we may prevent others from repeating them. In the spring of 1860 we set an orchard of hardwood trees, all grafts on short pieces of roots. The same spring we set a small orchard of root-grafted trees. By the time these root-grafted were large enough to transplant, the borer had played havoc with the root-grafted, while the hardwood trees were safe."

"The same borer that cost a small orchard of root-grafted trees, did not affect the hardwood trees. We found, and for all that we find, that the hardwood trees are more resistant to the borer than the root-grafted ones."

H. M. Dunlap, ex-pres't Ill. State Horticultural Society, writes us: "The trees arrived in good order. Only 7 of the Willow Twig are alive of those received last year. The Willow Twig you sent me this year [2yr. Root trees] were the finest of this variety I ever saw, and I was somewhat in doubt as to being true to name, but on closer examination I find they show the characteristic Willow Twig growth.""

Mr. Dunlap's surprise at seeing 2 yr. Willow Twig of such size and vigor was natural, it being well known that the Willow Twig grows more slowly in the nursery than in the field."

PROPER STOCKS as well as right methods, are also of greatest importance, yet thousands of trees, particularly Plums, Prunes and Apricots, are grown on unsuitable and unproductive roots. A great deal of money is being spent in advance to short and unproductive cultivators, and defeating the food hopes of the insanest planters.

Downing, says of the common tender Apricots: "Apricots budded on peach stocks are very inferior, show little growth, and are soon killed by hard frosts if not removed from the cold rate flavor. Budded on the Plum the apricot may be considered a hardy fruit tree, and well adapted to grow, rich in flavor, and bear well. Business.""

A Grower: "Every year a number of Apricot trees budded on plum stocks were planted in San Jose 37 years ago, which have borne continuously, and are still in fruit, while the peach trees two orchards succeeding each other, budded on peach stocks, have actually died."

The plum stock is also the only one of permanent value for its own species, although many nurserymen nowadays use the peach stock, not only for the Apricot but for the Plum as well. This misuse of peach stocks has caused disappointments and failures immemorial; the trees often grow well for a few years, but soon begin to decline, then inter"-."

J. Thayer, in "American Horticultural," says, "The American Fruit Culturist" says, "The peach has been occasionally employed as a stock for the plum. A very few varieties have been propagated in this way, and it is not certain that it makes a good stock for the peach."

C. Hiller, Lancaster Co., Pa., in "Gardener's Monthly," writes: "I have tried the Buchanan plum stock on Apricots and good results were obtained; the Buchanan plum stock is not a very strong root, but it is strong and healthy."

Prof. Meechan, the editor, adds: "Mr. Hiller's suggestion we regard as well worthy attention. The yellow and the crimson yellow, as well as the other varieties, are usually smothered with yellow and are quite hard to find, and it can be shown that this fungus does not care to attack plum roots—and we believe the evidence tends to favor this view. It will do well where the peach is killed off by a thousand for the stocks, to have the trees on plum roots. A peach tree that is warranted free from the attacks of the yellows, and will continue bearing in a quarter of a century, is practically a gift, and can be done on the ordinary tree, with its short life and great risk."

Mr. Hiller, in a letter to us, writes: "I have been looking over your Wholesale List and find it a regular Encyclopedia of tree knowledge. I see you grow apricot, plum and peach on Mariana stocks, just what I have been using for some years. I have found that with trees on plum stocks to learn what advantages can be gained in the way of preventing yellows and the borer. I would like to fill my orchard with this stock, but do not know, and necessity; the farmer will take time to determine, but the growth so far is entirely satisfactory. I feel certain that if we have a selection of varieties for these stocks, others, as stools to work peaches on, the yellows and borers will give us but little trouble."

H. M. Dunlap, ex-pres't Ill. State Horticultural Society, writes us, "The tree arrived in good order. Only 7 of the Willow Twig are alive of those received last year. The Willow Twig you sent me this year [2yr. Root trees] were the finest of this variety I ever saw, and I was somewhat in doubt as to being true to name, but on closer examination I find they show the characteristic Willow Twig growth.""

"Mr. Dunlap's surprise at seeing 2 yr. Willow Twig of such size and vigor was natural, it being well known that the Willow Twig grows more slowly in the nursery than in the field."

"The important fact in root-grafting is often overlooked by purchasers, that although some of the best varieties are the poorest growers, yet there are nurserymen who grow them. We have seen that they grow more rapidly, greatly reducing average cost of production. Or, as one nurseryman expressed it, "we care not for the fruit, but for the stock," and a stock of select root-grafted nurserymen is highly prized with this large, smooth stock, and wonder why all nurserymen do not grow such uniform and fine fruit. This plan, perhaps, is all well enough if fine looking trees are the chief object, and their fruit only a secondary consideration.

"Plums, Prunes and Apricots, are grown on unsuitable and unproductive roots. A great deal of money is being spent in advance to short and unproductive cultivators, and defeating the food hopes of the insanest planters."
Whole Root vs. Piece Root Trees.

Ed. Rural World:—No consistent argument can be found to show that piece root grafted trees are equal to trees grafted "in the natural crown" (as Downing expresses it) under the hypothesis that it is a desirable thing to have orchard trees mainly or wholly "on their own roots." If the true method of propagation be to grow trees from cuttings, or, what is practically the same, to use just as little of the seedling root as will give the clone a start, depending upon the clone to throw out the main system of roots for the support of the future orchard tree, whatever materially interferes with the production of such cuttings is contrary to the laws of nature; and, as a small piece of root cannot support a vigorous growth, thereby necessarily forcing the clone, if it survives, to put out roots of its own, it is contended by the advocates of piece-root grafting that the smaller the piece of root the better, because then the more nearly will the tree be on its "own roots." They assume that piece-root trees are harder, more productive, longer lived, and in every way superior to trees which have the natural collar of the seedling left intact together with its full natural system of roots radiating downward in all directions, but the facts do not bear out the assumption. And besides the

Mislabeled Inference

is often conveyed that whole root trees are not on their own roots; for the fashion is to ignore the fact that properly grown whole root trees possess an ample supply of vigorous horizontal own roots for surface feeding, and are just as truly "on their own roots" as piece-root trees, though unlike the latter their own roots are not their chief stay and support. The whole argument if it is consistent with itself admits that the effect of the piece root "manufacture" of apple trees is to produce, in direct violation of nature's laws, cheap nursery trees without a natural crown and without the natural system of roots which a seedling only, and a cutting scion, can give to the future orchard tree; for if this were not the case it is plain that the method could not enable the "wholesale manufacturers" to sell his abnormal piece root grafts at a price which tempts anybody who can plant turns and greens in the Spring to buy and, forsooth, become a "nurseryman." We would not

Disparage Small Nurseries

far from it. But we feel that the culture and propagation of fruit trees and plants, particularly the apple, is a matter of greatest national importance, closely connected with the welfare and happiness of countless thousands. But who can number the

Decrepit young orchards

scattered over the entire country largely attributable to a vicious system of growing short-lived trees, more like Eugenia flamboyante than nature's plants, by wholesale nurserymen.

In making piece-root grafts, "using a long lion and a

short piece of root," the main dependence is that the cutting or lion will put out roots of its own. But the fact is overlooked that a tree propagated from a cutting is less hardy than the same variety grown on an ordinary seedling; this has been fully demonstrated. A leading member of the State Horticultural Society of California utters the warning: "I would caution planters against plum trees raised on Myrobolan stocks which have been grown from cuttings, as much as any cutting is more the harder and more vigorous." And in our Nurseries at Louisville, Mo., notably in the case of the Wild Goose and other Plums, we have had two-year-old trees grown from cuttings to within kill being while the same varieties on Chikishana and Americana plum seedlings as well as on the less hardy Myrobolan were uninjured.

In the next place, as Prof. T. F. Lyon has said, it is

Plainly Against Nature

to take a lion which has grown high up in the sunshine and air, place it almost wholly underground, quite out of its proper element, and then expect that it can so confine its culture as to make it perform its system, a crown, and a top—all from a short lion formed by nature for aerial conditions alone. Yet these are precisely the results in piece-root grafting. A one-year-old seedling, which, as nurserymen know, grows naturally with long tap roots, is cut into pieces an inch or six inches, and six or seven lions applied to each bit of root. When planted only about one inch of the lion is above ground, and but one out of the dozen or more grafts made from the seedling will have a natural collar—and even it is too deep underground.

* [Copyrighted 1890]

Besides, as Peter M. Gideon, Sup't Minn. experimental Orchard, says, this collar piece has been cut so short that only fibrous and no deep-reaching roots result.

Third count against piece-root grafting, the faulty and

Unnatural Union

of the lion and all pieces of the root—except the collar section. This is the consequence of the difference in texture of the wood and bark, as well as a lack of analogy between the alburnum of stock and lion. The result of this is two imperfect and dissimilar systems of

Photo-engraving showing: 1. Piece-root apple, 2 yr., 3 to 6 ft. (and yard stick.) 2. Piece-root apple, 2 yr., 4 to 6 ft. 3. Whole root grafted apple, 2 yr., X X. X.

to roots, and often an abnormal enlargement at the point of union. This enlarges root-differences in color above and below the junction, and often their hair-like fibers and "hairy" roots, afford tests by which with little experience any one may distinguish piece-root trees. It is impossible to detect the point of union in rightly grown two-yr. whole root grafted trees. Such is the difference, even while young, that when whole root and piece-root trees of the same variety and size are mixed together, there are but few who could not soon learn to separate them readily. Indeed, E. Moody, one of the oldest and most experienced nurserymen and orchardists of western New York, declares he can distinguish at a glance the two classes of trees even in bearing orchards. Of course varieties root differently, as Wine Sap and Whitney Crab, and each in a measure controls the root formation; but it is apparent that the smaller the piece of root, the greater this influence of the engraved variety.

In the fourth place, and this is their

Chihest fault,

one fatal in the extreme and wherein lies their absolute and utter condemnation, the lion emits not only a scent but almost invariably a shallow system of roots. Hence
united thousands of these trees fall before storm and drought, wet and cold. For all who have observed with any degree of care know that cuttings—be they grape, quince, LeConte pear, [see last page] or the cloudberry—will not root unless the air is abundant with fibrous and horizontal roots, rarely and almost never put forth any strong, deep-reaching roots. Cuttings of apple will root for grapes, currants and such things as do not require far-reaching brace-roots, but apple trees thus grown will cause sore disappointment. Especially should this be avoided in regions where high winds prevail, or where irrigation is practiced—for when the water has long been turned on only the-c who have seen it can form any idea how completely the soil is soaked and inundated the winds turn out such trees by the roots. In Colo. we have seen many examples of this—not in old worn out orchards, but in apparently vigorous young orchards just beginning to bear.

Trees grafted on pieces of roots are by no means destitute of all value; but the longer the piece of root the better the tree. One trouble has been that grafts on bits of roots 2 inches or less, are far more plentiful than on pieces 3, 4 and 5 inches long. [See “The Other Side.”]

