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THE KANSAS STATE HORTICULTURAL SOCIETY

Thirty-fourth Annual Meeting Held at the Rooms of the
Society, Capitol Building, Topeka, December
27, 28, and 29, 1900.

This number of the KANSAS FARMER is given almost entirely to the proceedings of the thirty-fourth annual meeting of the state horticultural society. These proceedings are this year exceedingly valuable. By issuing a 24-page edition we are enabled to give very large excerpts from all the papers presented. Much interesting information was brought out in the oral discussions, but the protracted illness of the society's stenographer has made it impossible for her to write out her notes in time for this edition.

Readers will find this number of the KANSAS FARMER especially worthy of preservation.

Report for Second District.

B. F. SMITH, LAWRENCE, KANS.

JOHNSON COUNTY.

No. of apple-trees not in bearing, 57,141; No. of pear-trees not in bearing, 4,250; No. of peach-trees not in bearing, 27,892; acres of raspberries, 70; acres of blackberries 125; acres of strawberries, 57.

WYANDOTTE COUNTY.

Apple-trees not bearing, 91,010; pear-trees not bearing, 11,778; peach-trees not bearing, 62,403.

Raspberries, 1,344 acres; blackberries, 370 acres; strawberries, 214 acres.

ANDERSON COUNTY.

Apple-trees not in bearing, 31,702; pear-trees not in bearing, 1,310; peach-trees, not in bearing, 6,174.

Strawberries, 20 acres; blackberries, 63 acres; raspberries, 18 acres.

FRANKLIN COUNTY.

Apple-trees not bearing, 27,841; pear-trees not bearing, 1,298; peach-trees not bearing, 9,009.

Raspberries, 15 acres; blackberries, 27 acres; strawberries, 22 acres.

MIAMI COUNTY.

Apple-trees not bearing, 50,884; pear-trees not bearing, 3,456; peach-trees not bearing, 16,056.

Strawberries, 18 acres; raspberries, 12 acres; blackberries, 45 acres.

ALLEN COUNTY.

Apple-trees not bearing, 27,475; pear-trees not bearing, 980; peach-trees not bearing, 7,992.

Raspberries, 13 acres; blackberries, 48 acres; strawberries, 6 acres.

DOUGLAS COUNTY.

Bearing apple-trees, 142,552; not bearing apple-trees, 63,877; bearing pear-trees, 11,764; not bearing pear-trees, 6,877; bearing peach-trees, 49,789; not bearing peach-trees, 23,102; cherry-trees not bearing, 3,234; plum-trees not bearing, 2,077.

Blackberries, 164 acres; raspberries, 122 acres; strawberries, 156 acres; vineyards, 157 acres; gallons wine made, 1,339; value horticultural products, \$12,731.00.

Is any progress being made in horticulture? is asked. Yes, it is the writer's opinion that the planting of all sorts of fruit is keeping pace with the demand. When prices and profits above cost to grow are considered, peach- and pear-tree planting is on the increase.

In the second district it is our undivided opinion that there are as many old apple-trees falling and dying as there are new ones being planted.

There is in each county of my district a horticultural society. The attendance of these societies is fair to good. The summer meetings are generally good, when meetings are held at the homes of the members of the society. On the subject of increasing the interest in horticulture, would say that good crops of fruit and good prices are the mainsprings of all commercial horticulture or fruit growing. When one has a good and profitable crop of fruit, he is more regular in his attendance at horticultural meetings. The annual program and discussions should be frequently changed. With a good secretary and standing committees, with prompt reports and with some help from the ladies, the monthly meetings

may always be interesting. This is what has kept our Douglas county society alive over 33 years.

Report for Third District.

EXCERPTS FROM A REPORT BY F. L. KENOYER,
INDEPENDENCE.

The Third Congressional District, which I represent in this society, includes the counties of Cowley, Elk, Chautauqua, Wilson, Montgomery, Neosho, Labette, Crawford and Cherokee. In this section horticulture has been greatly neglected, although the last year I think has witnessed an increasing interest in the growing of fruits. More of the large fruits are grown in the eastern than in the western counties of this district, as the climatic conditions there are more favorable for tree growth. Some varieties of all the small fruits except currants and gooseberries do well throughout the district.

There are but few commercial apple orchards, and most of these do not pay expenses. The long, hot summers, combined with poor cultivation, or no cultivation at all, cause the fruit to ripen prematurely. Such varieties as Ben Davis, Missouri Pippin and Winesap are fall apples and seldom keep till Christmas. The little red Romanite and Rawle's Genet are the only sorts that keep until mid-winter. What effect cultivation would have on a bearing orchard I do not know, for I have never seen one that was properly cultivated. Last fall I took a trip through Labette and Cherokee counties, where perhaps, the greatest number of the commercial orchards are located, and I did not see a single orchard that had been kept free from weeds, and but few that had been cultivated at all. Surely the keeping quality of our apples would be improved were the soil moisture retained by thorough cultivation. What we need is a variety of apples larger than Rawle's Genet and possessing the same productive and keeping qualities. The Ingram may fill the bill when fully tested. Peaches are grown in considerable quantities for home consumption. They have not proven satisfactory as a commercial fruit. Pears also are grown only for local trade and home use. Cherries are not very extensively grown. The Early Richmond and Montmorency seldom fail to produce full crops, and would no doubt be profitable if produced on a large scale. Plums do well but are a poor market fruit. Grapes are grown in sufficient quantities to supply the home market during their ripening season and they are fairly profitable. The early varieties bring the best returns. Late sorts are usually more or less affected by the drought. The berry fruits do much better than any other and are more extensively grown, both for home and shipping markets. I shall speak of these fruits more fully in my report on "Small Fruits."

The average prices realized for the various kinds of fruits the last season were about as follows:

Apples, 50 cents per bushel; peaches, 75 cents per bushel; pears, \$1.00 per bushel; plums, 50 cents per bushel; cherries, 25 cents per gallon; grapes, 2½ cents per pound; blackberries, \$1.20 per crate; dewberries, \$1.50 per crate; raspberries, \$3.00 per crate; strawberries, \$1.50 per crate.

In my district may be found the skeletons of six horticultural societies—one in Cowley, one in Elk, two in Montgomery, and two in Labette counties.

What should be done, or could be done, to infuse new life into these dormant societies is a puzzling question. Certainly State Secretary Barnes has made a commendable effort in this direction, but so long as the erroneous impression prevails that fruits can not be made to yield a profit, the societies will continue to sleep. Too many of those who have discovered that there is money in fruit growing wish to keep their valuable discovery to themselves lest others might compete with them and share their profits.

Farmers' institutes are held in nearly all of these counties, and they usually

discuss a few horticultural topics at each session. Farmers are becoming more interested in growing fruits for their family use and are setting all kinds of fruit-trees and berry plants. I think we are making some advancement, and the outlook is brightening for the future of southeast Kansas. As previously stated, our greatest need is a good large winter apple that will hang on the tree until October and when properly handled will keep till March. The time is not far distant when such an apple will be produced. A decade ago we were without a single variety of raspberry that could be successfully grown, and only one variety of blackberry, the Kittatinny, and its crop was occasionally cut short by a July drought. Since the introduction of the Kansas raspberry we are enabled to compete with our northern neighbors in the production of that luscious fruit.

The Early Harvest blackberry gives us a crop every year despite the drought and heat. And now the noble Early Harvest is destined to be superseded by a berry that is its equal in all things and its superior in earliness, size and quality of fruit. What has been accomplished in the small fruits may be and ultimately will be accomplished in the apple. I expect to see the day, yea—more than this, I intend to help usher in the day—when southeast Kansas shall not be a whit behind northeast Kansas in the production of both tree and berry fruits.

Since writing the foregoing I learn that the two Labette County societies have been resurrected and have sent delegates to this meeting.

Fifth District Horticultural Report.

EXCERPTS FROM A PAPER BY WM. CUTTER.

The progress, if any, in horticulture has been slow. For the last few years apple planting has not been half what it was ten years ago. Especially is this the case in the western counties. Stock and wheat men, as a rule, pay but little attention to fruit growing, but there is scarcely a neighborhood that has not its successful apple grower. This man buys his trees as near home as he can; he gives them clean culture and usually sprays thoroughly. It is the lack of thoroughness that is bringing spraying into disrepute. The most thorough sprayers are always its strongest advocates. The success of these men is being watched by their neighbors and young well kept orchards are greatly on the increase. Still far too many trees are used to replant old orchards.

People are fast finding out that neglect has been their worst mistake in fruit growing. Where mulching has been used in old orchards it has been a complete success. As the foregoing applies more particularly to the western portion of my district, in justice to the eastern part, I will say that Marshall, Riley and Geary Counties are more rolling are better timbered than the rest of my district, and the uplands appear better adapted to fruit than the western portion. These counties were settled earlier. They had nurseries near at hand and the tree planters appear to me a more painstaking people. Especially is this the case with Riley County, where some of the most successful orchards in the state are to be found. Apples sold from the orchard at 50 cents per bushel. Now they are scarce at a dollar.

The success of peaches for eight or ten years has created a greatly increased demand for trees, and the interest in them is away in advance of all other fruits. The neglected seedling orchards that were so generally depended upon were so damaged by the winter two years ago that last summer's drought finished them. They had taught their owners a lesson and they are planting budded trees and propose to take better care of them. Peaches brought \$1 to \$2 last year. There were not half enough for the home demand, and can not be for several years to come.

Cherries and grapes are being planted freely.

Plums and apricots are not much wanted.

It is a hard job to get farmers to attend a horticultural meeting, and exclusive fruit growers are very scarce. If there is a successful society excepting at Manhattan we do not know of it.

Horticulture cuts a small figure at farmers' institutes. Dairying and stock growing hold the fort. Local societies would be very beneficial if we could get the people to attend them.

The penuriousness of our legislature in not allowing more and larger volumes of our transactions to be printed is the greatest injustice and injury, alike to our society and the fruit interest of the state, that it is possible to

inflict. It is also a great mistake to give so many volumes to our legislators. They should be sent direct to the people and every volume marked, by the compliments of the State Horticultural Society.

Report for Sixth District.

EXCERPTS FROM A PAPER BY E. D. WHEELER,
WAKEENEY.

In view of the fact that the natural conditions in the northwest district of the state are somewhat adverse to successful horticulture, it will doubtless be understood that when I report progress in horticultural development, it does not mean that it is universal or rapid. Notwithstanding the fact that a large per cent of the attempts to grow a variety of fruits may be classed as partial or total failures, we are progressing, for many have learned by experience how not to grow fruit, and some of them are learning how to do it from those who have been more successful.

There can be found in nearly every neighborhood those who can report some degree of success, and who have the faith and courage to continue their efforts until they have demonstrated that fruit can be grown in the west part of the state. We have those in the more arid and undeveloped portion of the sixth district who are so thoroughly discouraged by failures in attempting to grow fruit that it is not an easy task to get them to investigate the reasons for success or failure, and it will only be when they have paid their neighbors good prices for fruits, and they learn through some source that by intelligent effort they can grow their own fruit.

In the eastern counties of the district the ability to grow fruit successfully is no longer a disputed question with many. As we proceed west the number of those who have made any marked degree of success, grow less. Plums, cherries and peaches are being grown with a fair degree of success, throughout the district. Apples, pears and apricots require the most favorable conditions in order to insure success.

Among the small fruits that are being grown are strawberries, blackberries, raspberries and currants.

Though of inferior quality, the black current is much more hardy, and productive. It is found growing wild, but improves with cultivation, and is planted quite extensively.