But unquestionably much the best trees are WHOLE ROOT TREES by which is meant such as are grafted or budded on vigorous 1st class stocks just above the crown with the natural collar left undis- turbed, using but one seedling for one tree. In whole root or crown root grafting a 4 or 5 inch clion is used and the long root of the seedling shortened to 5 or 6 inches, the same as when transplanting for budding; besides making the graft convenient to plant, this induces more strong side roots to put forth, as well as several vigorous deep-extending roots instead of the one straight tap root. Thus the grafts are 8 or 9 in. long, allowing one inch for the splice, and involve special care and preparation, as well as considerable more work in planting than piece root grafts—the latter being but 5 or 6 inches much oftener than 7 or 8 inches in length. And as the better planted 4 inches below the surface, own roots are often sent out from the shoot, but in any event, the tree will always have the support of at least a year’s root. By leaving the crown root or cut 5 or 6 inches long when shortening instead of but 1 or 2 inches, as is done in piece grafting, the natural tendency of the middle part of the piece to form a shoot or bud send forth other roots which will pierce deep into the earth is not destroyed, and the several new roots which take the place of the shortened single tap root, naturally go downward. It is for this very purpose that the French pear-seedling growers now take up the young seedlings when but one inch high, shorten the tap roots and transplant, thus forming the “branched-root” stocks which every leading Am. nurseryman now uses, though at an advanced price. The principle is the same when we shorten back the one straight leader of a vigorous young tree—instead of the one tall shoot several strong branches put forth forming a symmetrical, well-branched head, the upper branches going straight up. The stronger the 1 yr. shoot, the better will it branch when shortened back. The strongest growth is made on whole or crown roots, hence they always make the largest and best trees, well supplied both with deep penetrating roots and strong side or brace roots, grow more symmetrical in form, and have well-balanced heads or tops. Yet whole root grafts do not unite so well as piece-roots, the union being made on the harder and tougher wood above the crown; piece-roots on the soft wood of the root, unite much more certainly, and give the best stands in nursery rows. But, after it is once made, this very hardness and toughness of wood, being of like nature and texture with the cion, gives a better and more lasting union.

“Budding” and “grafting” are simply two different processes for accomplishing the same end, the one being performed in the summer, the other in winter or early spring, and the resulting budded or grafted trees are of equal value provided, always, that each operation has been properly performed. Budded whole root trees, if budded low—just above the collar—are equally good with grafted, if rightly planted so that all the seedling is well underground, but they are not on own roots and in cold regions not so hardy as grafted trees.
The evidently grown on all stocks, along with well-chosen pieces, made to show the superiorities of the latter. It may be that the effect was not exactly what he anticipated when he brought forward very finely rooted but apparently dormant stock. We grow piece root trees—(and just here we will say that we have never sought, and do not now seek, free advertisement.) We will promise to charge our account with all "shop talk." We must grow these cheap trees because of theKeen competition

in the nursery as in all others; for there are planters who know the value of a piece of property; but we know that whole root trees are the better and plainly so state. Then all who buy piece root trees do so on their own account, and not on that of the nurseries. We have already cited the opinions of Pres't T. T. Lyon, E. Moody and P. M. Gideon, while that of the Rural World's own Judge S. Miller, we all know; therefore we say that it is true of giving the Results of experience

of others whose names are to-day among the most eminent in the annals of American Horticulture. If there be such a case, then a piece root tree propagates a somewhat diligent search has failed to discover them.

P. J. Bereckmans, Pres't Am. Pomological Society, after an experience of 60 years, says: "The system of propagating pieces of roots is successful; no cultivation, the results can possibly be expected from such trees. The system is worthless and only calculated to disappoint."

The favor of nurserymen, who are living, and the leading American authority, describing the operation of budding in his well known book, "Budding of Fruit Trees" is able and becoming; and the necessity for the latter; after giving the reasons why stocks should be budded as close to the surface of the ground as possible, and even more, removing some of the earth, he sums up the whole matter in few words—"low budding makes the best trees." Of the kindred operation of grafting he wrote, less than a month ago. "That good trees are propagated on pieces of roots three or four inches in length; and there is no doubt but that the cut end next to and including the collar is to be preferred, the trees grow better." Franklin Davis, Ex-vice President American Pomological Society [See Discussion Am. Ass'n Nurserymen.] 1842, has given a graphic account of the evils of the piece root graft. "The roots from these small pieces cannot be so well developed as to properly feed the tree or hold it up; hence, they are not so vigorous or so proofed by storms. We must

Plant the whole Stock

leaving the crown as nature formed it; then we have the whole root, strong and unimpaired by division to feel and develop the tree. And as the tree is not only held in its place by its roots, but also receives most of its nourishment through them, it is plain to see why it will grow larger, live longer and bear more, and

Of whole root trees, as the saying is, this mode of propagation has long been acknowledged by intelligent nurserymen and orchardists, yet nine-tenths of the apple trees grown on pieces of roots, or "nurseryman's grafts," have not grown trees on whole roots for the reason that it costs more to propagate them that way, and it has been difficult for the planters to pay the additional money. But we are glad to see the people in some sections awakening to their interests. We know such trees are the best for the health of the trees, but so much as planting an orchard there is no economy in purchasing an inferior article.

Whole Root or Crown Grafted Apple Trees are the coming trees for Western orchards, a fact we have foreseen for some years. We began their propagation, and have since grown many hundreds of thousands, because we were then satisfied, as we now know, they are the best. And while we note with pleasure the many recent endowments by high authorities, horticultural and otherwise, we note now a fact, that whole root apple trees are the trees to plant for permanent orchards. Perhaps no stronger or more authoritative endorsement has been given than the following, condensed from a paper entitled, "How to keep our orchards Healthy," read before the Mo. State Horticultural Society so long ago by F. Murray, Pre-Pres't Am. Horticultural Society, and who was recently honored by an unanimous re-election. Mr. Murray has long been known as one of the foremost of the successful orchardists of Missouri, in X. W. Missouri, and a horticulturist of much experience and wide observation. He says:

This is a very important question, and one not only affecting the health of our orchards, but also the commercial interests of our whole country, as well as the health and happiness of the fruit hungry millions who wait for the rich juice of our orchards.

We must seek to find out, as far as possible, the causes of the unhealthy condition and premature decay of our western orchards, before we attempt to prescribe remedies. We must know the cause, before the cure. Often one will deny. We look up and down the bluffs along our rivers, and our over our broad, rich plains, and we cannot stop to ask, "Is it the fruit of finding the rich, bright, green and glossy leaves, the sign of health and vigor, we see a scant and sickly foliage in which the keen eye of the experienced horticulturist recognizes the evi of decay.

"It might be well for us here to inquire how long we may expect our orchards to last—find out, if we can, each species and variety of our standard fruits is likely to live under favorable conditions and fair treatment, in order that we may know what to expect. We will first speak of our general standard fruits. Mr. Knight, of England, famous in horticulture, has placed the duration of the apple tree, when worked and grown on a healthy seedling stock, at two hundred years; and says that he has worked and grown a tree in a Plymouth two hundred years old. Mr. Cole also says that under high culture, they often fail at one-half that age. I have now seen several trees in a dairy robbed which were planted near Marietta Ohio, by the celebrated Israel Putnam, in 1756, that were 70 years old, still healthy and bearing perfect fruit, and the original Grimes Green Gippin Pippin tree in Broderick Co., West Va., some years ago, eighty years of age and still in healthy condition.

W. C. Cole, of Massachusetts, in his book published in 1859, the duration of apple trees as 45 years, and claims that the apple tree, in a wild state, with moderate, regular growth, would live one hundred years, or more, and states that he has a tree in a farm in Plymouth two hundred years old. Mr. Cole also says that under high culture, they often fail at one-half that age. I have now seen several trees in a dairy robbed which were planted near Marietta Ohio, by the celebrated Israel Putnam, in 1756, that were 70 years old, still healthy and bearing perfect fruit, and the original Grimes Green Gippin Pippin tree in Broderick Co., West Va., some years ago, eighty years of age and still in healthy condition.

From my own experience and observations in the Ohio River Valley, I believe we are getting the average life of apple orchards there at 60 years. As we come westward we find it much shorter. Some writers claim the average life of apple orchards in Illinois to be 35 years, and some 55 years. From an experience of 16 years [Mr. Murray wrote six years ago] in Northwestern Missouri, I would not feel safe in expressing an opinion the duration of apple trees if our own experience of 25 years. In tracing the cause we fail to find it in any one of the numerous theories advanced, nor do we find it in the geographic situation of the country, nor in the climate, nor in the soil. I believe one great cause underlying this question is that in our Mad rush and greed
to multiply trees, to satisfy the demand for cheap nursery trees, we departed from one of the great and grand laws of nature that should never have been violated, which is in the practice of making one root for each graft, to put each seedling, grafting at the collar, we went to cutting them into small roots, often making from two to five or even more roots from one root stock. This practice may suit the nurseryman who feels that he must grow cheap trees, so he can compete with others who will allow the public no right to couple in so long as they are unwilling to pay more than ten or fifteen cents for their trees, but such stock is not suited for the healthy orchards of the future that once flourished in our country, and that were started before this pernicious style was introduced.

"That this is one of the chief causes of the short duration of our apple orchards is one of our most important and learned experience and from the fact that it has been almost universally practiced, east and west, for nearly forty years, and that we hear our own lamentations repeated by our eastern brethren, victims of the same mistake.

Now, I think that in order to have our orchards healthy, we must, as far as may be, go back to first principles, and pay more attention to the laws of nature. We must renounce both the forced overcrowd and the cuttings stolen.

"We must start with seeds carefully selected from healthy trees—grow them one year, then graft just above the cotyledon.

Several Western nurserymen recently have been Denouncing WHOLE ROOT trees

in the horticultural press, many, perhaps all, of whom truly believe that piece root are better—all for one reason why they should heed the many and well-meaning warnings given by the high authorities. Let us, then, do the best we can and all earnestly strive to advance our beloved profession and the public in general, where it is good we can, rejoice at one another's successes, adopt better methods, and join with all brother nurserymen to grow the best of trees and teach the public that "this art which does mean nature" can produce for the orchards of the future. For, as Prof. Budd well says, "The crown graft is the best and the nurseryman can produce their fruit from one seedling." Answering for ourselves we beg to say that beginning the propagation of whole root apple trees with a plant of 17,000, setting the same sea-
son 260,000 piece root gruits, the number planted last year had increased to over one and one-half million, 600,000 being on whole roots; the plant this year year is nearly three million, more than half on whole roots.

And now we must ask the reader's indulgence. A few nurserymen, while it evidently grow neither whole root trees nor trees on

Mariana Stocks,

but who feel aggrieved over the persistent demand for a few papers with free advertising of their own stock and at the same time, in the absence of any other objection to unions with other growers, an impression that they are sold at exorbitant prices.

This grows vigorously indignant because "the man who pays

four prices for an apple tree," he says, "has no reason to believe that his output is inferior to the man who pays half a dollar for it;" while another distinguished and unselfish nurseryman tells the dear people that "plants on Mariana roots are not worth four times as much as the same sorts on other roots.

Against our usual custom, we will here notice these oft-repeated assertions, lest by their very repetition, they may be charged with truth.

We have already shown the fallacy of the arguments for piece root trees; as to "four prices," while we neither know whether others charge "four prices," nor often publish our own, thereby giving competitors a chance to figure just under us, we will say that our "relish prices" include all costs of packing, risks of transportation, together with interest on delay in the stock, or Terri- toies, freight and all charges paid. If these be "four prices," well and good.

In one of these nurserymen, advocating piece-root apple trees and plums on peach roots, after vigorously denouncing the "four prices," further says, "Plums grated by the Mariana stock, stock, it might have been safer to learn more definitely who favor and use it; since we began to herald the merits of this stock, many others have adopted it. Would the nurserymen who have been satisfied with the "four prices" and modern instances" have cared to go before their readers decriing the merits both of whole root trees and Mariana stocks, if they had kept sufficiently abreast of horticultural progress to acquire, among other possibly useful information, a knowledge of the suggestion that this remarkable hardy and thrifty cultivar, and so far seems to be less liable to die back than the Wild Goose," and in another he says, "in this case never used by other plum stocks besides the Mariana. Another prominent nurseryman, among the several who have begun to use Mariana stocks, says: "The tree possesses great value as a stock upon which to bud other varieties, it being remarkably hardy and of a very thrifty stocky growth. All of the plums that I am offering this season are grown on Mariana plum stock."

Another says, "The Mariana as a stock is No. 1, don't sucker, is a strong grower and imparts its vigor to what is worked on. No. 2 is W. Michigan; No. 3 is Michigan Prince; No. 4 is the great vigor of trees on Mariana; especially so when it ]] unmerced that trees on the Myrobalan are always dwarfed of this stock."

Prairie Farmer: "The Mariana stock is better than the Myrobalan; and being a scion of the native Chinsaw, it is absolutely immune from the guide of the tree. Weeds, and it does not sucker from the roots." W. Jennings, in Southern Horticultural Journal, says: "A row of Kelsey plums on peach roots were made worthless by root-knot, while other rows near by on Mariana were perfectly free. This indicates that where root-knot prevails, the Mariana is invaluable.

may say to the contrary, thinking men will investigate for themselves. The fact that the Mariana has been known to be the most perfect stock known for the plum, prune and apricot, and the best plum stock for the peach when properly double-rooted. We feel a pardonable pride in its successive success, and we think the time has come to let the stock and first used it, having budded in 1880 over 500,000.

hat it has been so successful may be gathered from the fact that with a few exceptions, the number of stock plants received in cuttings our plantings have increased steadily until this season it exceeds one million. Of course, it is impossible for any grower to keep his trees perfectly free from one of their greatest faults of suckering; and is also very hardy, a vigorous grower, and more prolific in its use, excepting only the Myrobalan plum, which is the best plum stock in use. Plum, prune and apricot trees on Mariana, shipped to Cal. and elsewhere, have thus far given perfect satisfaction and results the same as for many years. Before our State Hort. Society in 1886, we ventured the prophecy that the time is coming when the importation and use of foreign plum stocks will not only have rendered the use of native and peach-root Mariana, to us especially, we can say that if the future proves our prediction a failure, we will be ready to eat humble pie. But at the same time, we are desirous of becoming honestly corrected and set the record right.

Glad to get Mariana stocks, even if grown from cuttings, at three times the price on piece-root trees; in a few years' time the great increase in the use of Mariana stock is evident. We may, therefore, confidently predict that the stock used in this year's nursery season will more than treble in value, simply because it offers a chance to make a good profit in nursery work.

A few years ago, when nurserymen, in order to produce trees at the least possible cost, used the cheapest plum stocks obtained, the grower should not have the "cheap Mariana," but strange as all this may be, surely its passing strange that Mariana should back adaptability, yet we have been in the greenhouse all year, and have seen a large number of the Mariana in various stages of growth. The result is that nurserymen should be ready this year to Glad to get Mariana stocks, even if grown from cuttings, at three times the price on piece-root trees; in a few years' time the great increase in the use of Mariana stock is evident. We may, therefore, confidently predict that the stock used in this year's nursery season will more than treble in value, simply because it offers a chance to make a good profit in nursery work.

A few years ago, when nurserymen, in order to produce trees at the least possible cost, used the cheapest plum stocks obtained, the grower should not have the "cheap Mariana," but strange as all this may be, surely its passing strange that Mariana should back adaptability, yet we have been in the greenhouse all year, and have seen a large number of the Mariana in various stages of growth. The result is that nurserymen should be ready this year to

Got a couple of months old, and growing vigorously, with the observation that "the man who pays four prices for an apple tree," he says, "has no reason to believe that his output is inferior to the man who pays half a dollar for it;" while another distinguished and unselfish nurseryman tells the dear people that "plants on Mariana roots are not worth four times as much as the same sorts on other roots.

Against our usual custom, we will here notice these oft-repeated assertions, lest by their very repetition, they may be charged with truth.

We have already shown the fallacy of the arguments for piece root trees; as to "four prices," while we neither know whether others charge "four prices," nor often publish our own, thereby giving competitors a chance to figure just under us, we will say that our "relish prices" include all costs of packing, risks of transportation, together with interest on delay in the stock, or Terri- toies, freight and all charges paid. If these be "four prices," well and good.

In one of these nurserymen, advocating piece-root apple trees and plums on peach roots, after vigorously denouncing the "four prices," further says, "Plums grated by the Mariana stock, stock, it might have been safer to learn more definitely who favor and use it; since we began to herald the merits of this stock, many others have adopted it. Would the nurserymen who have been satisfied with the "four prices" and modern instances" have cared to go before their readers decriing the merits both of whole root trees and Mariana stocks, if they had kept sufficiently abreast of horticultural progress to acquire, among other possibly useful information, a knowledge of the suggestion that this remarkable hardy and thrifty cultivar, and so far seems to be less liable to die back than the Wild Goose," and in another he says, "in this case never used by other plum stocks besides the Mariana. Another prominent nurseryman, among the several who have begun to use Mariana stocks, says: "The tree possesses great value as a stock upon which to bud other varieties, it being remarkably hardy and of a very thrifty stocky growth. All of the plums that I am offering this season are grown on Mariana plum stock."

Another says, "The Mariana as a stock is No. 1, don't sucker, is a strong grower and imparts its vigor to what is worked on. No. 2 is W. Michigan; No. 3 is Michigan Prince; No. 4 is the great vigor of trees on Mariana; especially so when it ]] unmerced that trees on the Myrobalan are always dwarfed of this stock."

Prairie Farmer: "The Mariana stock is better than the Myrobalan; and being a scion of the native Chinsaw, it is absolutely immune from the guide of the tree. Weeds, and it does not sucker from the roots." W. Jennings, in Southern Horticultural Journal, says: "A row of Kelsey plums on peach roots were made worthless by root-knot, while other rows near by on Mariana were perfectly free. This indicates that where root-knot prevails, the Mariana is invaluable.

I am quite satisfied that it is an excellent stock for the P. W. Michigan, and that the Kelsey plum on stone fruit must have time for further observation." It is in no spirit of boasting that we have given a few items, showing the value of Mariana stock, but merely to prove that "the world does move" and horticultural science lags no whit behind, as we look to others to get a sample, we do not explain the fact that the Mariana and its associates, when, with the high hopes of youth, they took the helm. And perchance also if may serve to lib- erate from those who are opposing the use of perfected processes by others could perhaps more profitably be devoted to improving their own, and thereby advancing the interests of horticulture. But with the Mariana and its allies, we have no enemies to be worried; what would it have profited the opponents? Unjust abuse generally does more good than harm. "We are not fighting against your enemy, but for your own one's own. Besides, this is a large country and there's room for us all. No one person or firm can expect to do all the business.

Interested Nurserymen

may say to the contrary, thinking men will investigate for themselves. The fact that the Mariana has been known to be the most perfect stock known for the plum, prune and apricot, and the best plum stock for the peach when properly double-rooted. We feel a pardonable pride in its successive success, and we think the time has come to let the stock and first used it, having budded in 1880 over 500,000.

hat it has been so successful may be gathered from the fact that with a few exceptions, the number of stock plants received in cuttings our plantings have increased steadily until this season it exceeds one million. Of course, it is impossible for any grower to keep his trees perfectly free from one of their greatest faults of suckering; and is also very hardy, a vigorous grower, and more prolific in its use, excepting only the Myrobalan plum, which is the best plum stock in use. Plum, prune and apricot trees on Mariana, shipped to Cal. and elsewhere, have thus far given perfect satisfaction and results the same as for many years. Before our State Hort. Society in 1886, we ventured the prophecy that the time is coming when the importation and use of foreign plum stocks will not only have rendered the use of native and peach-root Mariana, to us especially, we can say that if the future proves our prediction a failure, we will be ready to eat humble pie. But at the same time, we are desirous of becoming honestly corrected and set the record right.

How easy a thing it is to condemn the use of advanced ideas and methods by others even without any experience of one's own, and especially so if the 'shoe pinches. But what interesting to

Discredit the Mariana
"Root-Grafting and Budding.

"This old matter of the relative value of root-grafting, crown-grafting and budding, I have given a great deal of study for years, and have looked into the trees as they grow in the nursery row, propagated in all sorts of ways, and have brought here photographs showing the forming of the tree propagated in the different ways.

"We are indebted to the Prairie Farmer for extracts of Prof. Bailey's photos, Figs. 1 to 4. Prof. Bailey kindly furnishes us photo for Figs. 5 and 7. All Prof. Bailey's photos were taken from Mann apple trees."

Fig. 1.—Piece-root tree, 3 yrs. old.

Fig. 2.—Formation of Piece-root grafts.

"We might divide this whole subject into two parts, and discuss one as whole-root trees, and another as piece-root trees. Or speak about root-grafted trees, by which we mean trees grafted upon pieces, and about crown-grafted and budded trees.

"Piece-root grafting is not new, although in America it has recently reached its greatest development, but so far back as 1811 it was used by Knight, the famous horticulturist, of England, who by chance found out that pear trees could be grafted on pieces, and afterwards extended it to apples, peaches and plums, in all of which he was successful. But Mr. Knight never supposed that this was to be applied in a practical way. In fact, in England, to the present day this method of propagation is used to a limited extent, for ornamental trees mostly. It is only in America that we have used it to a very large extent for the propagation of fruit trees, and you sometimes see in English Journals that this root-grafting is an American institution.

"In regard to the relative value of the three methods, while I cannot begin to settle this matter, I can still throw out some hints which, perhaps, may be useful, for it seems to me that we have practiced it long enough to enable us to have some definite practical experience in regard to the matter.

"I refer, first, to the advantages of piece-roots—not the crown-root, which is sometimes called root-grafting, but the pieces of roots, obtained by cutting a root into two or three pieces. In the first place, this method allows us to make more trees from our stocks; it allows us to double and treble, and sometimes even quadruple trees. In the second place, it cheapens multiplication.

"In the third place, it hastens multiplication. Fourth, it allows deep setting, and is of value especially in our great Northwest.

"Fifth, these piece-roots are very good as a starter. The Cheekasaw and Am. plums have been grafted on peach stock, with the expectation that the peach root will be cut off, or perhaps will die away, and the tree will be on its own roots. I have known many orchards of pears which have been grafted on apples, and after awhile the union fails, and the pear grows on its own roots. Quinces have also been grown this way on apple roots.

"Sixth, it enables us to grow rare plants of which perhaps we cannot get seeds or cuttings, or get stocks for grafting. These it occurs to me, are about all the advantages of piece-root grafting.

"There are some disadvantages in this method of propagation. In the first place, the roots from piece-rooted trees always, so far as I have observed, are more proney, in their character—not so deep, more horizontal, have more tendency to grow near the surface, and have not nearly so many roots as those which are worked on whole roots, budded or grafted. When roots begin to form from a cutting, whether that cutting is made from a root or from a stem, the roots will nearly always form on one side of that cutting, and will have a tendency to push out and grow in one direction. That would be a disadvantage. I have root-grafted a great many trees for this purpose, and in nine cases out of ten the roots were a great deal heavier and stronger upon one side than the other. Whether the tree overcomes these disadvantages later in life, I cannot say, but I saw a case where two orchards were planted side by side, one..."
set with whole-root trees, and the other piece-root, and up
to the present day the latter is not as straight as the other.