Apricots are often prevented from fruiting by late frosts. The success of all kinds of fruits mentioned, depends on a wise selection of varieties, the location of the orchard, careful planting, thorough surface cultivation, or a mulch of some kind. Also protection from drying winds. While it is true that the greatest injury comes from the south and west winds, yet other winds are more or less drying and often damage trees. The greatest trouble is to prevent them from all being short lived, in some localities. Sometimes the protection is afforded by buildings or a high bank or bluff, in the bend of a creek or draw, and often water may be found in such a location so near the surface that irrigation is unnecessary. While such locations as those just mentioned are far more desirable, yet I am acquainted with several orchards on the upland where it is more than 100 feet to water, that have been kept in a thriving condition by dry dirt or other good mulch, supplemented by from one to three good irrigations during the dry times, which usually come just before the later fruits mature, and sometimes continues even into the winter.

Cherries, plums, peaches, currants, strawberries, raspberries and blackberries should be planted by all who will give them proper attention. Repeated failures of apples has caused a falling off in the number of trees planted, but an increase in the number grown successfully. Horticultural societies and farmers' institutes, if properly organized and conducted, would be a great help in bringing out and disseminating important facts relating to horticulture in all its various branches. Thus far we have had very few of them. I have attended several institutes in the west half of the state, and almost invariably horticulture did not receive the attention that its importance demands. In every county in Kansas can be found men and women of ability who can make such meetings instructive and enjoyable. Experts who are thoroughly acquainted with conditions and results, can be a great help at such meetings wherever they are held.

As to the price that can be obtained for fruit in local markets, will say that it is governed largely by the cost of shipping it in. Except in the eastern counties of the district, we do not, and will not for some time to come, grow

fruit enough to supply the local demand. Our fruit is of fair quality, and sells direct to the consumers, usually at from \$1.50 to \$2.00 per bushel for peaches and plums, and from 90 cents to \$1.20 for apples. Very few apples are grown for market except in the eastern portion of the district. In Wakeeney (county seat of Trego county) one merchant has just sold out a car-load of eastern Kansas apples, and is now selling out (quit rapidly) a car-load of apples from the state of Washington that are packed in bushel boxes and sell for \$1.30 per box. The varieties number 24 and nearly all were very choice, and free from worms, scabs and other defects. The eastern Kansas apples came in barrels, and sold for 90 cents per bushel. Berries and cherries usually sell at from 10 cents to 15 cents per quart.

If this society could secure a fruit rate to our western counties it would be appreciated by eastern Kansas fruit growers who have fruit that goes to waste, and by would-be consumers.

Where orchards have been planted on ground that has a porous sub-soil, in place of the dry hardpan, results are much more satisfactory. The hard winter two years ago destroyed many of the peach-trees, and neglect to properly care for our orchards is quite common.

Report from Seventh District.

EXCERPTS FROM A PAPER BY GEO. W. BAILEY, WELLINGTON.

Interest in horticulture is increasing. More fruit-trees of nearly all classes were planted this season than usual. Apple-trees lead the list, more than ten to one; and cherry, peach, plum, apricot and pear in order named; blackberry, strawberry, raspberry, gooseberry in the order named; no currants reported; grapes lead the list of small fruits. Local horticultural societies, none reported. Farmers' institutes, none reported.

In my own county, Sumner, four institutes were held this fall and winter. Indirectly the subject of horticulture came before these meetings. The quality of the different classes of fruit was reported fair to good; quantity not equal to the demand. The average selling price of apples was 75 cents per bushel, peaches 60 cents, plums 90 cents, pears \$1.25, berries and cherries \$1 per crate, grapes 3 cents per pound. "What plan can you suggest to increase the interest in horticulture in your district?"

In reply to this question: Under past appropriations of the legislature for our society, our secretary has been permitted to publish a few hundred reports, a little—not much—larger than a school primer. These little books are sent out one to each six hundred inhabitants, and give to this one person in six hundred all the available information of one of the leading industries of the richest, most prosperous state in the Union, with a million and a half of live, energetic, intelligent citizens, that are not only able, but willing, to pay for the publication of five times the number now published; and not the size of a primer, but a fair sized book from 200 to 300 pages, filled with choice, up-to-date horticultural information that would be a credit to our fair state, and a just recognition by our legislature of our horticultural interests. If this could be accomplished, and I believe it possible, it would help our standing as a society at home and with our sister states.

An effort, properly directed, need not be very expensive. Let the secretary formulate petitions asking for an appropriation for the publication of 10,000 or 12,000 copies of our reports, limited to 200 or 300 pages; send these petitions to live, hustling horticulturists throughout the state; after the names are secured, send the petitions to the members from the legislative district in which the names were secured.

I believe if an effort of this kind is made it will, at least, result in a more favorable consideration from our legislature than we have been able to secure in the past. We may be able to influence our legislature to allow the publication of 5,000 copies, twice the size of a primer. This would give one copy to every three hundred inhabitants.

Care of Orchards.

EXCERPTS FROM A PAPER BY A. H. GRIESA, LAWRENCE.

Cultivating and fertilizing should have proper attention; then trimming should be judiciously done, and care of diseased trees, and destroying insects; as well as the proper picking, handling

TO CURE A COLD IN ONE DAY
Take Laxative Bromo Quinine Tablets. All druggists refund the money if it fails to cure. E. W. Grove's signature is on each box. 25 cents.

and sale of fruit—all are of vital interest. At this age of orchard growth excessive cutting should stop, and seeding to clover for short duration may be adopted. Young stock, as calves, pigs, sheep or Angora goats should range there. This will result in keeping down any large growth of weeds or clover (which harbors insects), trimming the lowest branches and eating the prematurely dropped wormy fruit—in which are the parents of the worms to infest the fruit that should go to market.

The most serious pest of fruit growers almost the world over, is the codling-moth, which hibernates over winter in crevices of barrels, boxes, under the bark of trees, or in rubbish under them, and when in this state it is a very good time to kill them. This may be done by burning sulphur in the cellar or storehouse in early spring, and by bandaging trees late in summer; or begin in June with the tree bandage of any coarse paper, newspaper, or burlap—and go over them every two weeks, killing those under the bandage.

Before putting on bandage the tree trunk should be scraped and all rough bark should be removed. Those insects there in late fall will be got out by birds before spring.

Of course, all nests of the tent caterpillar should be burned as soon as discovered. One of the safeguards against borers is the small smooth mound of soil around the trunk; which keeps the borer high up and easy to find and destroy.

In dry seasons cultivation should be resumed in an orchard—not deep, to break any roots, but deep as a cultivator or disk harrow would reach, and at such times cultivation is essential to the fruit crop of that season and more so for the crop to come next year.

With such culture sorghum, cow-peas, or soy-beans, may be broadcasted and plowed under in the fall—before or after the first frost; or the crop can be mowed and part removed. I am trying sorghum for that purpose—sown late—with excellent prospects. This with stock pasturing will make all the fertilizing it will ever need in the West.

Be sure to turn under or burn all rubbish each year. Trimming should be done to keep the trees in good growth; not too dense in top, nor should it be done too much at one time, or just before the buds swell. The proper time to trim is in early fall before the leaves drop, or during the mild winter weather. Any limb not making a good growth, or that chafes with others, should be removed. Trees should be controlled and kept in proper shape from the start; so that the use of the saw would seldom be necessary. Do not encourage high nor thick tops, which yield inferior fruit and which is costly to pick. Fruit to be well developed needs air and sun.

As to picking fruit. The commission men are very good advisers how to pick and sort; and many use such advice to cover up their poor reported sales—but fruit should be carefully picked and assorted in two or more grades, and used or sold accordingly.

Diseases of fruit-trees are not so well understood as they should be, and but little is done to prevent or stop them. Blight is one of them. It has had much discussion by interested people, and yet it continues. Some rules can be suggested as helpful. One is, do nothing to force the tree's growth; do not cut it out as fast as it appears, but wait until dead or dormant and then remove it.

Be patient and persevering in your plan (if good) in your care of the trees. Notice any successful grower, and study what leads to his success, and good results can come; notice the failures of some and try to avoid the causes that lead to those things. So work and be hopeful.

Orchard Treatment in Kansas Varies.
EXCERPTS FROM A PAPER BY S. S. DICKINSON, LARNED, KANS.

The extended sod cutter or disk harrow, can do just the work wanted. Following with a light harrow to thoroughly scratch the ground close up to the trees will exterminate a great many of the pests we have to fight with spray.

This work can be done in March, after the mulch of leaves and cover crop has done its winter work. This work should be done on lines given to readers of Western Fruit Grower, about the great Morrill orchard at Benton Harbor, Michigan. I would advise the same treatment here in the Arkansas Valley, as our sandy loam is nearly identical with that part of Michigan.

As to trimming. I only take out enough limbs and twigs to let in the

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sunshine to color the apples in the middle of tree, also branches that cross and shortening in long swaying limbs that often make a tree lopsided; better cut the little twigs than big limbs.

Last but not least, comes the bug and worm-catchers. Owing to the heavy rain fall in May, my orchard ground got so soft we could not get on it to spray as often as was wanted, except on a ridge. These trees were given 5 sprayings; result no worms. The balance of orchard one to three times.

I used a power sprayer driven by sprocket wheel attached on hind wheel of wagon with chain to pump gear, which gave us 60 to 100 pounds pressure with a McGowan nozzle. We could spray 600 trees in 8 to 9 hours, using 900 to 1,000 gallons of spray. We drove on both sides of row; some very large trees we had to stop a moment to thoroughly cover every leaf, otherwise the team walked at rate of 1 1/2 miles per hour. The work was equally as well done as with a hand pump, and a big days work for 2 men on 150 to 200 of same trees the year before.

The outfit is big enough to thoroughly spray 150 to 200 acres of orchard, three to five times. The cost, \$100, divided between three or four orchardists would be only the price of a good hand pump, capable of doing only one-fourth to one-third as much work with the same help. Yet the power wanted is a steam or gasoline pump, light enough to be used on the wagon, with tank of 200 gallons, and all not weigh over one ton.

Can not some ingenious Kansan come to the front with a perfect machine?

Stone Fruits.

EXCERPTS FROM A PAPER BY C. V. HOLSINGER, ROSEDALE.

CHERRIES.

In the eastern part of our state, cherries of the sour sorts may be successfully grown. The sorts that are profitable are limited to four varieties, viz: Early Richmond, Montmorency, Wragg and English Morrello. The buds are as hardy as those of the apple. Bloom somewhat earlier, consequently suffer more from frosts and cold rain. Where a light crop escapes, the curculio is on hand to make what is left of little value.

The tree is difficult to grow. Will not thrive in any soil, as does the plum or peach. A good black loam, well drained is suitable. We have lost a large per cent on clay hill land. The cold winter of 1898-99 killed and injured many.

Plant small 2- to 3-foot trees. English Morrello and Wragg, 16 feet each way; Richmond and Montmorency, 18 by 20.

PEACHES.

The cold weather of two years ago left the trees in poor condition for a crop the past season. Where proper treatment was given a fair yield was secured. The dehorning, as was advocated by many—i. e., cutting the limbs off mere stubs, proved to be a costly experiment to those who tried it.

Many trees, five to seven years old, never recovered from the effect of dehorning. While those that lived made such a rank growth that few fruit buds set. The fruit secured was about the same in quantity as would have been obtained on 2-year-old trees.

The average for the season would not be greater than 25 per cent of a crop. Some old orchards, where not pruned, bore a heavy crop, causing the trees to split badly. The returns were large enough, however, to buy the land, and pay for all the outlay. It will not pay to maintain an old orchard more than a few years. Hence renew by planting, if practical on new land.

The trees will grow on any soil, but we prefer upland. We usually plant southern-grown trees, though natives will do as well, two to three feet high.

During fruiting time some damage will be done by crickets and other insects that gnaw holes in the green fruit. The curculio destroys the most of the crop of the early varieties, such as Alexander, Amsden, etc.

As to diseases. Have never seen a case of yellows. Leaf-curl pays an occasional visit, but does no great damage. Rot, especially during a moist

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season, does much damage, particularly to the white thin-skinned varieties.