"In the second place, root-grafted trees as a rule make
a smaller growth the first year. The tree has not
so much root to start it off.

"Third. Some have said that the union in piece-root,
trees is apt to be imperfect,—persons who are familiar
with the matter and careful in their observations have
made that statement.

"Fourth. Some say that root-grafted trees tend to be
more straggling than those upon which the work is
done upon whole roots, whether budded or grafted.

"Fifth. Trees are apt to tip over in the orchard when
roots are grafted. I am inclined to think that is often true.

"Sixth. People say that these root-grafted trees are not
so long-lived as others.

"Now I wish to speak of the advantages of whole
roots, whether grafted or budded.

"First. I am satisfied that we get better, deeper and
finer roots, in fruit trees; I will not say anything about
apple trees, as I have not pear trees, we get better,
deeper and finer roots upon trees that are
worked upon whole roots.

"Second. These trees have more force,—larger engine
and larger power behind. They grow taller the first year.

"Third. Many say the crown of the tree is to be
grafted and that it must be a vital part of the tree. A
great many think the crown is the best place, and as
between crown and root, it would seem to be true.

"These are the three special advantages of whole
roots. I might say a word in regard to the relative mer-
its of whole-root budded trees and whole-root grafted
trees. I see no especial difference between these two;
with this exception, that we can use a very long chip
and can set the whole-root graft deep down, and in that
way get the advantage of growing the very tip of its
own roots and getting a larger growth the first year.
Budded stock is no doubt the best, anyway in regions where
hardiness is so great a desideratum.

"I should be very glad to have this arisen discus-
sion.

Mr. Albaniq, of Ohio, said that among the hun-
dreds of thousands of apple trees which they propagate
every year, there has been no piece-root graft for the
first six years. He advocated the use of branched roots
instead of those with a single long stem. Said they were
depth so that the union would be, not only in the
nursery but in the orchard, under the surface. As far
north as Mora, with the hay tips, apple, and which
had no trouble even in winters when the temperature was
50 deg. below zero.

Mr. Vincent Van Deman stated that several years
ago he made a series of experiments in Eastern Kan-s-s with root-grafts, using piece-roots from an inch
long, inserted into the crown of the tree, the whole-root
twelve inches long, and found the best success with the
top cut, six inches long. Those that were twelve
inches long did not develop roots below. These experi-
ments were made with the hay tips, apple, and which
was one of the best varieties to throw out roots from cuttings.

Mr. Carpenter, of Nob., thought that the ques-
tion of grafting was a sectional one. In his section of the
country he had a great deal of trouble with the crown of
successful. The soil is too light and they are subject to root
freezing. Another objection to whole-root grafting was
that they are too soft and they make too small a
growth and run wild.

Mr. Stark, of Missouri, said that he did not agree
with Mr. Carpenter in what he said about whole roots.
They had been growing both whole-root and piece-root
trees for years, and the whole root will mature as early
or earlier than the piece-root, as it starts off quicker and
makes its growth early in the season, hence matures
its fruit earlier. Whole-root trees are generally an
inch larger, and make very much better root trees.
Whole-root trees almost invariably tend to throw out
roots from a point lower down than the other variety.
That is true, but if the trees even in the nursery row will sometimes
tip over from the alternate freezing and thawing during
winter, while some of the piece roots live longer. They
had been growing both kinds now for eight or ten
years, and were increasing the plant of whole-root trees
for the reason that varieties of better trees in the orchard
and better trees in the nursery.

Mr. Thirlow, of Mass., said: "I am led often to
believe that budded trees are better than grafted trees.
In several orchards of New York and New Jersey I have
found whole trees covered with borers, and they find
concomitant better in a graft than in a bud. In some
parts of New York it is almost not possible to plant
roots, and in our section we have always practiced bud-
ing as much preferable to grafting."

Mr. Albee, in answer to a question from Mr. Parsons, of N. Y., that in Ohio and the West, they
use seedlings from home-grown apple seeds in budding.
They graft upon stocks grafted in this country.

Mr. Parsons: I do not think there is any question
about stocks. The point I wish to make is: is the
graft made in the nursery and planted out after being
grafted, used to the exclusion of stocks planted in the
ground, growing two or three months, and then budded?

Mr. Albee: About half and half of each. We
graft about half and budding the other half.

Mr. Stark: We bud very close to the surface of
the ground and the trees when planted in orchard are set
a little deeper than stock. But the trees which are stock-
ly is removed. This will make equally as good a root as
the whole-graft, and we find we get a better stand in budding
then we can get in whole-root or grafted, and we get
the same kind of root, the whole-graft or budding
from the crown, the root, leaving the root as long as we can handle it,
getting good results.

AM. ASS'N NURSERYMEN, Chicago, Illinois, June, '89.

Question: What are the advantages of budding or grafting
apples on whole roots when trees are transplanted to the
orchard in the usual way?

Prest: The advantage of budding over grafting, that I can
say that Chase Bros. are using whole roots.

Mr. Samuels, of Ky.: I believe that Prof. Budd
experimented a great deal in that line some years ago.
I would like to hear from him.

Prof. Budd: I would say yes, that once I grafted
a thousand root grafts at the crown; retained about two-
thirds of the growth from the graft, and when I was
with the same varieties on sections of the root, using
the second and third sections and not using the crown.
And I found them a little better. The objection was
that those grafted on the crown roots when I came to
take them up had fewer fibers, but more strong, far-
reaching roots. One of the things that the root-grafted
roots were what would be called better trees to trans-
plant, because they had more fibers and but few strong,
far-reaching roots. But the crown-grafted must be much
in favor of the crown roots. Those were the only
trees ever planted by myself in orchards. In later experi-
ments I found it is always true with the apple, that
the crown graft gives fewer fibers, but stronger, more far-
reaching roots; in my opinion it is the best.

Mr. Willard, of N. Y.: I think that Mr. Franklin
Davis at Richmond, Va., about 15 years ago made quite
an extended experiment in that line. He grafted on
different parts of the root of apples; perhaps he could tell us
his experience or show us the article quoted in the article,
"Whole Root vs. Piece Root Trees,"

Mr. Patten, of Iowa: An objection in the north-
west to using root-grafts is the root-graft, Prof. Budd,
is that seedling roots are not sufficiently hardy.

Prof. Budd: In my experiment, it made no dif-
ference; and I find that the vast majority of grafted pears
in Iowa is to use nearly the whole root.

Mr. Samuels, of Ky.: I would ask Prof. Budd
if the second section of the pear root would not be better
to graft upon, thus using the same.

Prof. Budd: My observation is, sir, that the
second section of a pear root does not contain starchy
material as much as the top, never use the second section
of a pear root with good success; and so with the cherrys.

Prof. Thos. Meehan, for 30 years the editor of the
Gardener's Monthly, and for over 50 years a practi-
cal nurseryman and scientist, in his address to the
Ass'n, 1880, on "LIVING AND LEARNING," said: "I
am a fact we should always hear in mind that when much
pruning is done, roots in like proportion always die, and

35
the large number of decaying roots destroy the healthy ones, thus surely killing the tree. Consequently we should see to it that it is given good support. A small head is followed by a small plant, supporting a small head that is benefited, but it is the large amount of food stored the previous season that causes the tree to grow. The plant is just like the tree with its few branches until its roots become established.

"There is a fulness concerning fibrous roots which should be recognized. It is believed that a plant having many hair-like fibres on its roots is this fulness for transplating, but this is wrong; these fibres bear the same relation to the main roots that leaves bear to the branches of a tree. The hair roots are off to a tree whatever, as it is the LARGE ROOTS which are FULL OF STRENGTH that push out the new white roots. This is the same with the man. I do not know if fibrous-rooted a tree may be; thousands of the small fibres must die before becoming established, just as with the human being. We are told us that it is only at the tip of the NNew fibres that growth is made."  

**Trade Journal and International Horticulturist.** N.Y. June 15, 1890: "It is always to be noted at a meeting of tradesmen that it seems a difficult matter ever to arrive at positive conclusions, opinions absolutely diverse, are stated, and held to vigorously. Especially was this noted in the discussion of Prof. Bailey's conclusive photographic evidence of the poor quality of roots grown in the ground. "The排除" desirable excusals were given for continuing this practice!"

**Geo. Langman, editor Colosan's Rural World, writing on "HORSEBACK ROOTS," PIECE ROOT TREES," says: "I hold article for the 2th, so that neither the compositors nor myself can make any mistakes. No one, not even you yourselves, can realize that the time you are writing or correcting the article you have having printed, and I must and will, if possible, have it perfect. It is one of those articles that none of us are as a party for time to come, and not only must there be no mistakes, but it must be just perfect. Pardon me for troubling you, but I do not just like your measures of parleying. Later—"Have not heard a word from anyone yet in reply to "Whole Roots vs. Piece Roots," and hardly expect to; you have answered the question!"

ENDORSEMENTS and letters complimenting article, we have received by hundreds, and many favorable notices have also appeared in the horticultural press:

**Prof. E. S. Goff, U. S. Exp. Sta., Wis.—**I regard your article in Colosan's Rural World on "Whole Root vs. Piece Root Trees," as valuable.

**Pres't T. Lyon, U. S. Exp. Sta., Mich.—**I have read the article in Rural World on Whole Roots and Piece Root Trees, and find the doctrine is practical as such, save that with weak growers like Red Canada and others, we need to permanently maintain the main root stock, and change the root crown.

**Prof. L. H. Bailey, Cornell University.—**I read your article with great interest, the more especially as I have been cultivating the same article" for many years. My experiments and observations are in the same line with your conclusions.

**Alex. Shew, Secy. Col. State Hort. Society: I have read with much interest your article published in Colosan's Rural World, and write to ask your permission to use it in the coming annual report of the State Hort. Society, stating that the object matter of your essay is of the greatest value, and should be published in book form for future reference.

**Tom Jones, Wholesale Nurseryman, Madison Co., Ala: I have read your article in the Rural World with interest. I consider the Whole Root Doctrine a great advantage, and wish that all growers would be disposed to change to that stock as fast as possible. Such articles as yours are educating to the public and an honor to this country.**

**Dr. W. W. Stell, the well known Tex. nurseryman, in So. Hort. Journal: In Colosan's Rural World I find an article on Piece Root Trees, by Prof. F. A. Stell, St. Louis: There is no question of its being an exhaustive treatise and I fully agree with the writer in all he says of the merits of whole root trees as compared with piece root trees on good soil. In a letter to, or Sept. 17, 1890, Dr. Stell says: "I am on the program of the Pilot Point Hort. Soc. for an essay on Piece Root Trees, and if possible on piece root trees."

In a letter to Sept. 17, 1890, Dr. Stell says: "I am on the program of the Pilot Point Hort. Soc. for an essay on Piece Root Trees, and if possible on piece root trees."

**Horticulturist, Pilot Point, Tex: Whole Root vs. Piece Root Trees.—This to horticulturists, is certainly a question of more than passing moment. If in planting a young tree destined to become a source of profit to the orchardist, the grafting upon a whole root will develop, as claimed by some, a more vigorous and fruitful tree. The writer has observed in the case of large orchards sold during storms or live through destructive droughts, the orchardist is preparing to set a large orchard wants to know the best method. On the contrary, there is no perceptible advantage in whole root grafting. It is a pleasure to know, that so able a writer as Dr. W. W. Stell, of Paris, will soon prepare a paper that will throw much light on this subject.**

**Dr. A. M. Rugland, the editor of the Horticulturist, above quoted, writes us: Please let me hear from you again at your earliest convenience—Stark's Sweet Oak—Piece Root trees are creating a good deal of stir among Texas people.**

**Judge S. Miller, writes us: You may be pleased to learn that many letters and inquiries of the stand I have taken on Whole Roots. One old orchardist writes that he knows we are right. My impression is that it will be found that the pieces will be used in grafting trees. The whole root is the natural system, and we cannot stray far from this line without injury to the trees.**

Later.—"I see that there are still some who, although telling us they are "out of the nursery business and have no axe to grind," profess to prove that Piece root trees are as good and as long lived as if worked on whole roots. I wish I could take such men back sixty years and show them Newtown Pippin trees two If in diameter and forty ft. high, bearing fruit, grafted on whole roots; and such trimming as those trees got would send trees into oblivion in less than a score of years. Herean tree, fifteen years or more after other trees planted many years later were dead—but which had been worked on the new system of cutting the roots of trees. It requires but one sober thought to convince anyone that "a tree is a tree," and that nature never intended a whole tree, or even a half tree, or any part of becoming established on its own roots. In the past fifty years, for I have dug thousands of trees in nursery that had but a few small roots emerging from the graft. Of course in after years they may be cut off. On some of our Western prairies I have seen orchards just about ready to bear, acres of them, all bearing in the N. and E. as an angle, a piece of stem uncensed on the S. W. side, so as to give the flat headed boring a chance. The end of such orchards is far off, and where these trees are grown on whole roots and properly planted? They were not!"

**Later.—Oct. 11, 1890: Whole Root grafts got of you last winter, and many, nearly all the trees were put in the Western Rural, Chicago: "There is much interest in the propagation of trees, as the frequent inquiries in our columns show—Inquiries frequently arising from the misrepresentation of tree agents. The following is from the pen of Clarence M. Stark, of the well known Stark Bro's Nursery, Chicago.**

"M. A. Hooker, (nurseryman), Hamilton Co., Ill., to the Rural World: 'Whole Root vs. Piece Root Trees." Horrified for C. M. Stark in this week's Rural. He has made inquiry of me in the name of a man wishing to see and ought to see that article on piece roots. Some men tell us that whole root grafting is fictitious; the way they have it those grafts stick for seven years, after that they must be cut back, if not go back, etc., etc. May the Lord help us to stop and think and study as we go. It is time, when we look at the apple trees set out by our grandfathers and live as flourishing, standing and bearing fruit, looking like monuments in old, out-of-the-way places, which makes it so wonderful to wonder who put them there; then, look at the orchards of the extensive and beautiful, and know that the roots—two-thirds gone, and replanted with poor, little, silly, piece-root trees—a discouragement to the owner, yes, and to Stark Bros. The man won't buy our trees, and tree dealers and peddlers, with the help of ingenious men, have got them up; and it is true that nini- thing is more discouraging to a man than some failure that he has continued to do till men can or will appreciate a good A No. 1, article. The same principle is found in every other business—boats, farms, men, want cheap boots, and machinery was invented to split the leather and put up cheap boots, and we have them."

**Now, I am not on the side of root grafts; one tree to each scioned crown, grafted honestly, and put up true to name. Though costing a little more, they give some protection, and are a more lasting thing live when we are dead. Nurserymen will have to get into this, or it will not be done, for as a rule, farmers are ignorant of the different modes of grafting.**

**J. F. Simonds, Washington, Co., Ark: I have lately read your "A Tree's a Tree," and was so glad to see a nursery advocating and talking right out in meeting, doctrine which I have been advocating for more than**
twenty years, for I have been experimenting and practic-
ing on the same line for nearly thirty years, in New York, Iowa, and Arkansas.

J. K. Newton, Venturo Co., Cal.: I have had the privilege of growing the fruit of "Whole Root vs. Piece Root Trees," re-published in a Texas paper. I have been greatly interested in the discussion, and have grown both varieties, but we want the best trees; but they will come in by car loads to California, and I want to use my influence in favor of the better tree, a natural exhibit of our fruit, and shall make liberal extracts from your article.

J. C. Vaughn, Marion Co., Ill.: Enclosed find stamps, for which please send price list. Think you "

T. T. Byram, Jewell Co., Kan.: I have read your very interesting article on root grafting. From an experience resulting in nearly half a century, I am satisfied the theory is correct. Have done a good deal of grafting and budding and am now enjoying the fruit of my fourth planting of orchard, and making the fifth planting next year, with perfect prospect of living to see it come into bearing.

G. T. Kimball, Shawnee Co., Kan.: The article in the Rural World contains much that is valuable for a fruit grower to read; it is also a booming good advertisement for your nursery.

M. E. Murfield, St. Louis Co., Mo., State Ento-

Dr. J. W. Green, Livingston Co., Mo.: I believe in the crown graft, and for years have advocated even more than you in the same direction.

W. T. Wright, Nekoosa, Nebr.: I have grown apple trees in this county for nearly thirty years. Have part of my orchard on budded stock above crown, and when the whole root trees have died, y, by far a greater number of root grafts of two, three, and four years' 

Dr. H. J. McFarland, Col.: Whole Root vs. Piece Root Trees, is a true masterpiece. I was at first going to suggest that you take the pith of the article, but upon reading again and again, and upon reflection, have decided on handling trees in orchards and nursery for 23 years, and a close observer in all branches of the business, and had occasion to see many hundred trees, I am of opinion that the varieties of apples, several trees each on whole roots and on piece roots.

R. C. Avery, Saline County, Mo.: Whenever opportunity offers, I give the people more light on piece-root grafting. Hundreds of them, I know nothing of that system, but it soon becomes obvious to them that it was done with care and when the inquiries are made as to where to get right trees, I always refer them to you.

W. P. Hughes, Arcadia Co., Colo.: Whole Root vs. Piece Root Trees, is a very good article. I was at first going to suggest that you take the pith of the article, but upon reading again and again, and upon reflection, have decided on handling trees in orchards and nursery for 23 years, and a close observer in all branches of the business, and had occasion to see many hundred trees, I am of opinion that the varieties of apples, several trees each on whole roots and on piece roots.

Idaho Pear Co., Sept. 22d, 1888.: Shall plant no other trees but your whole root or budded ones, in our apple orchard. We look for you the 900 2yr. Idaho trees, and we think we can secure you some nice orders for the above-named in the near future.

G. R. Fisher, Pueblo Co., Col.: "Whole Root vs. Piece Root Trees." I have read carefully, and I am free to acknowledge that I was accusing you wrongly in respect to it in a paper of ours. The article is not only reasonable, but it is indisputable.

Geo. J. Kellogg, Rock Co., Wis.: I have read your "Whole Root vs. Piece Root Trees." You have a right to be pleased with your success, but the importation of HARD HITS. And notwithstanding the necessity of training salemen on your plan, I believe in the use of hands and direct communication with the planters as far as possible.

Dan Carpenter, Clay Co., Mo.: I have read the article, and think you have handled the subject correct, still I think you may put a little too much stress on the importance of the whole root tree. I read a passage to the effect that you were our "whole root" for nurserymen "rough shod" who would take an order for certain varieties, and then substitute something else, which seems to be the case. I do not care to part with both feet. I mentioned one or two instances within my own knowledge where neighbors began stock for commercial orchards, and when trees came into bearing, they had almost a hundred different sorts, instead of 4 or 5, and very few of them fit to put on the market. This is my own experience; hereafter when needing stock shall buy of you, as I know you are relia-

ble. If you would send a good man to Clay, Clinton and Ray counties, you could sell considerable stock.

Jno. H. Young, Rusk Co., Tex.: Your circular just received, for which please accept thanks. "Whole Root vs. Piece Root Trees," is the most immortal advertisement your nursery, and secure to you a monopoly of trade. If you could see the disastrous effect of piece root trees in this country, you would emphasize more strongly your condemnation of the system.

R. McB. Smith, Pike Co., Mo.: MY FRIEND AND I.

(We talked of Orchards and Fruits. He said—)

Come go with me, if you wish to scan
The finest orchard in all the land;
And breathe with pride,
As a groome would speak of his lovely bower.

(asked—"Who grows them?") He said—

Nigh on to sixty years ago
The Starks began fruit trees to grow,
And now they have more "old Oak" trees
Are better than any between the seas.

(asked why so named? He said—)

You ask why—and the question's fair.
They're called "old oak," cut off the top, and to kill one-half of it, cut one-half of it off. The other half will appear to be more vigorous for awhile, but soon meets a premature death.

THE OTHER SIDE, as the Trade Journal says, hold opinions directly the opposite—"doctors will disagree." Some of course still fight for, and cling to the "good old way," all men don't think alike about whole roots, any more than they do about the tariff.

Pres't J. C. Ferris, of Iowa, in Western Rural: Whatever may be the case, in the Territory of Missouri, there is not a horticulturist of good standing in Northern Iowa or Minnesota, who will advocate planting apple trees grafted or budded at the surface of the ground, or with the union of stock and stock near the surface that the union will not have abundant root above the union. If there is such an horticulturist in the Northwest, let the advocates of whole roots name him. I can name 100 substantial farmers in Northern Iowa who have tried both root-grafted and budded trees.

There is but one side to the question of whole or piece roots in Iowa and Minnesota. Let those who hope to again spring the budded tree market in Iowa be warned for their success, as the example is one of those that will be followed.

Pres't F., like so many others, insists upon classing budded and whole-root grafted trees together. Prof. Bailey shows the distinction very clearly. Prof. Bade's experience also should certainly be of force in the Northwest. As to the surface point—piece root grafters cannot seem to understand that an equal long can be used for a whole or collar-root graft; that it can be set equally deep, and is equally situated to get on its roots; besides the natural crown or collar will be preserved with plenty of root to support the tree, and at the same time have the secluding deep under the surface.

But suppose that whole root trees will not stand in Iowa and Minnesota, and further North. No more will
orange trees grow in Manitoba! Because the frozen North cannot grow the finer sorts of apples on trees propagated in nature's way, does not affect their value for the great APPLE REGIONS. Mr. Ferris, you and one of our friends nearer the Arctic circle, ought not to try to improve rooted cold-weather apple bushes. Besides, you should remember, we, in the APPLE BELT, don't want our long-time Northern apple market cut off by a home grown article. Give us protection for our Infant Industry! (Sub rosa—this is now over fifty years since your buyers first came annually to bid against each other for the crop of the "old Judge Stark orchard."). Better grow some sour summer Russians, and every fall sell a few barrels of Illinois or Missouri grown Jonathan, Grimes Golden and Janelon! Seriously! If whole root trees won't do in the far North, why, don't plant them; but please do generously allow them to be planted where they are the best trees for profitable longived orchards.

**B. H. Wier, late of Illinois, late of San Francisco, and lately still of—**, a sometime-prolifer correspondent of many horticultural papers, surely must be "off" with the editors thereof, for he sends us a profligly marked copy of a California county paper, in which, as he says, he "demolishes" our whole-root arguments. Fearful lest we shall not feel badly enough about it, he even writes us a personal letter, gloating with "ghoulish glee" over his prowess and our prospective discomfiture, and pleasedly adds, that if we don't like it, "to put it in our pipe and smoke it." Mr. W.'s arguments, so far as the language, and the arguments alike, are logical and convincing to a degree:

"The one great trouble is that we have so many papers, trying to run horticultural departments, whose editors do not know the least little bit, and such serenades as this keen wits is trying to deliver to the klaxon like to get hold of. The whole thing is bosh; it reads with all the force and direct authoritative brevity and untruth that W. W. Webb of Des Moines, and so well calculated to do great injury; for there is not one truthful or practical statement expressed. To make any such speech made assertions, and will try to show we are wrong."