PLUMS.

Have about despaired of ever securing a crop of plums. Have not secured a crate of good plums from 800 Wild Goose since 1895.

However, where we met failure some of our neighbors were fairly successful. In a few instances where poultry were confined in the orchard, the trees bore a fair crop. Trees outside of the enclosure, not one hundred feet distant, were almost bare. Another case where swine were confined in the orchard trees were equally full. The fruit was damaged by falling on the hard ground. Prices did not pay to hand-pick the fruit.

Shaking the trees is the usual method of gathering the crop.

Taking some of the smaller varieties, better results were obtained. The Pottawatomie is one of the most prolific sorts, and this is its worst drawback.

On 3-year-old trees the fruit literally hung in ropes, causing the trees to split badly.

Poole's pride is some larger but tends to over-bear like the Pottawatomie.

The Japanese sorts are not so hardy as the American sorts. However, we have not missed a season where they failed to bloom, neither do they fail to rot. This can be partially overcome by harvesting the green well matured fruit. It is doubtful if the rot can be overcome in this climate. Still, I think it will pay to keep a few of Burbank and Abundance. The Gold rots even worse than these.

Damson will yield an occasional crop and bring good prices. We secured one crop in twenty years.

We market in 24-quart berry crates and 8-pound grape baskets.

Stone Fruits.

EXCERPTS FROM A PAPER BY F. W. DIXON, HOLTON, KANS.

PEACHES.

The peach crop the past season was not a very paying one; the bearing trees had not yet recovered from the severe freeze of February, 1899. The older trees had succumbed in most cases, and the few neglected ones were in too feeble health to produce fruit.

Young orchards that had been cut back severely and otherwise well cared for yielded a paying crop. Trees that were cut back only moderately paid best. Some orchards cut back very severely yielded no fruit at all, the principal cause being that the new growth had formed no fruit buds. Trees that were not cut back at all were too weak to hold their fruit, the blossoms dropping off at end of blooming season.

The Champion seemed to be the most hardy in tree and bud, followed closely by Mixon free, Elberta, Mixon cling, Salway and Hills Chili, but I would not recommend the latter because of its tendency to rot. Champion was by far the best-paying variety in our orchards the past season.

Smock yielded very little fruit and most of it rotted; same with the Plutt's Late. The Crawford produced some very fine fruit, but crop is always light.

PLUMS.

Of all stone fruit this is the most disappointing. The trees are always loaded with bloom at the proper time, but the fruit is so few and far between that we consider the plum a failure. Trees have been injured by the severe cold and never will recover. The Japan varieties could be cut back like the peach, and where thus treated the trees soon recovered somewhat from the severe freeze, but only the Abundance has ever produced anything like a paying crop.

Wild Goose produced some fruit free from curculio the past season, but not a paying crop by any means. The fact is, we do not like to talk plums because of their utter failure to ever produce a paying crop for us. But we would advise planting a few trees on every farm.

CHERRIES.

Of the three stone fruits we write about in this paper the cherry-tree suffered the most from the severe cold. There is not a healthy tree in our county over five years of age. Very young trees in orchards well cared for do not seem to have suffered from the cold, especially if planted in favorable location with a good subsoil.

The cherry-tree will not stand wet feet and must be planted on a rich loamy soil, with open clay subsoil. When so planted it is the surest crop of any fruit.

The English Morella is the least hardy tree, but most prolific, while in bearing.

The Early Richmond is the best paying cherry.

Orcharding.

EXCERPTS FROM A PAPER BY ALBERT DICKENS.

This fraction of the report of your committee on orchard treatment will contain notes on orchards which have come under the writer's observation. The individual members may adjust or create theories to fit the facts.

Practically every tree grower insists on clean culture for the young orchard. We find the successful growers planting fewer corn rows between young trees, giving the trees more room. These same successful growers have swallowed and digested the ancient maxim, "As the twig is bent the tree is inclined," and largely shape the head while it is young. The disk and cultivator are doing the work formerly done by the plow, and doing it better. The orchards are not being ridged up by repeated back furrowing, nor are the roots exposed by a dead furrow next the tree row. The men who recommend seeding down the bearing orchard are harder to find than they were ten or more years ago. The orchards that are being cleanly cultivated are in general making better crops and more of them. Doubtless some members can cite cases of orchards in favored localities that have good calf pastures and borne fair crops of fruit.

Cow-peas planted late in June and turned under in the fall, have seemed to help some orchards planted on poor land. Rye sown on land that is liable to wash or blow badly is beneficial and furnishes calves and young pigs winter pasture. Oats sown in season furnish the protection, and give no trouble in the spring.

Removing water sprouts in summer is a practice gaining in favor, with practically no opposition except from the many other duties which demand attention just at this time. A few growers report that where trees were cut back and thinned out last winter and spring, the fruit did not drop nearly so badly as on thick bushy trees.

Peach-trees, cut back after the hard freeze of 1899, have given varying results; young trees cut back to two year old wood, have nearly all made good new heads; young trees in bearing, cut back to three or four year old wood, have made good heads. Of the older trees cut back, those that had but two or three years' wood cut off, made little new wood, some died the winter following, and others are in a more or less rapid decline. Of the old trees cut back to five or six year old stubs, about one-third died without starting, one-third formed poor heads, and one-third have made good heads. A considerable number of the new branches have split off the old wood, some by wind, and some by the weight of the fruit.

To spray with Bordeaux mixture, and then leave all diseased fruit and foliage on the ground to furnish infection for the future, is doubtless better than to make no fight, but it is only by using every means in our reach that we can hope to in some degree lessen the injuries.

The same may be said concerning the war on insects. Every means must be employed. The cider mill and pigs are allies of the spray pump in the fight on the codling-moth. The mallet and sheet must do outpost duty when we turn our fire on the curculio. Let me add the short report of our most successful apple raiser in Riley County, Mr. John Tennant:

Set four acres in March, 1882; trees commenced bearing in 1888. Set six acres in 1891; trees commenced bearing in 1894. Have had eight fairly good crops and four off years in the twelve years since 1888. Net proceeds of the eight crops, \$3,360. Planted orchard in corn for five years. Since then have cultivated trees with disk and Acme harrow. I break off water sprouts in August. I always spray and always raise sound apples.

Orcharding.

EXCERPTS FROM A PAPER BY GEO. C. RICHARDSON, LEAVENWORTH.

That the United States at the beginning of the twentieth century will enjoy the distinction of being the greatest fruit-producing nation of the world, there is no question. The rapid strides of the nineteenth century in horticultural endeavor and progress have been a marvelous and a wonder to the European and Oriental nations, who see with jealous eyes that America is not only able to supply her wants, but is a competitor in the markets of the world with deciduous and citrus fruits, both in the green and dried state.

The most important of all, and that which so nearly concerns us as a nation, and Kansas as a state, is the apple industry, which has such wonder-

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ful possibilities by reason of location, climate and soil.

COMMERCIAL APPLE ORCHARDS.

It is an established fact that the largest apple orchards in America, as also the most profitable, are located in the central part of the United States—in Missouri, Kansas, Iowa and Nebraska—on the most fertile parts of the great Missouri Valley, the Kansas Valley and the valley of the Arkansas.

MARKETS AND DISTRIBUTION.

The natural or tributary market for the apples grown are the Southern and South Atlantic States—principally in Texas, Louisiana, Alabama, Georgia and Florida, where apples are not grown; also in the states of Minnesota, North and South Dakota, Wyoming and Montana, as well as the states of Missouri, Kansas, Iowa and Nebraska, where our orchards are located.

The above named states are buyers of western-grown apples from gathering time until they are exhausted. During the winter and spring a large portion of the other states are buyers, and every crop year New York, Boston and Philadelphia dealers purchase immense quantities of western apples for their markets and for England and Germany. Apples can, and have been shipped from the Missouri Valley to England and Germany, reaching destination in good order with profitable results, realizing \$4 to \$4.50 per bushel net.

DEMAND AND CONSUMPTION.

It is a noticeable fact, and statistics bear out the assertion, that the American and English peoples of recent years have become great fruit eaters, as a result of easy and reasonable rates of transportation, together with the advocacy of eating fruits for their health-giving properties, and the apple, the king of fruits, is consumed the year round in diversified ways; and now, since the advent of mechanical refrigeration, it admits of their being kept in their original state in cold storage from gathering time until another season's crop.

The largest yield of apples in the United States by Government statistics was 210,000,000 bushels of all grades. Nearly one-third of those were of under size and of inferior quality, a portion being utilized by drying and in the making of cider; nevertheless, the demand exceeded the supply, as in the early spring but few apples remain in cold storage and command such high prices that the wage-earners are restricted in their use. For several years, even in February and March, apples commanded from \$3 to \$5 per bushel of 3 bushels, on the market.

With the rapid rate of increase in population and the enormous demand for American apples in Europe at reasonable prices, it will be many years before the supply can equal the demand, when it is considered that it requires several years to grow an orchard, and, at the same time, many old orchards of forty and fifty years in the early settled states are on the decline and passing away.

PRODUCTION.

The yield of an apple orchard depends on age of trees and care given. In the area described, orchards commence to bear a few apples at five

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AND HOW TO GROW THEM. The author has grown the largest crops of fancy fruit ever produced on an acre. In his experimental grounds are single plants which yield over FOUR QUARTS each of fine large berries. His customers have done as well. This has been accomplished by SCIENTIFICALLY BREEDING up plants to a high fruiting vigor so they throw their energies to the development of fruit instead of useless runners. The profit comes from a big crop of big berries that sells at sight to regular customers. This book tells you all about how it is done. THE CHEAPEST PLANT is the one that will give you the best fruit and most of it. You can't afford to play second fiddle on the market by using scrub plants. The only stock of scientifically grown thoroughbred plants in the country for spring planting. Send your address at once and get a copy of this book and a revised edition for three years FREE.

Address **R. M. KELLOGG,** Three Rivers, Michigan.

years from planting, and at seven years will produce from 1 to 3 bushels to the tree, or 75 to 200 bushels per acre; at fifteen years from planting they will produce on an average from 3 to 5 bushels per tree, or 200 to 300 bushels per acre. These returns are the maximum and minimum. If the same care and attention are given an orchard that a business man gives his affairs, the highest results will be obtained.

It is a noticeable fact that a majority of the orchards of other states show gross neglect, both in lack of proper cultivation of the soil and the skillful care of the trees, both of which causes tend to greatly reduce the quality and yield of the fruit.

Kansas has in an eminent degree the most essential requisites—which are climate and soil—for the production of apples of superior quality and large yields, and I claim a bushel of apples can be produced cheaper than a bushel of corn, and more than twice as many bushels of apples can be gathered from an acre of orchard than from an acre planted to corn. I fully believe that were apples sold at a price that would permit the wage earners to purchase them as a regular article of food, there could not be enough grown to supply the demand. Let apples be taken out of the class of luxuries, as it is even at points of production, and it becomes not a question of a market for the apples, but of apples to supply the market.

There is a great work to be performed by the majority of the apple orchardists of the United States to build up the apple industry, that is so seriously neglected.

The progressive grower of apples who is adopting practical and scientific methods by careful cultivation, leaving no vegetation to absorb or evaporate the moisture and no undergrowth to exhaust the soil of plant food that is necessary for the growth and development of tree and fruit, together with the spraying of the orchards to stamp out fungus diseases as well as to exterminate insect pests, is the one reaping a reward in returns of perfect healthy fruit and large yields.

The horticultural pioneers of the West concede to Kansas first honors for the advantageous position as to location, excellence of soil, as well as for many first prizes and honors the members of this horticultural society hold that have been won at the Centennial at Philadelphia in 1876, New Orleans in 1885, Chicago World's Fair in 1893, and Paris Exposition in 1900.

It is not an impossibility to be marketing twenty millions of barrels of apples in seven years—and the orchards only occupying roughest lands least suited for grain crops—with the horticultural society of the state directing its energies in the same manner that the commercial organizations in our cities have seen necessary to employ. You can be the instrumentality of adding great wealth to the state of Kansas, and she can meet any emergency or necessity with her characteristic push and energy.

New Fruits and Nomenclature.

EXCERPTS FROM A PAPER BY O. A. CHANDLER, ARGENTINE, KANS.

The nomenclature of our fruits at times seems quite mixed, which often gives rise to considerable confusion. This, however, is not so common now as it formerly was, partly because of the thorough discussions in our horticultural papers and partly because of better organization of the horticulturists, and their following the rules of the American Pomological Society.

The fact that a fruit is found with several names is proof of its superior value, it being carried from place to place and given the different names. Another way the nomenclature may become mixed is through what is known as bud variation, which produces strains of the same fruit.

There seems to be a general misunderstanding as to how strains come about when the propagation has been by buds, which are said to produce the same as the parent, but if we will get at the facts it is quite simple. The fact that there is a constant tendency to variation in the vegetable kingdom will account for the different strains of the same fruit. We all know that there is great variation from the parent when seeds are planted, especially in

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our horticultural varieties, but perhaps it is less known that there is also a tendency to bud variations. We say when we propagate by bud or graft that we are sure to perpetuate the variety, but it is a known fact that trees grown where the conditions are not the same will vary largely from the original type. This may be because of a difference in plant food, a difference in climate, or perhaps the propagator has had in mind a different ideal for which he is breeding.

So we can safely say that strains come from bud variation and hence would follow a mixture of the nomenclature.

Now as to the new fruits of the year, the catalogues have their usual large list of novelties which are yet to be tried before their value for our soil and climatic conditions are proven.

The following list of fruits are not these novelties, but fruits which are only comparatively new and have all been at least partially tried, and which we can feel safe in recommending, but it is not to be taken that these will take the place of our older sorts but simply become an addition to the list of profitable sorts.

New Peaches—Sneed, Greensboro, Triumph, Fitzgerald, Mathew's Beauty, New Prolific, Capt. Eads, Carmen.

Apples—Yellow Transparent, Ingram. Grapes—Hicks, McPike, Campbell's Early.

Raspberries—Red: Miller, Cardinal. Raspberries—Blackcaps: Cumberland Munger.

New Fruits.

EXCERPTS FROM A PAPER BY WM. CUTLER, JUNCTION CITY.

Before entering upon the subject assigned me, I wish to hedge against any mistakes I may make. July and August were the hottest and driest that I remember during my residence of over thirty years in Kansas. Fruit of all kinds wilted upon the trees and no doubt had its effect upon the size, quality and time of ripening. So it is very likely that a more favorable season will change my opinion of some varieties.

I have received no apples for name excepting well known varieties.

The York Imperial is making long strides towards the front rank among winter apples. Fanny is also elbowing its way up among the summer kinds, and the Spohr is still the ideal apple in the opinion of its originator.

The Burbank is proving the best of the Japan plums, or their seedlings.

Woodruff's Red is growing in favor among grape growers. Campbell's Early ranks high as an early grape, but did not stand the drought well. Our late seedling ripened upon the vine this year for the first time and was better than we expected.

Of peaches, the Sneed is fully a week earlier than any other we have bearing. It ripens before dry weather sets in. Was of good size and fair quality, but so soft and color so unattractive that it is no good for market. Triumph is one of our most productive kinds. It ripens with Alexander, is about the same size and we think a much finer peach. Greensboro is of the same season, and with us the largest and best of the very early varieties.

Well grown specimens that have a fine red cheek. Carmen is one of our earliest freestones; an early bearer of good size, good quality and fine color; I think it has come to stay. Lewis—I got this peach from Peters and Skinner two years ago and it differs from the Carmen only by being rather smaller with us this year. Captain Eads is a grand peach for home use and near market, but I fear it laps too far onto Elberta to sustain the commercial value that we had hoped it possessed. New Prolific is certainly entitled to the last part of its name; its quality, appearance and productiveness are all that we could ask for, but it runs right against the Elberta and is knocked clear out as a commercial peach. How unfortunate it is that so many of our best varieties ripen so near this same time. Champion, Crosby, O. M. Free and Captain Eads are all noted for productiveness and fine quality, but they are in hard luck. That old sooner, Elberta, while it possesses neither of those qualities, is successfully holding its claim as the best market peach in existence. But we must have peaches after Elberta is gone, and who can tell us what is the best market variety to follow it? Is it Piquet's Late, Chair's Choice or Wager, or is it to be a new variety like Mathew's Beauty or Emma; the latter bore for me this year; it is a seedling of Elberta possessing more of its parent's good points than any other peach I have seen and it starts into bearing much earlier.

The next valuable new peach (to us)

was the Gold Drop. Its size, productiveness and quality are all that we could ask for. Its color is a bright yellow, often with a bright red cheek. The Bonanza ripened up nicely this year and sold at a fancy price and outbore everything except Early Rivers and is the best variety we have bearing to wind up the season after Heath's Cling and Salway.

Experimental Horticulture.

EXCERPTS FROM A PAPER BY E. J. HOLMAN, LEAVENWORTH, KANS.

Horticulture, live horticulture, profitable horticulture, is a thing of constant experiment and improvement, from seed or plant time until harvest, and the harvest includes the collection or possession of the last sale.

Horticultural work and profit is in these days over rough seas; practically the road is very uneven and hilly. Hence the necessity of constant study and intense application. And while our failures are mainly attributed to the fact that we do not apply the knowledge we already possess, it is also a fact that our success in horticulture comes from a full use of all knowledge gained, and like the servant of the nobleman who made his pound gain ten, so we fine ourselves similar gainers. But we must not look too much to the experiments of others; my neighbor, with his vigorous and productive acres of berries, vineyards and orchards, may and should excite my surprise, interest and encouragement.

First, the soil and its preparation; it may be too loose or too tenacious, it may be poverty-stricken, or it may be excessively fertile. Will one know their soil until experimented with? In agriculture, with annual crops, it is not so much of an experiment, but in horticulture where little is annual or biennial, but mostly perennial, much more has to be taken into account. * * * Spring and summer often hopeful meet disaster and defeat in autumn and winter.

There is no fruit grown in the temperate zone but what has suffered injury and probably will again, and yet there has never been a summer so dry or winter so cold but some practical, thoughtful experimenter has carried plants and trees through, and in such cases always with great profit.

In the matter of varieties of fruit the same problem exists. Bestow the same care and attention on the same varieties that have so greatly succeeded with your neighbor, and with you they fail. Will you be discouraged and give up? If not, you must experiment, treat your soil differently, try other varieties, and different methods of culture. It is a case of constant undivided and steady experiment and not a copy of a finished problem from a comrade's book that is to insure our success. I never knew before that experimental horticulture was so comprehensive. But on experimentation we find that all horticulturists that have distinguished themselves have been original, thoughtful, practical experimenters. And the mistake, the great mistake made by the majority is the copying of plans, instead of use character of the one that originated the plans.

One man sprays and destroys all noxious insects, another man sprays and has no such result and straightway condemns spraying as useless. The first man was a persistent experimenter, the other a copyist.

'Tis not all we read or hear or see, but what we do that determines our crops and profits and pleasures.

Experimental Horticulture.

EXCERPTS FROM A PAPER BY B. F. SMITH, LAWRENCE, KANS.

Experimental horticulture embraces all sorts of fruits, plants and flowers,

**FOR
KIDNEY
TROUBLES**

**PRICKLY
ASH BITTERS**

IS MARVELOUSLY EFFECTIVE.

It conveys a healing, strengthening influence to the afflicted organs which is instantly apparent. Quiets pain, stops wasting of the kidney tissue, removes that tired, despondent feeling that all victims of kidney ailments have. A short course with this splendid remedy brings back strength, good digestion, energy and cheerful spirits.

Price, \$1.00—at Drug Stores.

including garden truck, etc., but the writer will only endeavor to make a few brief observations on the line of his work in fruit growing.

That some progress is being made every year in experimental horticulture is not doubted. When the writer remembers and compares in his mind the two or three varieties of strawberries grown thirty-three years ago, with the 20 or more sorts that we now grow for market, and the old Miami and Doolittle raspberries with the Kansas, Gregg, Cumberland and others, we would reiterate that berry culture has made rapid strides along all its branches.

The ideals then would not bear comparison with our Bubacks, Marshalls, Clyde, Bisel, Splendid, Parker Earl, Warfield and others too numerous to mention.

While it required from 60 to 90 berries of the old Wilson, the great market berry of those days, to make a quart, to-day we have several sorts that from 15 to 25 berries make a well-rounded quart.

Still experimental horticulture is seeking for higher ideals in all our fruits. In fact, there is no limit to the ideal fruit. It was said that we had it in the "Jessie" strawberry; a little later it was the Jewell, followed by the Buback, Pearl, Haverland, Woolverton, Timbrel, Marshall, Splendid, Glen-Mary, Brandywine, yet these and many others have fallen below the first estimate of their value. We thought we had the ideal for an early sort, in the Michel. Then we discovered that the Excelsior had three or four days advantage on the Michel in earliness. Now it is thought that Johnson's Early will knock out the Excelsior.

EXPERIMENTAL HORTICULTURE EDUCATES THE TASTE.

In 1859 or 1860, a half dozen bushels of black raspberries glutted the St. Louis market. A man came from the

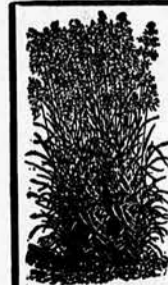
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That has won four-fifths of first and sweepstakes at Nebraska State and District Fairs for the past seventeen years. At 1900 Nebraska State Fair we won first and second prizes for best large yellow corn; first and second best large white; first and second largest ears any variety or strain. For prize list or samples, address (Washington County.) **M. H. SMITH & SON, De Soto, Nebraska.**



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The Grass that can be depended upon for hay and pasture under all conditions. It has been grown long enough to prove that it is a success. We have grown it here for years, and this last year has fully proven that it is the greatest drought resister and full of vigor. We harvested a fine crop of Bromus Inermis Seed when other Grasses died out on account of drought. Every farmer and dairyman interested in

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should read our catalogue. All the natural Grasses and Clovers are fully described, and contains full information as to how Permanent Pastures and Meadows can be obtained. We are headquarters for high grade TIMOTHY and CLOVER and Growers of improved Farm Seed and Vegetable Seeds. **FARMER SEED CO., Farmers and Seed Growers. 43 4th St., Fairbault, Minn.**

vicinity of Cincinnati and leased some land nine miles east of St. Louis. He planted two acres of the old Miami raspberry the first year. The first few crates gathered next year found no purchaser in the city of over 100,000 inhabitants. They were left with a huckster to sell if possible. A few were sold and some handed around for trial. They were found to taste well and to make good pies, yet the first crop on the two acres sold very low, in comparison to what the producer received per bushel two or three years later. Not discouraged by the low prices in the first venture, the planter set four acres more, and by the time this patch came into bearing, the demand and prices had increased. As the demand increased, the grower raised the price to \$5 and \$6 per bushel, and the acreage above 40 acres. As soon as the taste for raspberries became established, the first planter of this fruit always had a corner on the market and made prices to suit his taste. He soon became the owner of 200 or 300 acres of rich, bottom land nine miles from St. Louis.

EIGHTY MILLION DOLLARS FOR STRAWBERRIES.

A late writer in Harper's Monthly Magazine estimates that the above amount was paid for strawberries in this country this year. While we are inclined to think that the writer is forty millions over the mark, yet forty millions of berries is probably more than all the rest of the world consumed in the year 1900.