Mr. Weir then proceeds to answer seriatim. We briefly extract: 1. We will see as we proceed. 2. This is exceedingly silly. 3. This is a direct contradiction of other statements expressed in his serenade. 4. This is correct, the only correct sentence in his category. 5. To make me believe the true would take too much space and time to show up here. 6. Here our friend says exactly what we are trying to prove and always means to have it all to do with the future of a tree in any way for good or for evil, than the number of hairs in a pig's tail has with the pig's skin enough."

**B. S. Vandyke, Waukegan, Ill., in Southern Horticultural Journal**: "I proved conclusively one year ago that whole roots were better than cuttings. One piece grafts were superior to whole root grafts. The spring was wet and rainy. The piece roots grew fine, while the whole roots seemed to stand still; the tap root roted in nearly every instance."

Mr. V. has thus settled in one year what Downing, Barry, Berekamans, were lifelong learning. Like others, he, I imagine, has overlooked the everlasting root colonies on whole root grafts, but planted the long seedling without shortening back. The result was what every practical man knows, that especially in the eastern Illinois in a "wet and rainy spring." His one piece grafts were likely just what are known to the trade as whole root grafts, and his two piece grafts are a very different thing from the half dozen pieces or more into which piece-root nursemen cut their seedlings.

**Judge Elmer Baldwin, of Illinois, in The Prairie Farmer**: "I have never seen or used grafts cut into two pieces, grafting each alike and setting in separate rows. I also cut like ones into 3 pieces, setting in separate rows."

We avert our vision from this group of vigor of the trees, except that the latter pieces had a stronger tendency to form branch roots than the crown, or top piece which might be expected, as the further down from the cut the better the tendency to branch, and form fibrous roots. As to whole-root grafting, I cannot comprehend the idea. A No. 1 seedling is from one to two feet long. The crown should be four inches, and the union of graft and crown should be set at least three inches under the surface. To set 50,000 grafts, averaging eighteen to twenty inches long would be a serious job. I believe the majority of nurserymen favor grafting on fair length piece-roots as the best."

Exactly. And the evidence adduced proves that a fair length for the root of the rooted section is all that is required to make the best tree. Shorten the root to a fair length, but not too short; otherwise you cut away the central part of the seedling, where resides the mechanism to put forth sprouts. The piece of the crown graft cut short is not so good as the second cut, for then it will put out only shallow roots. Yet, some nurserymen say "part of the root," because the crown pieces went in with the other pieces. On the other hand, in grafting do not leave enough of the second cut of the seedling, or use the so-called like fibrous roots, which Prof. Meehan shows are worthless. Judge Baldwin cutting roots one to two feet long will only use two thirds piece and will not plant the one inch pieces used by piece-root propagators. Without a doubt, when practical fruit growers understand the almost universal acceptance of whole-root grafting, the controversy will be at an end.

**J. Webster, an Ill. nurseryman, recently elected President of the State Hort. Society**: To my mind there has been enough said before to indicate that we have yet anything as good as a tree on its own roots. I passed the Am. Ex. Co.'s office in our town this spring, an old and sought after variety was ready on the trees on several bales of trees to the passers-by.—Old Oak Process. He remarked, if that is not intended to deceive or sell me some piece-root on the old oak process. I know how to express it in the American language. Are we not gentlemen sending out the Old Oak Process, strong, muscular graft and grafted tree. The demand for cheap trees has created a demand for cheap apple seedlings. No guarantee of hardiness can be sold with such seedlings. The increased demand of the manufacturers of piece-root trees, and for that purpose meet the requirements, with few exceptions; if such seedlings make hardly, iron-clad, long-lived trees, who would not plant. I am inclined to think, and are likely to prove a panacea for all the early decay and decline of our apple orchards, then the sooner every one catches on to the Old Oak Process."

Prest W. admits the existence of early decay and decline in American orchards, and should he and others of the same school be disposed to trust photographic and other evidence given by Prof. Bailey, and the conclusions arrived at after a life-time of experience by such men as Judge Berekamans, and others, it is a foregone conclusion that his nurserymen will soon "catch on to the Old Oak Process."

I do not mean to say that Judge Webster's stock is sound and seeks to obtain his trade-mark, he will find that the U. S. patent laws will not permit nurserymen to obtain a trade-mark on "Trees." The law is perfect. Oh, no, the laws prescribe it shall be a fanciful name. Perhaps Prest W. will originate a better name for his trade-mark than ours; the field lies open to him.

**Mr. W. A. W., reading a brief excerpt from our article, republished in the New England Homestead, writes to the paper**: "I have rarely seen so much crudity, so much assertion with so little basis. In the article from the Homestead of July 25th. These nurserymen in controversy are not a question of whole roots anyway, but whether the piece-root methods are better or worse than the seedling root means a root a foot long. In root grafting such a root is never used. The top cut is not a whole root. It is to root cuttings. A cut that is green that is grown by the Homestead did not contain the explanation as to what is meant by crown or whole root grafts, hence, Dr. Hopkins falls into the usual error about using roots a foot or two long. It is true that each as from cuttings. It is likewise true that this method is against nature—as may be readily seen by referring to the various methods. The Homestead does not care, know that-cuttings—be they grape, quince, Le Conte pear and the cuttings of piece roots apple grafts
rarely and almost never put forth any strong, deep-reaching roots. This assertion is untrue as for LeConte cuttings. Pedigree Le Conte are strong-rooted trees.

It is well known that the "pet theory" of Mr. Jenning's is absurd. He does not claim to have figured out the root system of his trees, but by claiming them to be free from blight and possessed of a thousand and one other points of superiority over LeConte cuttings in the nurseryman's eyes, he has mentioned the word "Le Conte"—hence these tears.

But perhaps Mr. J.'s irresponsibility is pardonable, considering the immensity of his task. Even in the horticulture column he has been known to use "pet theory" if he "really desires the truth," about pedigreed LeConte cuttings, there are hundreds of prom- inent nurserymen, who, without exception, are now in wholehearted agreement. A subtle and unctuous sense of abstraction has made all the world say, "Well, I suppose he's right—you know, according to the dictionary!"

So with all the world, I suppose Mr. J. is right in his claim to have lost his "pet theory" to the elements. And his friends, the tree growers, are doing their best to help him keep his "pet theory" to the elements.

Blank & Bros., nurserymen of S. W. Bol, in their latest list say: "Le Conte cuttings are put forth, making comparisons between trees after the manner of patent medicine men, 'before taking and after taking' the medicine. Pedigree Le Conte root trees—at about double and treble rates, yet "their advertisements gives them away." As the ways of propagation differ, for the sake of investigating it, we will mention nothing about it; but we will here state that the majority of our apple trees are piece-root grafted. We do not claim to have the best or the most beautiful, but we charge double prices for same. All go at the same price here.

Thus, we build trees. This is a whole root process with the advantage that the root system is not crowded out by a bud, and in receiving such trees, the purchaser can see at a glance what he is getting.

Mr. Amorose, in his list for batch before and after taking "is what these gentlemen mean—it is certainly bad medicine for piece root nurserymen. "Ways of propagation are so easily understood—from the length of the controversy and the number of letters recently received, it appears there are still some who find it hard to under- stand, although Messrs. B., assert it is easy. Possibly the hardest part is that the new list is not yet tardily corrected, after "hearing the news" so long ago proclaimed by Downing and Berckman, and since repeated by American plant physicians from ocean to ocean. As all go at the same price, the minority portion of their apple trees are certain to be quickly sold. The miracle of this particular piece-root grafted, will, without a doubt, move off more slowly. Most Western nurseries "bad trees;" but very few bad apple trees. We feel this is a happy thing, because the general reception can be practiced in the "whole root process;" they do indeed show at a glance what they are.

So easy to understand, and settled by Mr. Van Dyke, Prof. Brunk, and others in a single year, yet Pres. Evans, of the Mo. State Hort. Society, after a lifetime of effort and experience, does not think the tree now. He does not think whether it is best to use whole or piece roots. "How true it is, Messrs. B., Van D., and others, that knowledge comes, but wisdom lingers."

Mo. State Hort. Society; extracts

Mr. Amorose: What about the whole root? Prof. Clark: I suppose you mean the "Old Oak Process"? I will tell you who. What has an oak to do with an apple tree, anyhow?

Everything, professor—if the apple tree happen to be grafted on a "vigorous, first-class" white oak sapling! At the last meeting the subject again "came to the surface," it will NOT down. Report of proceedings: Not too much emphasis can be put on the "Old Oak Process" again in the discussion, and closed as it started, each party being of the same opinion as before.

Mr. Greathed: This is not near the correct word, but it has the right number of letters, an easy tree dealer, more lately a piece-root Nebraska nurseryman, and recently of record loudly condemning his late brother top tree grower, now the fashionable "Old Oak Process". Of course speaks with the authority of knowledge, as we learn from the coat of arms emblazoned on his firm letterhead:

"Mr. Amorose, of the Mo. State Horticultural Society, Kansas City, President of the Missouri State Horticultural Society, Vice-President of American Nurserymen's Association!"

Now, for Mr. G.'s especial benefit that the latter association, at its last annual meeting in New York City, unanimously passed a resolution prohibiting its members from using their official position to advertise their own private business; but notwithstanding this richly merited rebuke was thus pointedly administered, Mr. G.'s banners, with the prescribed heraldry, are still hanging on the outside of his office, from which the admiring public is supposed to derive its ideas, in the Am. Association of Nurserymen—which association, in his character of "fertilizer manufacturer," he eagerly failed to "run"—but who also "works" his State Horticultural Society for "all there is in it," engineering through a "pet theory," which is an old, old tree, except these except they be propagated on piece roots and by home nurserymen—this man, this "pure and simple" sociologist, is superintending..."

"Piece-root Orchardist," a distorted review of our C. M. S.'s "Whole Root vs. Piece Root" article, in which he pleads probability and plausibility.

We notice an article going the rounds of the press, written by one Stark, of Littleton, Colo. This Ann Stark is one of the "pet theories" of the West. Mr. C. M. S. has praised whole root grafted and condemns piece root. He claims the sole cause of the early death of apple trees should be attributed to theirs being propagated on piece roots.

In reality piece root trees are grown from cuttings, as there is only enough root wood to furnish water to sustain life until the root throws out roots and the tree becomes on its own roots. The seedling root being too deep in the cold ground to ever develop much, the eien has to depend upon roots of its own origin, and virtually the piece-root graft is a cutting. There are mulberry trees in England 500 years old, olive trees in Spain 1000 years old, and some men say anygra 1000 years old and all grown from cuttings.

To cap the climax the talented Mr. Stark, in the very new paragraph, says: "Mr. C. M. S. says: "To find out where to cut apples—on the Mariana, grown from cuttings"—practically admitting that trees grown from cuttings are the best. He assails the writer of this article in his position regarding the "pet theory" in the West; he says Mr. Amorose, nurseryman who has no plumb to offer on Mariana stock, when the facts are he has over 300,000 for the coming trees." And he glorifies his work by an article on the "inability of trees grown on whole roots to stand the climate north of Mason and Dixon's line.