Experimental horticulture has not originated as many new apples as it might have done. One of the wants in the Missouri Valley, is some new winter apples. The Baldwins, Newton Pippins, and Spies, so highly prized in the north and east are only fall apples with us. The Ben Davis, Missouri Pippin, and Gano are attractive, but they lack taste, and are poor keepers. They are in fact, only a second-rate apple. We need a large, crispy, red apple: one that will stand transportation and keep well, without having to be stored in ice houses to keep it a few weeks.

Think for a moment what E. W. Bull did for the country when he originated the Concord grape. Its value is almost beyond computation. Were it not for the Concord, the poor man would hardly be able to get a taste of the fruit that is so often referred to in the Bible. The Concord's greatest good is in its not being good for wine, but only valuable when it is eaten direct from the vine, or from the original packets in which it is shipped. Thus experimental horticulture is the forerunner of that larger fruit culture that we call commercial vineyards, berry fields and great apple orchards.

Thirty years ago the Miami and Doolittle raspberries were the leaders in market. The interval of a week between the Doolittle, the earlier of the two varieties, and the last picking of the strawberries, has been overcome by experimental horticulture, in the production of earlier ripening berries of both kinds. There is now a lapse of a week made by the earliest raspberry before the last picking of the strawberry. The Kansas and Cumberland seem to be holding the fort for size and productiveness, while the Egyptian and Progress are earliest, and the Gregg is latest.

If the experimental horticulture will produce a blackberry that is the equal of the old Kittatinny, being free from rust, we may call it the long-sought-for ideal blackberry.

In our own experimental work, there were about a dozen new varieties of strawberries planted on our grounds last spring. One of these cost \$5 per dozen—a strawberry of Kansas origin, and named Kansas. Whether it is good or bad, it will not weaken our faith in Kansas. A new blackberry of Texas origin will show us what it can do on Kansas soil next year. Among our 3,000 young pear trees, are several that have never fruited in Kansas, some of them being dwarf varieties.

In conclusion would say: That the writer has been a patron of the originators and introducers of new fruits for thirty-three years. Many unprofitable kinds have been tested in order to find those that are valuable, yet the expenditure of several hundred dollars in the cost of plants and their culture is far outweighed by the valuable varieties discovered.

And further let me say that experimental horticulture will never die. It will live as long as the country does. It has founded our great parks, ornamented our dooryards, planted our berry-fields, vineyards, and great apple orchards.

Experimental horticulture makes bright the cities of the dead and strews flowers over the graves of our departed friends.

Best Horticultural Implements.

GEO. P. WHITEKER, TOPEKA, KANS.

For any one particular line of garden and small fruit implements I find none so well spoken of as the Planet Jr. They are almost universally used by all the largest strawberry growers, and highly recommended by them as built to run smooth and steady, making close cultivation possible. The latest improvements regulate the depth to perfection, and they are capable of very fine adjustments.

For vineyard, blackberries and small trees we find the Acme harrow a very fine tool, but the ground should be kept free from grass to do good work with either the Acme or the Planet Jr. tools. For orchard cultivation the Cal. Reversible Cutaway Orchard Plow or Disk, seems to be adapted for stirring the ground and not cutting the roots of the trees. They are reversible and throw the earth to or from the trees; the plow works 4 to 5 feet outside of the team, reaching up near the trunks of the trees, which can not be done with a common cultivator. Mr. A. B. Perine, of Topeka, manufactures a sub-soil plow which is very highly recommended and which has proven to be one of the best farm implements we have; while it may take more horse power to do the work, it makes the work lighter for future surface cultivation. I also find a very useful and cheap implement, which you surely will need, is the old-fashioned hoe.

Best Horticultural Implements.

J. L. WILLIAMS, KANSAS CITY, KANS.

In traveling over the state during the last year we have visited many fruit-growers and gardeners and find a large variety of implements in use, many of which are antiquated and out of date, and after a good deal of thought, inquiry and inspection we find that there are only a few lines of goods particularly adapted to our needs.

In the preparation of the soil for seeding we find that the hand and sulky plows manufactured by the Morrison Manufacturing Co., of Fort Madison, Iowa, possess valuable features over all others.

When it comes to harrows, there is an endless variety and no end of styles, but the principal harrow advocated by all the manufacturers is the lever harrow in the steel frame. In this style there are six or seven dozen, all made practically alike. As in the walking plow, the Morrison Manufacturing Co. seem to be the only ones who have made any radical improvements in this style of harrow. In our judgment this one improvement on the harrow is a valuable one to us. This company also make a line of beet cultivators, pullers and planters, and an orchard cultivator for cultivating under the apple-trees, while the team walks out and clear away from the tree. They also make the Keystone weeder for strawberries and garden truck of most any description.

After diligent inquiry and search we failed to find the above mentioned tools in any other manufacturer's line. To save time, should you desire to look the matter up yourselves, your inquiries should be addressed to Messrs. Buford & George, Kansas City, Mo., general agents, who will cheerfully furnish the desired information.

In looking up the single and double shovel plows and five tooth cultivators, we came to the conclusion that the Brown, made at Zanesville, Ohio, leads all others, owing to the particularly fine shape of the shovels and their adjustability upon the shanks of the cultivators.

In mentioning narrows, etc., for the preparation of the ground for seeding, we should not overlook the roller. Most of us at one time or another have seen the old-fashioned Field roller, which was all right in its day but has now been left in the shade by the new, up-to-date steel roller, with its large drum, which makes it draw much easier, and is more effective owing to its greater weight.

After preparing the soil for planting and cultivating all kinds of seeds, we found only two lines of seeders, drills and planters. First comes the Planet Jr. with a very complete line of drills, planters, and one-man cultivators and weeders, all of which have several attachments so that almost any kind of work can be done in any kind of ground.

In pursuing our investigations, an implement that particularly struck our fancy was the Bradley combined seed drill, planter, cultivator, weeder and hiller. This implement is fitted with a marker and all the attachments, so that you can drill in rows or drop in hills in rows, cultivate, weed, or hill at your pleasure, all with the one and same kind of tool. Another cultivator that is worthy of mention is the "Easy." As

its name implies, it is easy; owing to its peculiar construction it is particularly adapted to our uses. It also has all the attachments, the same as both the others. All of these last-named implements are what are called hand-power tools exclusively.

In looking up new features on implements we came across the new Aspinwall potato planter which drops and plants the same as a corn planter. This is a very fine implement indeed, and one that will save the potato raiser a good deal of hard work.

In submitting this report we wish it distinctly understood that in the recommendations herein contained, they are our best judgment and are given you without favors to any, all of which is respectfully submitted.

Spraying.

EXCERPTS FROM A PAPER BY P. J. PARROTT.

In all the old fruit growing districts of this country, spraying is recognized as one of the necessary duties to be performed in the care of the orchard. Provision is made for it, as is done for other work indispensable to this industry. The ingredients for the spraying mixtures, and the necessary machinery are secured beforehand, and are ready to be put into use at the proper time. Also, with many of the more extensive orchards, the foreman, together with the men under his charge, seem to be fully alive to the fact that it is their duty, and to their own interests as well as that of their employers, to be constantly on the watch for plant diseases and insect foes, especially in regard to the San Jose scale, which with some is becoming a serious problem. So impressed with the necessity for doing this are many of the foremen that they have become very proficient in the care of the orchards under their direction, especially in recognizing the common foe of the fruit-trees, and in the application of fungicides and insecticides. It is indeed a great treat to see the results of such practice. One foreman, with nothing but the training and the prospects of being a laboring man all his life, has, by constant attention to his work and by careful reading of horticultural literature, gladly furnished gratuitously to him by his employers, become unusually expert in detecting troubles in the orchard under his charge. It was surprising how clever the man was in picking out one particular species of scale insect from five others that were present on the estate. In several instances he found the San Jose scale in places where it had been overlooked by experts. Through his own energy and management the orchard was freed from this pest.

Some orchards near Rochester had failed for some time to be profitable, but when taken in charge by new owners have turned out to be splendid investments by reason of better care given them. It is reported in one instance that an apple orchard had for some time been hardly paying expenses but under new management yielded the second year \$5,000 net profit, which was regarded as a handsome return on the money invested. It seems almost incredible to believe it is so, but this result is attributed by the owners to spraying for the codling-moth, which had not been practiced by the old management. Doubtless the extra care of pruning and cultivation had as much to do, if not more, to secure this result.

Instances of this nature can probably be recalled from almost any locality. There are those everywhere who succeed where others fail. It often seems to depend upon the man. In the state of New York the most successful horticulturists are the most enthusiastic in the support of spraying. Taking the state as a whole, spraying is much more generally practiced than in Kansas. To be sure, there are those who disparage its use. But where spraying has been used the longest, and is most widely practiced, there we find its most hearty supporters. So with spraying in Kansas, we find contrary opinions. Some have succeeded with it, while others have failed, consequently we find some condemning while others are praising it. There is no doubt good reasons for the opposite opinions. Spraying is not always remunerative, nor is it always a failure. But I believe that when spraying is done intelligently and is most widely practiced it will be found in the majority of cases to be a profitable investment.

In this state there are some people who denounce spraying for any insect pest whatsoever, just because they happen to think it is not really effective in reducing losses from the codling-moth. "Spraying," they say, "is a fake," "a fraud," "all moonshine." The fact that it is so eminently successful in controlling a dozen or more orchard in-

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Can we really do it? We say yes. Can we prove it without cost to you? We can. How? We will ship you a harness, saddle or vehicle, without you sending a single cent, and let you look it over at your freight house and if you don't find we have given you the biggest bargain you ever saw or heard of, return the goods to us at our expense. We give with each vehicle a 2-year iron-clad guarantee, protecting you from poor material and workmanship. Our vehicle catalogue describes the largest line of buggies, road wagons, phaetons, surreys, spring wagons and carts, harness and fly nets ever shown in one book. It's free. Send for it. Marvin Smith Co., 55-59 N. Jefferson St. U-2 Chicago, Ill.



Lean's Harrow
An all-steel lever harrow; light, but strongest and most durable. Teeth instantly adjusted to any angle by the simplest yet most perfect adjustment device ever invented. Adapts itself to all kinds of soil; does the most and best work under varying conditions. Will save enough in one season to pay for itself. Write for circular. ROBINSON & CO., Kansas City, Mo.

sects other than the codling-moth seems to have been overlooked by them. Moreover, it has been demonstrated, again and again, by trained scientific men, and especially by the extensive experiments by Prof. E. A. Popenoe, that it pays to spray for the codling-moth.

In press bulletin No. 66 of the Kansas Experiment Station, Prof. E. A. Popenoe tells of his intention to repeat the tests of spraying for the codling-moth. The writer does not believe that there was ever a more thorough series of tests planned or better carried out. The experiment has now run for one season and will doubtless be carried on through another summer to insure against mistakes. The writer feels confident that all interested in horticulture will await with interest the published results of the test. It may be, as proven in southern New Mexico, where there are more broods of the codling-moth during the apple season, that spraying for the insect in this state will be found a failure. Perhaps the experiment will demonstrate unmistakably, as was done before, that it is successful. In the meantime let all fruit growers continue to spray for the codling-moth as for other injurious pests.

During the past few years new insecticides have been placed on the market for sale. A number of them have been advertised quite extensively by their manufacturers as excellent substitutes for Paris green, in that they are equally effective in destroying insects and are much less in price. Before giving an opinion to the public of the merits of these new remedies it has been very desirable to test them for their insecticidal value and their effects on foliage as compared with Paris green, which with most horticulturists is regarded as the standard insecticide. Of these new insecticides, green arsenoid (green arsenite, Sheele's green), pink arsenoid, arsenate of lead, and Paragrene, have been tested, and the results as given below show that they are deserving of recommendation for practical use.