Now, the whole truth is, the Pike Co. Nursery is trying to live on the "Old Oak Process," and the whole Co. has but one claim on the Mariana, grown from cuttings—"the one. Mr. D. and others are doing with the piece-root grafts, I make this Pike Co. Nursery has the audacity to ask ten cents extra for that which cost them the twentieth of a cent. Verily, Mr. Stark can afford to write long articles on this subject. He is an interested party.

Thus gently and swiftly closes Mr. Greathed, e-... "As though a rose should shut, and be a bud again,"

It was unknown to suggest that so virtuous and selfless a nurseryman, himself could have selfish interests to secure the prosperity of the tree-growing others, so we will let his transparent insincerities pass.

Now this "Mr. Stark" said that piece-root nurserymen cheat the "Old Oak Process." He is no more pleased to note that eminent a piece-root authority as Mr. G., admits that he uses "only enough root wood to sustain life," but the plants perish; or must perform their actuating root, says Mr. G.; who now dare dispute?

The historians of the Dark Ages in our eager search for data between the lines in the "Old Oak Process," we have access to so minute and complete records as must be the ancient archives, which preserved and hid from the eyes of day all the personal and individual progressions thought so daringly brought to light by the scholarly Mr. Greathed the root system, without mention of the fact, but of day and date when were planted certain "Russian" mulberry cuttings in England, olive cuttings in Spain, &c. and many, many others. In the "Old Oak Process," everybody's mulberry cuttings—which history has left so sadly bluffed in the life of the Discoverer of America!

"Mr. Greathead, as quoted as saying: "the only stock suitable to bud plumb on is the Mariana grown from cuttings, practically admitting—"...is practical"—misleading. Mr. C. M. S. says: "piece-root grafting is a pet theory," his admiring critic, the editor of the Iowa..."

Mr. Amorose was Mr. Greathead "assailed" by name—but let that Gillette and the "public peace." The 300,000 trees on Mariana stock Mr. C. M. S. has ready for the coming trees—"laid the past summer," and no one who volunteers to furnish trees for the "coming trade"—in coming years.

Possibly "one Stark" ignored "the statement I make," because, to quote one of Mr. G.'s fellow-townsmen.
men, "Greathead talks too much, and not much can be depended upon what he says."

The "No. 2 apple seedlings used for whole-root grafts" by Mr. Greathead (when he makes any whole-root grafts, and which, as he says, "make two piece-root grafts," thus "practically admitting" that he uses second-class roots for his piece-root grafts just as we charged is done by piece-root men, may be worth but $1 per thousand; but "vigorous, first-class stocks," which alone are used by "this man Stark" for making both whole-root and piece-root grafts, are worth to-day $8 to $17 per thousand—indeed, the talented Mr. Greathead, in his wholesale list, quotes his "dollor" No. 2 at $2.50! We state the facts, as to what Mr. Greathead, in his paper, really states, as to what Mr. Greathead, in his paper, really states.

Mr. "Wisdom," in Ter. Farm and Ranch, Oct. 1, 1909: THE "WHOLE-ROOT FRAUD."—The country is swarming with "agents" running this fraud upon unsuspecting platers, crying down all honest nurserymen for untruth and fraud. The comparison of the whole-root nursery and the piece-root nursery is a futile attempt to discredit the whole-root nurseryman, who have their "Greatest Nurseries on Earth" have a patent on grafting on whole roots. The agents show a long, laborious, and sometimes a fraudulent "history" of the whole-root nurseryman, and seduce the public by their less valuable trees than the other nurseries grow, at two to four times the price. The greenhouse nurseries, and in other greenhouses, do propagate on whole-root (which I much doubt) their trees would have to be dug from the nurseries, and give the result of the two methods as illustrated on this page. In this case the piece-root tap root is necessarily cut off, leaving trees with a central stub, and a few or no side-roots, which are the only value lies in a young tree that a few years will planted the tree makes the whole-roots trees. We cannot grow trees properly grown on piece-roots, have ample, large, spreading roots which hold the tree steady and give it plenty of root surface to support the tree from the start. I readily admit that seedling trees coming up and growing per- manently without transplanting, will probably grow slower and cost more but is a better average than that of a dirt, and we have to strike back with what force and skill we have. As to Mr. Wisdom, we have even gone out of our way to give him a "false" passage of history that is not from a "whole-root" Tree salesmen, written by our Mr. W. P. Stark, to see C. Goodman, and published in last Report Mo. State Hort. Society: "Now let us give you an instance, though it is only one among hundreds; you are acquainted with Mr. Wisdom, than whom there is no higher authority in the country on horticulture; he also does a nursery business by sending out catalogues. Now one of his standing, as a man of course is popular and well thought of at home. Yet this summer our salesmen have gone into Denison, Texas, and sold several hundred cases of奢- stock—and not one word has been said against Mr. Wis- dom or his nursery, for it is above reproach, besides that it is not the style of doing business. Now that these Deni- son people who have sent us their orders been left alone, we think not one out of a hundred would have gone to Mr. W. with their own free will and bought a bill of goods, or have planted any trees at all. And had we mailed them all catalogues perhaps two out of a hundred would have given him an order." Mr. Goodman replied, saying: "I believe every word and am guilty to a mistaken estimate of men—in one case at least. The misanthropic Mr. W., in his turn, malignantly says of us: "It is a whole root nurserymen. We claim that these whole-root nurseries are propagated on whole roots. An authority at least equal to Mr. W., says it is wanted that one man who痘t come out of the horticultural world. This is true in this case, as always, may be seen by a glance at Mr. Wisdom's "likeness" and then read their "Remains."—Look at those figures, Mr. W. lately wrote the Rural New Yorker: "So far, in spite of my advertisements, I find myself behind some hundreds of dollars in introducing the Parker Earle Sweet Apple." This we are aware is a common lot of introducers of new fruits. Mr. Philip- sonally continues: "Notoriety, fame, wealth, are hol- lowness to do good and bring joy." With this all good men earnestly agree; but did it not occur to Mr. W. that the "bubble reputation is as precious to whole-root nurseries as to piece-root prop- ertors?" One would think, if not could it not occur to them, that the country's "giving the lie" it might be only the part of Christian charity to "come and see," as dozens of prominent nur- serymen have seen, and others have seen, Mr. Miller and others; also of Maj. G. W. Combs, President Hart Pioneer Nurseries, who came to demolish whole- root trees, but went away converted to the system. An
Ill. nurseryman of many years experience, came lately and was most agreeably surprised at the extent of our stock, especially at our success in pear growing; and before we had gone one-third around our several places, he said he had seen more than he expected to find in the whole east. And his candor in this view, we will mention Messrs. Storrs and Dayton, of the Storrs & Harrison Co., one of the best Eastern nurseries doing an immense business. It is exquisite work, and flowers and fruit now have taken the place of the dried yews. The nurseryman, however, except that Mr. Storrs, after looking over and taking in the extent of our large apple block (four million and one hundred thousand trees), and upon being asked why, said, "This is more trees than I ever before saw at one time."

Then, after closely examining our system of handling great numbers of trees, he said: "I am going to copy others; down East every man copies every other man, and so all have kept in the same old ruts until they have been driven away."

So well pleased was Mr. J. H. Hale, particularly with our new packing houses, our pear, peach, and this large block of apple, that he asked my name, and said: "I shall use the graphs taken to be used in illustrating the Census Report. Mr. Hale is Census Supt. for the Dept. of Nurseries, &c., and is one of the best known men in the East, particularly as a peach grower, having sold his crop last year for $25,000—and, by the way, he wants us to supply him 5,000 Elberta for his Georgia orchards.

Mr. Hale is a field man of others, yet would have us believe that his own virtue is like unto that of Caesar's wife. Else why does he accuse us with charging two dollars for the propagation of the headstrong obstinacy after we have been at all the expense of working up orders, come in, and, with malice secretly, rasp away the name of the entire price, thus practicing a double deception in his vain and ineffective graspings after a trade which his lack of business principles will never enable him to control. For verily his scepter hath departed. His vanished catalogue is his "only authorized agent." Now this "agent," it would appear, has been a "very popularly estimable

and worshipful." For the "agent," while traducing and trying to muzzle the reputation of competitors in the effort to maintain a winning trade, either forgets or is blind to the practical necessities of a successful business: BRAINS, EXPERIENCE, CAPITAL, ORGANIZATION. Nor has the "agent's" sufficient penetration to discern the vultures; the deceivers; people who are buying from us better trees delivered free of cost at as low, and in fact much lower prices than you 'charged' asks them to pay, besides paying their own freights, taking their own risks, etc. A few of the "agent's" prices, Fall '89, compared with our retail prices:

<table>
<thead>
<tr>
<th>Fruit</th>
<th>&quot;Agent's&quot; Price</th>
<th>Our Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gano apple</td>
<td>56c</td>
<td>30c</td>
</tr>
<tr>
<td>Loyo</td>
<td>35c</td>
<td>25c</td>
</tr>
<tr>
<td>Loyo peach</td>
<td>50c</td>
<td>30c</td>
</tr>
<tr>
<td>Grant peach</td>
<td>61c</td>
<td>31c</td>
</tr>
<tr>
<td>Orange C. peach</td>
<td>35c</td>
<td>25c</td>
</tr>
<tr>
<td>Plum</td>
<td>50c</td>
<td>25c</td>
</tr>
</tbody>
</table>

"Four prices" forsought! But the "agent" is at last beginning to realize the truth of Lincoln's words: "You can fool part of the people part of the time, but you cannot fool all the people all the time."

We shall leave this "honest nurseryman" and his "honorable competition," shall say farewell to his glowing, giltting, triumphant—art—the picturesque which paints a moral and adorns a tale—shall leave as they are left, with a simple statement of fact: Mr. W., arrogating to himself not only the physical, better than thou, but also absolute infallibility, presumes to impeach the business integrity of nurserymen and dealers in fruit, with whom we have not even begun to compete. We went to their nursery, and to his nursery, and saw the trees; and parted our fruit, and send the embers of bearing pear trees in their orchards, sent them by Mr. W. "Wisdom," and then why not let us be told the truth, and not be surprised. I was told that Mr. W. "Wisdom" should send them trees that are bearing anything and everything with the varieties named on the labels.

CONCLUSION: "A word or two before you go" and we have done. The amusing assumption of a few weeks ago is all gone at once, and there is but one side, and that their own side, and that all fruit growers are with them, is only less grotesque than the famous resolution of the tailors. "We, the people of New York," and it is impossible to find their "peculiar excessive" for advocating piece-root trees is the verdict of the great tree-planting public.

In my paper in Dr. Johnson's "The Devil was the First Whig.

In the piece-root man's view, whole-root propagation is the public welfare and the orchards of the future. They say, in effect, it is organized an attempt to maintain at all hazards a false system of planting, to support the "agent's" popular, and "agent's" valid, good, "honest piece-root" trees, and proposes by every form of fraud to undermine piece-root nurseriesmen—in short, it is bent upon the ruin of all that good men value.

But the "agent" uses no such assumptions; the piece-root party, composed of virtuous and unselfish piece-root nurseriesmen, and including all fruit growers, aims at fair dealing, aims at fairness, justice, general intelligence, universal prosperity and happiness—all to be achieved by the wisdom of God and the system of piece-root nurseriesmen. The piece-root system it is which has done so much for the country, for instance, that has made the orchards of to-day such luxuriant, such productive, more productive than were the orchards of fifty years ago.