The green arsenoid is manufactured by the Adler Color and Chemical Works, Brooklyn, N. Y., and according to the latest price list costs 15½ cents per pound when ordered in lots of 100 pounds. It is quite similar in composition to Paris green, and appears to be equally safe to foliage, when applied at the ordinary strength. Moreover, this insecticide is more flocculent than Paris green and remains much longer in suspension. In a test at the New York Experiment Station, Paris green settled in five minutes while green arsenoid was held in suspension for two hours. This last quality, together with its insecticidal value, should recommend it for practical use.

Trees sprayed with green arsenoid were more uniformly freed from canker-worm than those sprayed with Paris green. The second application practically freed the trees. In combating the potato beetle "green arsenoid" seemed as efficient as Paris green. In experiments with the codling-moth and the cabbage-worm it was equally satisfactory.

Pink arsenoid is also manufactured by the Adler Color and Chemical Works, and sells for 8 cents a pound when purchased in large quantities. As an insecticide it is nearly the equal of Paris green, and seems as safe to the foliage. Because of its cheapness it will undoubtedly be more extensively used. When employed against the potato-beetle, it was fully as satisfactory as the more expensive compounds.

Arsenate of lead is an insecticide which was first extensively tried by the Massachusetts gypsy-moth commission, where it was found to be the "most effective poison yet used."

The "arsenate of lead" is prepared in the proportions of 11 ounces of acetate of lead, 4 ounces of arsenate of soda, and 150 gallons of water. Place the acetate of lead in 4 quarts of water in a wooden pail, and the arsenate of soda in 2 quarts of water in another wooden pail, and when entirely dissolved should be mixed in a barrel containing the 150 gallons of water. When employed against the apple-tree tent-caterpillar and come larvae of the mourning-cloak butterfly the poison was very slow in its effects but against the cabbage-worm it was much more effective. The Maine Experiment Station, in an experiment with insecticides for the potato-beetle decided that it was the most effective of any of the insecticides used.

The "arsenate of lead" holds well in suspension, and remains for a considerable time upon the foliage. * "This insecticide has the advantage over Paris green that when used in large quantities it will not injure the foliage of

the peach, cherry, Japanese plum or other trees of delicate nature. It is, however, more expensive, and its effectiveness in destroying the common insects attacking our fruit and garden crops is not so well proven as that of Paris green. It should be given a thorough trial, especially on those crops where Paris green is known to be injurious."

"Arsenate of lead" is put up for sale by William H. Swift & Co., and the Bowker Chemical Co., both of Boston, Mass. It is sold by the latter company under the name of "Disparene," for 20 cents a pound. "Arsenate of lead" is now quoted at 14 cents a pound. Doubtless if purchased in large quantities "Disparene" could be obtained at about the same price.

"Paragrene" is a patented article, manufactured by Fred L. Lavenburg, New York, and retails for 14½ cents a pound. In experiments with this insecticide against the potato-beetle the Maine Experiment Station found it as effective as Paris green, and in the amount used (one-half pound to the acre) did not burn the foliage so as to injure it, if at all.

At this place it may be well to add that the "arsenic and lime mixture," or "arsenite of lime," as recommended by Professor Taft, of Michigan, is made by boiling 1 pound of white arsenic and 2 pounds of lime in 2 gallons of water for forty minutes, and then diluting as required. In using this mixture there is considerable danger of an incomplete union between the lime and the arsenic. In several instances the foliage of apple-trees was badly injured by using it. The formula of Prof. Kedzie is much to be preferred. It is made as follows: † "Boil 2 pounds of white arsenic with 8 pounds of sal soda in 2 gallons of rainwater. Boil these materials together in any iron pot not used for other purposes; boil them fifteen minutes, or until the arsenic dissolves, leaving only a small muddy sediment. Put the solution into a 2-gallon jug and label 'Poison—Stock material for spraying mixture.'"

The spraying mixture can be prepared whenever required in the quantity needed at the time, by slaking 2 pounds of lime, and adding this to 40 gallons of water; pour into this a pint of the stock arsenic solution; mix up, stirring thoroughly, and the spraying mixture is ready for use. The arsenic in this mixture is equivalent to 4 ounces of Paris green.

The writer tried the Kedzie mixture for two years and found it very effective in combating canker-worms, cabbage-worms, potato-beetle, and other leaf-eating insects. In some instances the leaves of the apple-trees following the second spraying were slightly scorched. Though this mixture is cheaper than Paris green, it does not seem to be in favor with the horticulturists of this state. A good many prefer to pay a little more for Paris green or London purple, than go to the trouble of preparing it.

If these new insecticides, as above mentioned, maintain their present standard, there seems to be no reason why they should not in the future be more extensively used. Nearly all of them have the insecticidal value of Paris green, and possess an additional advantage of remaining longer in suspension. This last is a very important character, if an even application of the spraying mixture is desired.

All insecticides should comply in all particulars with the claims made for them in the Patent Office, and it is a good practice for those spraying extensively to submit samples of their purchases of insecticides to a chemist for an examination. In some of the Eastern States laws have been passed, intended to prevent fraud in the sale of Paris green. Samples of Paris green are collected from the various localities, and are analyzed by experts appointed for that purpose. Later, in an official publication, the analyses of the Paris green together with the manufacturers' names are made known. Because of the danger in injuring their reputation, as well as receiving severe penalties for violation of the law, no reliable firm is willing to run the risks of adulterated Paris green in those states. A law to prevent fraud in the sale of Paris green and other insecticides should be passed in every state.

Purchased in bulk, Paris green in the New York market now sells for 12½ cents a pound, while in St. Louis it is quoted at 15 cents a pound. The prices for London purple are the same in the respective markets, except that when purchased in small lots it costs a little more than Paris green, selling for 17 cents a pound. At these prices, Paris green is as cheap, and in some instances actually cheaper than London purple, and both of them are less costly at

present prices than some of the new insecticides. Were it not for the fact that Paris green settles more quickly than some of the newer compounds, there would be little reason at the prevailing prices to change from Paris green, and especially so, if the spraying pump is furnished with a good agitator.

Fungous Diseases.

EXCERPTS FROM A PAPER BY F. L. KENOYER, INDEPENDENCE, KANS.

The closing year of the century has come and passed into history, bringing with it the usual round of blights, and scabs, and spots, and rusts, and mildews, and rots, although upon the whole the damage done by these diseases was not nearly so great as during the year previous. In many cases the diseases were so slight as to be of little injury to the foliage and fruit.

The strawberry leaf-spot or leaf-blight, sometimes erroneously called rust, injured some varieties of the strawberry, while other varieties were wholly unharmed, being immune to the disease. The Marshall and the Belt had their crops reduced by this disease below the limit of profitable production. As large a list of valuable varieties as we have to select from, we should cultivate only such varieties as are comparatively blight-proof. A (to me) new disease appeared on a few varieties of strawberries this year. It is a species of mildew that turns the leaves white on the upper surface. The Marshall was the only variety injured by it. I do not recommend spraying the strawberry for its diseases, as we have too many splendid varieties that are almost entirely free from all diseases for us to go to the expense of spraying the tender sorts. If, before setting plants, we would dip the tops in sulphate of copper solution, we would destroy every disease germ and for one year at least have a perfectly healthy plantation.

The black raspberry was slightly injured by a disease I consider identical with the blackberry leaf-blight. The anthracnose almost forgot to visit us this year.

The red raspberry, so far as I can discover, has no injurious disease.

The only fungous disease found on the dewberry was the blackberry leaf-blight. It did no damage except on old plantations.

The blackberry was attacked this year by a disease that is new to me. It is a species of rust that attacks the under side of the leaves, and varies in color from ashy white to bright lemon yellow. The various shades of color are found on the same leaf. The newly formed spores are white and they shade into yellow with age. The Kittatinny lost one-half and the Erie one-fourth of their leaves by this disease. No traces of it could be found on the Snyder, Early Harvest, or Kenoyer blackberries. The orange rust was found only on the Kittatinny and did but little damage. The leaf-blight appeared on all varieties.

Grapes, where unsprayed, lost about one-half the crop with black-rot and anthracnose. I saved 90 per cent of my crop by the use of Bordeaux.

The pear-blight did less damage than usual this year.

Apples suffered from their annual visits of leaf-blight, twig-blight, scab, bitter-rot, etc. A vigorous and thorough use of the spray pump seems to be the only alternative.

The leaf-blight on the cherry and a few varieties of plum is causing serious damage, both in loss of fruit and in shortening the lives of the trees. Most varieties of cherries and the Damson plum are compelled by this fungus to pass through July and August, the hottest months of the year, entirely bare of leaves. The life of the tree is thereby shortened one-half, and its usefulness curtailed fully three-fourths. Bordeaux is a sure remedy.


The ripe rot of the plum damaged the crop about one-fourth, and the scab as much more.

The curl on the leaves and the black-spot on the fruit seem to be the worst enemies of the peach.

Cucumbers and melons were not so badly affected by the Cuban blight as ordinarily. Spraying has been only partially successful in combating this disease. The cucurbit wilt killed a great many vines this year. It is similar in its workings to pear-blight, and, like that disease, can not be reached by any known fungicide.

The potato scab and tomato rot were present, but did little damage to the crops.

Most of the fungous diseases I have named in this paper can be destroyed or held in check by the application of Bordeaux mixture, with the exception of pear blight, cucurbit wilt, and orange



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* Bull. No. 60, Mass. Exp. Sta.

† Pg. 23, Bull. No. 126, Cal. Exp. Sta.

rust of the blackberry. These last attack the internal tissues of the host plants and can not be reached by the external application of spraying solutions. The only known remedy for this class of disease is to destroy at once the affected plant, or the parts affected wherever the disease appears.

Orchard and Produce Under Irrigation.
EXCERPTS FROM A PAPER BY G. T. GALLOWAY, WAKEENEY, TREGO COUNTY.

I irrigate my garden, orchard and potato patch. I use a 1-horse power engine, which runs two 6 by 14 inch cylinder pumps. The water is taken from the Saline River, raised about 14 feet into an 80-barrel tank; the water is led from the tank in 4- and 5-inch pipes to the outer [higher] edges of the land to be irrigated, and emptied into a ditch which crosses the upper end of rows of potatoes, asparagus, beans, peas, radishes, etc. I tap the ditches in such places as will allow the water to run down on each side of every row a distance of 30 rods. As soon as the water gets through and runs long enough to thoroughly soak the ground, I close the opening in the ditch and open a new one, and so on until the patch of ground is gone over; it takes about 3 days to go over the 5 acres of ground I have under irrigation. The number of times I irrigate this land during the year depends on the amount of rainfall during the growing season. One year I irrigated only once; other years have irrigated four times during the growing period. Fruit-trees only need irrigating twice during the very driest season, and then very thoroughly. If watered lightly and often the feeding roots will grow near the surface.

In watering pumpkins, squashes, peas, and beans, I find it very injurious to the roots to let the water and the sun to the vines at the same time, or the sun to the roots after they have been watered. Turnips, beets, radishes, and onions are not thus injured. The earth should be stirred as soon as dry enough after watering.

Potatoes (Irish) should be watered when in bloom and again when tubers are well developed. Water all garden trucks, vines, etc., any time when the ground is getting dry. Keep the earth well stirred up and do not roll or in any way pack it. Irrigating makes the soil solid and hard, if not well fertilized and tilled. Ground that has been manured requires more water than if unfertilized.

Twenty-one years in Trego County, sixteen of it under irrigation, has demonstrated to me that any one can have all the vegetables, potatoes, and small fruits that an ordinary family needs by irrigating, and that from a common well, although river, creek or pond water is better.

Reservoirs may be made of sod or scraped out on sloping ground, such reservoirs give the water a chance to warm. I have seen finer gardens raised in this way than I ever saw in Illinois, where the rainfall is plentiful.

Strawberries do well under irrigation, and are much finer than those raised where it rains, as the rain dirties and bruises them. Under irrigation one can give them just enough and no more and at the right time.

Report of Grape Growing in 1900.
A. H. BUCKMAN.

The grape crop of 1900 in Shawnee County was medium. Prices in Topeka for 7- and 8-pound baskets run from 9 to 18 cents per basket, commission taken out. Commission men handle the most of ours, saving time and trouble. We realized 2 cents per pound for the whole crop. Grapes had a crop of peaches to contend with this season. The three black kinds rule the market—Moore's Early, Wonder, and Concord, although we had no trouble in selling Green Mountain and Delaware at double prices, or half size basket, at same price. Woodruff Red and Moore's Diamond are good sellers, and will always find a market grown to any amount. The present season has been no exception as to the worst enemy the grape grower has, and that is the man who pulls his grapes green or as soon as colored and forces them upon the market before they are at their best. The crop of 1900 ripened 6 to 8 days earlier than in 1899.

Grape vine fida (Fidia viticida), Bush says mis-called "rose bug," is a leaf-eater. This year it is much on the increase. This is the third year we have seen its effects. It commences its work the last of May and is gone by the last of July. A small vineyard by the house where the poultry run is clear of this pest, or does no harm. Out of 50 or more kinds we have experimented with or tested, Green Mountain, Moore's Early, Worden, Moore's Diamond, Con-

cord, and Woodruff Red, for market, have paid the best; and for late home use, Goethe.

We are more impressed than ever in favor of a black, deep, rich soil with clay subsoil, for where the land is so near level that the water will run off without washing. This kind of land holds the foliage and seems to resist diseases of vine and root better than loose, sloping land. Our oldest vines—thirteen years planted—have been the most profitable this year. We have been disappointed in Campbell's Early and McPike. Campbell's Early can not compete with Moor's Early, and McPike is an inferior Concord in size and quality.

Vineyards, 1900.

EXCERPTS FROM A PAPER BY A. L. ENT-MINGEE, SILVER LAKE.

The fall and winter of 1899 and 1900 were very favorable for a good crop, the following spring being also favorable for the blossoming and pollenizing of the fruit, consequently a large yield was the result; many shoots of new wood having three and sometimes four fine bunches, which flourished and did well until about two-thirds grown, when in some vineyards not very well cared for rot was very noticeable, and in some localities the crop was almost, if not quite destroyed. Some vineyards escaped until nearly ripe, and then dropped badly; however, care and attention, with thorough cultivation, added greatly to the preservation of the fruit. We believe the last rotting of the fruit is different from the first, or birdseye rot, and will prove much more destructive, as the sprayer can not be used when the fruit is so nearly mature.

I have many varieties, but would not recommend any for profit, except the well tested, as nearly all of the new varieties fall much short of the introducer's recommendation. The much-praised Campbell's Early is so tender as to be practically worthless in this latitude.

The yield of grapes varied much; the highest being about four tons per acre; prices were very good, 10 cents per basket being the lowest; yet first-class and well packed grapes did not go below 12 cents per 8-pound basket. Moore's Early brought the best price; closely followed by Worden, Concord, and Telegraph. Vineyards are now in very fine condition, perhaps never more promising at this season of the year.

Irrigation.

B. F. SMITH, LAWRENCE, KANS.

I have not had any experience in irrigation this year; but my faith in its utility is as strong as though I had been in a climate where it was actually necessary.

The abundant foliage of our berry patches this fall over that of last fall and other dry seasons is positive evidence that our berry patches need more water at the close of the summer and early fall season than we are aware of. It is water applied to the soil, whether from the clouds or artificially, that gives life and beauty to all living vegetation. The time is not far distant when all the living streams of water in eastern Kansas will be corraled and trained to flow over our thirsty fruit-bearing fields, on all low lands during dry seasons.

Water and sunshine came in equal proportion to all berry patches in eastern Kansas this year; the proof of it is also seen in the astonishing growth of young orchards and the unusually vigorous plant growth in our berry fields.

We should foster irrigation schemes in our state. It is frequently said that our soil needs special fertilizers for the different crops, but this year's experience convinces me that it is water, water, frequently poured on to reduce the elements in our soil to that condition that plant life can take up and appropriate according to its needs. Let every fruitman, farmer, or gardener, who has a stream of water flowing through his farm stop that waste of fertility that is running away from him, and let him train it to flow over his thirsty fields, and thus increase the wealth of our great state of Kansas.

Does Variation in Varieties Come from Bud or Root?

A. H. GRIESA, LAWRENCE.

During a discussion of some authorities at our last meeting, several cases were cited to show that varieties could be brought up, improved in productivity by selecting and propagating from the most desired specimens of any variety, and so make the future orchards more productive.

That this is most desirable all admit, and is the true aim of all tree-growers. But can it be done in that way? That

such variation is possible is proven in several cases; but is that the source, where some trees in any orchard are more productive than others? If that variation in bud were thus so easily effected, there would be little stability in any variety, and the tendency to less production would be as likely as the increased production that we seek.

It has been claimed when trees were top grafted that the season of ripening, or quality was slightly influenced by the kind of the tree they are grafted upon. Thus, sweet-apple trees grafted to sour kinds would make the tart in them more mild; so of other traits.

But to the subject: Does bud variation exist to the extent claimed? and is that the cause of more productive trees? and can it be or is it perpetuated by grafting from such trees? My conclusions are not in accord with the claims, but I am sure it is wholly influenced by the quality or vigor inherent in each seedling root.

Please remember apple seedling roots are not uniform vigor or other desired qualities. They from native seedlings are best and most wholly used. Those claimed to be French crab seedlings are the pure common apple known as Pyrus malus—not Pyrus baccata. The latter or some of its kinds may produce more uniform seedlings than does the P. malus, but they are not being used for that to any extent. I have no knowledge on that point. They are being recommended in the far North, since the cold of two years ago, as a more hardy root than P. malus, and they may develop other worthy merits for this section. Since the appearance of so many diseases of our apple-trees in orchards, it has baffled our scientific friends to tell the cause of them or provide a remedy. In some cases they are not even agreed as to the primary cause of it; whether it is a bacteria or a fungus; it is known that some varieties are subject to it more than others.

Our sanguine friends of bud variation have not sought to avoid that by selection of proper trees, but I am hopeful of being able to solve that; as trees grown fifteen or sixteen years are as exempt from such injury as others not liable to such diseases.

Years ago the Grimes Golden was extensively planted in our county. They made fine trees and produced abundantly of the choicest apples, but no sooner than the most bountiful crops could be expected than the trees died at the root; so that out of thousands planted but very few of the younger trees remain. Two rows of 20 trees began to bear and die about the same time. In my orchard. I saw the injury was all in or near the ground, and the idea came to set a kind not so affected and graft in the young branches; and the result is the trees are healthy, vigorous and uniformly productive. The old liability to disease is overcome in that kind, and it points out the way to success.

I have been looking for a healthy tree for a stock. I found a variety that combines this in a remarkable degree and have begun in a small way to try this on small kinds. It adds to the cost of the tree, as they need to be twice inoculated or grafted; but the gain can not be computed when you take in the longer life of the tree, sure indemnity against root rot, and possible greater productiveness and other good results. The point to gain is more permanent orchards, larger productiveness and better quality. To begin at the foundation would be most wise, and for that we should use a seed of one variety combining the essentials sought for. Uniform vigor and hardiness are the first requirements—then it should readily unite in budding and grafting. For these purposes the different kinds of crab may be tried, as Siberian, Hyslop, or Soulard—the latter seems the best for a stock, but it has no value for fruit. I have not seen any affected by root gall on this Soulard root, nor do I remember to have seen any affected by woolly aphis, and it is the most hardy in all respects of any I know, and time and trials alone will determine its value for this use.

Vineyards.

EXCERPTS FROM A PAPER BY GEO. HOLSINGER, ROSEDALE.

Of all the fruits of which I have had experience I know of none that is more satisfactory in its results or that will respond to the efforts of the horticulturist more than the grape.

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and 3 hoeings a season. The first plowing of the season is done with the 8-inch Diamond and the dirt is thrown from the grapes. This covers all weeds, refuse, or manure that may be on the surface and leaves a narrow ridge in the row to be hoed. All subsequent plowings are done with the double shovel or five-toothed cultivator, and is done as often as is necessary to keep down the weeds and the soil loose.

The methods of pruning are many, and I suppose that several methods are equally good, each grape grower using his own preferred method to suit his particular conditions. Our method is a combination of the upright and horizontal systems, and is intended to distribute the fruit and foliage so that the grapes will not burn for want of shade or become potted and smeary under too dense foliage.

The trunk is not allowed to become more than a foot in length, and from this six or seven shoots are allowed to grow throughout the season, except in heavy soils, when summer pruning becomes necessary to prevent too dense a shade. At the end of the season, when trimming is done, the canes are reduced to four in number and are cut back to about four feet in length, leaving perhaps 40 eyes. These are now spread out fan-shaped on the wires and tied securely to the top wire by willow withes. One should be careful in tying to see that all vines are tied close to the lower wire to prevent injury by careless driving, long single trees, etc.

The lower wire is usually 36 inches from the ground, and the upper one 24 inches to 36 inches above that, so that the top vine should be at least 5 feet from the ground. My reason for having a high lower wire is to keep the fruit high above any weeds that may get a start in the rush of berry picking or in a wet season.

In planting I would prefer a gentle slope to level upland or bottom, unless the upland be thin. Thin land heavily manured is, in my opinion, better than heavy soil, and it should be particularly attended to see that the land is thoroughly drained. In planting we plant rows 7 or 8 feet apart and the same distance in the row. This gives each plant plenty of room and insures a passage way for wagons in collecting the picked fruit, as it also does for manuring.

As to planting for commercial purposes, the Concord should be classed above all others. Moore's Early is a splendid variety and would be second on my list. Being of better quality, it commands from 2 1/2 to 5 cents more per 10-pound basket than does Concord. Champion is good only because it is early, but is must be marketed as soon as colored, for it has no good qualities to recommend it, and when Moore's begins to go on the market there is no sale for it.

The result of this year's grape crop was very satisfactory in the eastern portion of the state. We had a good crop with good prices. Concord, Moore's, Worden, and Elvira, besides many other varieties, had a splendid showing of fruit. Champion was remarkably full; the second big crop we have ever had of Champion. Woodruff, though only one year planted, had fruit sufficiently plentiful to warrant planting more extensively.

We had no grape rot in our immediate neighborhood, although the crops on vineyards at a distance of 2 miles were almost entirely destroyed. Good, compact bunches and plenty of them were more in evidence than for three years previous—perhaps more. As to the planting of fancy table grapes, it will not pay unless a person is so situated as to do his own marketing. A few fancy grapes can be sold for good prices but the old standbys are the maney makers.

Vegetable Gardening.

EXCERPTS FROM A PAPER BY F. P. RUDE, SHAWNEE COUNTY.

The year opened up very favorable for garden work. January was warmer and brighter than usual; plants in hotbeds made a fine growth. February, while much colder than January, was a nice month for hotbed work. The winter, until the last of February, had been very dry. On the last day of the month we had a very heavy snow that supplied the much needed moisture. March opened very cold and the soil was very wet and not fit to work until

the 13th, and it was most too wet to work at that time. A mistake was made here by a great many of the gardeners by planting the small seeds so shallow that they did not germinate for want of moisture, and it took a long time for them to start. April opened very dry, but nice weather for all kinds of work, but too dry for plant setting until the night of the 15th, when there was a fine rain which was so much needed for early plant setting. The latter part of April and first half of May were very seasonable and all kinds of garden crops made a fine growth. The last part of May and fore part of June were very dry and all crops that were not kept well cultivated and free from weeds suffered for want of moisture. During the last part of June and first part of July there were fine rains, and everything bid fair to make a very heavy crop. The last of July and August were so dry that all kinds of crops suffered from the excessive heat and want of moisture. Such crops as had been kept well cultivated withstood drought, and when the rains came the first of September, put forth new life and made a fair crop.