These are the fundamental assumptions, and all the rest follows. We may plausibly draw conclusions that do not follow from their premises, thereby seeming to justify them. They allege that every result of a long-lived one is made by the piece-root system of manufacturing, and the utterance of great men like Downing, Barry, Bercmans, are contumaciously and ostentatiously neglected—all these things are said and done in a way designed to excite the mirth and ridicule of the unthinking crowd, composed, perhaps, of those who wish to have the whole-root system choked. We shall act wisely.

Well, let the piece-root men not forget for an instant that in all their calculations whole-root trees are still to be reckoned with, and, as a matter of fact, these piece-root people are already becoming extremely uncomfortable. We cannot choose but to some extent to escape from their "agents." We can propagate and sell Old Oak Process whole-root trees.

As for the whole-root doctrine, its principles are true, truth is the very yeast of life; and perhaps the discussion, like Wordsworth's streamlet, will:

"Murmur on for a thousand years, And flow as now it flows."

DR. W. W. STELL, Paris, Tex., just writes us:

"I enclose article read before the Pilot Point Hort. Soc. on October 11th, by Prof. Brunk—who learned all there was to be learned about this business in less than 4 months—he having left Tex, for Maryland. A few others, however, stood against me; but I proved anything they wanted to do to it. You see I did not carry along with me a picture of a horse, like the boy's or Mr. Munson's, under which they said to write "this is a horse." I carried the horse along, and several at that, also some coals 2 yrs. old and some old Chicawot ponies,—as it were.

"You ask me to answer Mr. Munson's article, in Tex. Farm & Ranch, of Oct. 1, which was a direct attack on you, and wants points on Mr. Munson's high prices. We want to meet you on some level, not prices, etc., to keep up three prices, I can tell him where to get a few—this sort of work simply is not right. He lives in a different country from us."

We extract from Dr. Stell's article on "WHOLE ROOT VS. PIECE ROOT TREES:

This is a subject of national importance. It is attracting the attention of the public than any other agricultural question, and one I consider second to none in importance to the country at large, and especially to the southern states. The mode of propagating the apple is the question at issue. I will, therefore, confine this paper to that tree. Once in every cycle of years the same question springs up. This is to be expected because the apple is one of the earliest trees to resuscitate a dead issue and lulls followers, the subject having been dead and buried so long as to have passed out of repute. After the fall of man and the tree takes place, the corpse remains dead for a while and resuscitates in due time. This is the history of all controversies—swept away, but resuscitating. We who advocate propagating the apple on whole stocks, claim that a tree thus propagated has a more perfect system of veins, which, coming downward, give it greater depth and thereby safely carry the tree through droughts, storms, etc., and that such a tree is far more vigorous, fruitful, and resistant to disease than any other that is more in accord with natural laws; for we claim that nature only intended one tree to grow from one seed.

But much of this through the hand of man changes—and not always for the better. I would that you understand me. I do not recommend the planting of apple seed or seedling trees in the orchard, but I do strongly advise the using of the trees from the best of whole, healthy stocks—which is getting much closer to nature and nature's laws than those grafted on diminutive bits of remaining life. There are, of course, propagating trees issuing from these to throw out a good system of roots, for they will not do it. A cheap method of propagating trees brings
The following, from D. S. Vandyke, however, is good reading. "We have already quoted Mr. V." This is certainly one of the best whole-stock papers that Mr. Vandyke meant by one-piece graft, unless it was that he only cut one piece from the seedling for his stock. If so, that is not the piece we are talking about. The following assumption follows that he made his whole-stock grafts on the entire root of the seedling, thus having a graft 15 to 20 inches long that would require a post auger to plant. No pumping was necessary with those roots rotted, as they would rot in a matter of weeks by the heat and rainy Spring. If I am mistaken, and he cut his stock the usual length, and the top roots rotted, this proves contrariwise, for two things: But, that his soil was wholly unsuited for nursery and orchard; second, that his piece-root trees made no roots of a penetrating nature, or they would have reached down below the water line into that cold pipeclay, and they, too, would have had their roots rotted. This I regard as a strong point in favor of whole-root trees on such soils as orchards should be made on. I would not advise anyone to plant fruit trees on soggy lands, if the idea is to propagate apple trees. I would not advise anyone, if Mr. V.'s, in protruded-rotworts, or when they come into the water, to be planted.

In the Petaluma Courier of Sonoma Co., Cal., will be seen an article by C. W. Bier. This he intended as a criticism of some of Mr. Wier's articles. In a number of his articles, on "Whole-root vs. Piece-Root Trees," which appeared in Colman's Rural World, Mr. Wier, after having stated his cases very clearly, second, his views on grafting, he raised the question of face roots, they may live and take on a somewhat vigorous growth during favorable seasons, or on such soils as Mr. V.'s, but in protruded-roots, or when they come into the water, should be planted.

1. Stark: Trees grafted on pieces of roots can never equal the whole-root stock in vigor; they make the best of all trees. My experience has been during 30 years, having propagated many hundreds of thousands by the whole root method, and never again with Stark—and I never used a root under 3 to 4 inches long.

2. Stark: A small piece of root cannot support a vigorous growing tree; this is exceedingly silly; the whole-governors and builds up the roots. Experience teaches that while a small piece root will, under the most favorable circumstances, for a few years support a comparatively vigorously vigorous growth, the foliage does not build up the roots or rule their growth or depth; and that this vigorous growth does not last longer than the first production of the tree. Examine carefully the samples on the table of these small piece-root trees; they build up the roots and governs them in every way. Then examine the 1 and 2-year-old, grafted upon whole stocks, trees with the same grafts propagated by the whole method and planted years before the later-day products. A few years hard struggle to make a living, but on the larger diameter. That is the answer, "apple trees don't live now like they used to. I asked Mr. Vandyke, a nurseryman of the North, why? I claim the main cause is the mode of propagating. These manufactured Cheap-John trees have never made anything, ever. They are now being killed by the millions annually for the last 30 years. The piece root advocates claim that an apple tree is better when grafted on pieces of roots, and the shorter the piece the better, just so it is long enough to splice to a long clon, as they expect the clon to make the roots to sustain the tree in the future. These advocates have recently stated their positions in the papers, four in the Southern Hort. Journal and one in the Petaluma Courier, of Cal. One from the piece-root trees are as good as, if not better; that last winter he got 4 new scions and in four months the piece roots had made as good, if not better growth, than those grafted on whole stock. So a whole-root system would have been solved to his entire satisfaction in a third of a year.

2. Stark: It is not for a crown of nature is a serious defect but still not the most serious fault of piece-root trees. Wier denies; says "it matters not how much a tree is broken by the faults is in a matter of a third of a year."

3. Stark: In this I hold he is correct, provided the remaining part has either a developed or embryonic bud. We can not take a piece of any. Of course, I am speaking to get at bottom facts, I must say that I differ entirely from Mr. Stark as to the ideal tree being a sucker from the original root, that I have not seen any sucker, nor have I seen none succeed except the old horse apple. This does make a very good tree from the sucker. Other varieties can be found to do.

7. Stark: The absence of a crown formed by nature is a serious defect but still not the most serious fault of piece-root trees. Wier denies; says "it matters not how much a tree is broken by the faults is in a matter of a third of a year."

8. Stark: In this I hold he is correct, provided the remaining part has either a developed or embryonic bud. We can not take a piece of any. Of course, I am speaking to get at bottom facts, I must say that I differ entirely from Mr. Stark as to the ideal tree being a sucker from the original root, that I have not seen any sucker, nor have I seen none succeed except the old horse apple. This does make a very good tree from the sucker. Other varieties can be found to do.

11. Stark: It is not expected to form a perfect root system, crown and top, all from the same crown, Wier says "it doesn't perfectly." I hold this to be one of the many strong points in the screwed, I fully agree with Mr. Stark.

12. Stark: These are the requirements imposed in piece-root grafting. Mr. Wier's grafts are made up with indecorous language, which is frequently resorted to by some writers who are hard pressed for arguments. I regard this as a serious matter; then to the point, Mr. Wier must do, however, to attempt to make a strong point when he intimated that I do full justice to the screwed Dresses. I thus respect the idea of growing whole root trees was because there is more money in such trees to him. This was the most as well as untried, but this is also a proceeding to such.

There is thus $57 advantage for the piece-root nurseryman. Take off $20 for the extra year of cultivating the piece-root stocks, and there will still be a balance of $30. How do these profits much with Mr. Wier, first giving the "screwed" by Mr. Stark, second, Mr. Wier's criticism, followed by my own:

1. Stark: Trees grafted on pieces of roots can never equal the whole-root stock in vigor; they make the best of all trees. My experience has been during 30 years, having propagated many hundreds of thousands by the whole root method, and never again with Stark—and I never used a root under 3 to 4 inches long.

2. Stark: A small piece of root cannot support a vigorous growing tree; this is exceedingly silly; the whole-governors and builds up the roots. Experience teaches that while a small piece root will, under the most favorable circumstances, for a few years support a comparatively vigorously vigorous growth, the foliage does not build up the roots or rule their growth or depth; and that this vigorous growth does not last longer than the first production of the tree. Examine carefully the samples on the table of these small piece-root trees; they build up the roots and governs them in every way. Then examine the 1 and 2-year-old, grafted upon whole stocks, trees with the same grafts propagated by the whole method and planted years before the later-day products. A few years hard struggle to make a living, but on the larger diameter. That is the answer, "apple trees don't live now like they used to. I asked Mr. Vandyke, a nurseryman of the North, why? I claim the main cause is the mode of propagating. These manufactured Cheap-John trees have never made anything, ever. They are now being killed by the millions annually for the last 30 years. The piece root advocates claim that an apple tree is better when grafted on pieces of roots, and the shorter the piece the better, just so it is long enough to splice to a long clon, as they expect the clon to make the roots to sustain the tree in the future. These advocates have recently stated their positions in the papers, four in the Southern Hort. Journal and one in the Petaluma Courier, of Cal. One from the piece-root trees are as good as, if not better; that last winter he got 4 new scions and in four months the piece roots had made as good, if not better growth, than those grafted on whole stock. So a whole-root system would have been solved to his entire satisfaction in a third of a year.

2. Stark: It is not expected to form a perfect root system, crown and top, all from the same crown, Wier says "it doesn't perfectly." I hold this to be one of the many strong points in the screwed, I fully agree with Mr. Stark.

7. Stark: The absence of a crown formed by nature is a serious defect but still not the most serious fault of piece-root trees. Wier denies; says "it matters not how much a tree is broken by the faults is in a matter of a third of a year."

8. Stark: In this I hold he is correct, provided the remaining part has either a developed or embryonic bud. We can not take a piece of any. Of course, I am speaking to get at bottom facts, I must say that I differ entirely from Mr. Stark as to the ideal tree being a sucker from the original root, that I have not seen any sucker, nor have I seen none succeed except the old horse apple. This does make a very good tree from the sucker. Other varieties can be found to do.

11. Stark: It is not expected to form a perfect root system, crown and top, all from the same crown, Wier says "it doesn't perfectly." I hold this to be one of the many strong points in the screwed, I fully agree with Mr. Stark.

12. Stark: These are the requirements imposed in piece-root grafting. Mr. Wier's grafts are made up with indecorous language, which is frequently resorted to by some writers who are hard pressed for arguments. I regard this as a serious matter; then to the point, Mr. Wier must do, however, to attempt to make a strong point when he intimated that I do full justice to the screwed Dresses. I thus respect the idea of growing whole root trees was because there is more money in such trees to him. This was the most as well as untried, but this is also a proceeding to such.