From last year's experience I would say, plow in the fall. Land plowed in the fall will stand more dry weather, and can be worked earlier in the spring and is in better condition to produce a crop than land plowed in the spring.

In this latitude hotbeds should be made for early cabbage and lettuce the last of January. At this time pie-plant can be started, either in the greenhouse under the benches, or outside under glass. Pie-plant for field culture will produce a heavier crop if it is mulched with coarse manure. In February sow tomato, egg-plant and pepper seed for first early plants, in well prepared hotbeds; also sow more cabbage seed of the larger summer varieties.

The first of March the old asparagus tops should be cut and burned. If the tops are left on until this time they hold the snow and it supplies the moisture that asparagus so much needs. As soon as the soil can be worked in the spring such crops as are hardy should be planted, and keep planting every few days for succession.

At this time the hotbeds should be well looked after that they are properly aired and plants hardened so they will be fit to set when the proper time comes. As it grows warmer in the spring plant such crops as are not so hardy and keep planting every few days for there is sometimes late frost that kills the first early vegetables. May and June is the time the cultivator and hoe should be kept at work and have all crops free from weeds when they are laid by.

Vegetable Gardening—Poisoning Cut-worms.

F. L. KENOYER, INDEPENDENCE.

The cut-worm is one of the worst enemies with which the gardener has to contend, but fortunately it is the easiest of all insect pests to destroy. The damage it does annually to newly set vegetables and strawberry plants is immense. Last spring I noticed that many strawberry plants in a certain plantation on my farm were apparently dying. A careful examination of the plants revealed the fact that cut-worms (in some cases as many as four to a plant) were eating out the crown buds. I examined a tomato and cabbage patch near by and found that the worms were also raiding there.

The remedy I employed was this: I took a gallon of wheat bran, moistened it with water, and stirred into it about a heaping tablespoonful of London purple. This mixture I sowed broadcast over the infested fields. The next day I took a walk over said fields to note results. I saw many dead bodies of the enemy strewn over the field of battle, and not a living one left to tell the tale of the awful carnage. Cut-worms are exceedingly fond of bran, and will leave any kind of plant to feast on it. If gardeners and berry-growers would scatter poisoned bran over their ground the day before setting their plants, many valuable plants would be saved from destruction and the precious time required to reset the missing plants would be saved at the busiest season of the year.

CATCH CROP FOR MELON APHIS.

Heretofore, I have had to spray my cucumbers and cantaloupes every season with a decoction of tobacco stems to destroy the melon aphis. The past season I by chance discovered a remedy that worked so effectively as to render the spray pump unnecessary. Early in the spring I prepared my melon ground, and before the season for planting melon seed had arrived I drilled turnip and radish seed between the spaces that were later on to be occupied by

melon rows. The turnips and radishes were large enough for table use and market by the time the season was sufficiently advanced to plant the melon seed. I observed that these vegetables were covered with the turnip aphis, and that the lady bugs and lace-wing flies were after them by the hundreds, and were depositing their eggs there by the thousands. The inferior and unsalable turnips and radishes were left to occupy the ground and hold the insects until the melon plants had attained sufficient size to be attacked by the melon aphis. Then I cut off the tops of the turnips and radishes with a hoe and left them lying scattered over the field. As the plants wilted the lice perished and the lady bugs and lace-wings had to go elsewhere in quest of food. They soon scattered over the melon patch, and in a short time every melon aphis was devoured, although they were more numerous than usual. The employment of this method of combating plant lice not only dispenses with the tedious and expensive use of the spray pump, but also enables one to secure two crops from the same ground.

KEEPING POTATOES THROUGH SUMMER.

The potato is the most valuable of all garden vegetables. So important is it as an article of food that no bill of fare is complete, no table well furnished without it. It is used alike by the rich and the poor, the healthy and the invalid. No other vegetable than the potato is eaten three times a day, and three hundred and sixty-five days out of the year. As valuable as is this product of the soil, and as easily as it is grown, yet it is a fact that three-fourths of the farmers of our state do not raise one-half of the potatoes their families consume. Thousands of dollars are spent annually to purchase potatoes that are shipped in by car-loads from other states, when they could easily be produced at home but for the single reason that late potatoes can not be successfully grown in Kansas, and early potatoes can not be easily kept through the long, hot, dry summer months. They are usually carried through by allowing a heavy growth of weeds to cover the patch for the purpose of shading the tubers from the sunshine and taking up the moisture after each rain. This method, though generally successful, is at best a poor makeshift, as it leaves the ground heavily seeded to weeds and the rank growth of weeds makes it a laborious task to dig the potatoes. Sometimes during a severe drought the weeds lose their vitality and a subsequent shower ruins the crop. Last summer, before cultivating my potatoes the last time, I sowed cane seed through the patch and laid them by with a Planet Junior 12-tooth cultivator, which covered the seed the proper depth. By the time the potatoes were ripe and the tops had died the field was green with growing cane. This made a very rank growth, protecting the tubers from the summer heat and absorbing the moisture after each rainfall. The cane remained green the entire summer. Late in the fall I mowed and raked it and put it up for winter feed. This left the ground bare, making it an easy matter to harvest the potato crop. I secured, at the rate of five tons per acre, some of the best sorghum hay, which was worth this season \$4 per ton. The cane proved to be in every way much better than weeds as a protection to the potato crop, besides it added an extra \$20 cash value to each acre in cultivation. There is no reason why an extra \$15 or \$20's worth of forage may not be realized annually from each of the thousands of acres of potatoes grown in the famous Kaw Valley and elsewhere. What I have done others can do.

Small Fruits.

EXCERPTS FROM A PAPER BY F. L. KENOYER, INDEPENDENCE.

In southeastern Kansas the autumn drought of '99 proved fatal to red raspberry canes, and destroyed many strawberry plantations. On my farm strawberries made about a half-stand of fine, stocky plants. Kansas raspberries, Lucretia dewberries, and Early Harvest, Kittatiny, and Kenoyer blackberries, the only tested varieties of the raspberry and blackberry that have proven a success in my locality, all passed through the drought uninjured and made a heavy growth of canes. All varieties of berry plants, where properly cared for, passed through the winter in perfect condition. The past season has been, all things considered, the best in the last ten years for the growing, ripening,

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harvesting and marketing of small fruits.

Almost all varieties of strawberries bore a heavy crop of fine berries, the only exceptions coming under my notice being the Marshall and Belt. These varieties blighted, as they usually do and did not pay expenses. I have discarded them. My most profitable varieties were Parker Earle and Brandywine. These produced the greatest number of strictly fancy berries, which are always the money makers in the home market. The Clyde bore one or two pickings of enormous berries, and then the remainder of the crop died on the vines before maturing. The old Miner's Prolific is grown more extensively in my section than any other variety, on account of its superior quality for table use, and its ability to stand severe drought and total neglect. About half of its berries grade "fancy." The Gandy bore a good crop of large berries, but it is not productive enough on all soils. Many other varieties, such as Bederwood, Warfield, Haverland, Tennessee, etc., were very satisfactory in yield, but the berries did not grade large enough for top of the market prices.

The Kansas raspberry bore an abundance of extra fine berries. We grow no other variety of black caps for market. As previously stated, all varieties of the red raspberry succumbed to the autumn drought.

The Lucretia dewberry bore a heavy

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crop of very large berries. This promises to be one of our most profitable small fruits. It should be planted more extensively.

The Early Harvest and Kittatinny are the only varieties of blackberries that are cultivated to any considerable extent in my locality. They each bore a full crop. You must remember that southern Kansas has a full month more hot summer sunshine and drying winds than northern Kansas, consequently varieties that thrive the best here in the North are often worthless in the South. There the Snyder blackberry usually "goes to seed;" the Erie berries turn red and hard instead of black and juicy; the Lawton, when it should be ripe and sweet, is sour enough to make a pig squeal; the canes of Stone's Hardy, ere they have seen the first frosts of winter, are as dead as a stone, and as hard, if not as hardy; and so on down the list. While not all varieties that pay in the North are a success there, I have yet to see a variety of small fruit that succeeds there and does not succeed equally as well in the North.

During the past few years Mother Nature has forced under my observation what seems to me to be the nearest perfect of any blackberry that has yet been produced. I shall give you a brief history and description of this new berry.

The spring of 1895 is noted, in southeast Kansas as the driest in the last thirty years. The first half of the year had scarcely any precipitation except a light snow in February. The dry, hot weather forced berries to ripen several weeks ahead of their season. At that time I had a patch of Kittatinny and Early Harvest blackberries growing side by side. Crossing the rows of this patch transversely was a narrow strip of alkaline soil underlaid with joint clay—hard-pan, if you please. On this soil it was with difficulty that I succeeded in getting a few of the berry plants to grow. In this unfavorable location the plants were forced to bloom ahead of the remainder of the patch, and probably ten days earlier than on ordinary seasons. Pollen from one of these early Kittatinny blossoms fell upon a pistil in one of the Early Harvest blossoms near by and fertilized the embryo seed contained therein. The Early Harvest berries produced on this hard-pan spot were forced, by the nature of the soil, to ripen ahead of those on good soil, and fully two weeks ahead of their usual time. Whatever characteristics parents are forced by their environments to acquire, they are almost certain to transmit to their offspring. These sun-parched berries were left to dry up on the bushes and fall to the ground. On Decoration Day we had a heavy shower, followed by an abundance of rainfall throughout the remainder of the year. The seed pollenized by the Kittatinny blossom germinated and in 1896 sent up a strong, robust cane which, the following season, produced a crop of berries. The new plant was discovered in the summer of 1897 by Mrs. Kenoyer, while she was passing through the Early Harvest patch after the first picking of berries had been completed. The plant at once attracted her attention from the fact that the berries were so much larger than the Early Harvest, and that the pickers had secured more ripe berries from this than from any other plant in the patch. The plant was marked and as the remaining berries ripened we readily saw their superiority over all other varieties for our locality. Passing over the many mishaps that have befallen this plant and its progeny from then to the present time, suffice it to say that it has seemingly inherited every good quality of both its parents and rejected all their defects. (1) It is the earliest blackberry in existence. This year it produced its first picking June 5, just five days ahead of the Early Harvest; (2) it is as large as most late sorts, being about twice as large as Early Harvest; (3) its shape is round-oblong, the same as the Kittatinny, which makes it show up large in the box; (4) its color is the richest glossy black; (5) it ripens all over at once—no green tips, no green eyes, scattered all over the berry; (6) in flavor it approaches the Kittatinny, the best flavored of all blackberries. It has none of the insipid mulberry flavor of the Early Harvest; (7) it is firm enough for shipping; (8) it is very productive, but has not the fault of producing more berries than it can mature, as is the case with the Early Harvest.

It was born in Kansas—Kansas, the geographical center of the Union, the heart of the nation! Kansas, the state that has originated so many of our best varieties of large fruits and berries! Kansas, the land that has taken the Ben Davis apple that, as grown in the East, was seemingly a cross between

the Yankee pumpkin and the wild crab-apple, and by the combination of virgin soil and Italian climate has transformed it into a noble fruit that out-rials, in the world's markets, the noted Baldwin of Michigan, the celebrated Northern Spy of New York, the luscious Greening of Rhode Island, and the world-famed Albemarle Pippin! To be well born is half the battle of life. To be born in the East is good; to be born in the West is better; but to be born in Kansas is the greatest blessing of all. It is the ultima thule of blessedness. No other state but Kansas could have furnished the necessary environments to produce so perfect a berry, and in no other year than 1895 could it have originated. I know not what defects the future may develop in this berry, but I do know that it has no serious defects. On the contrary, it has more good staying qualities than any other blackberry in cultivation. It will be further tested before introduction.

The market prices of berries last summer, except blackberries, were higher than for several years past. Strawberries averaged \$1.75 per crate for fancy, \$1.25 for ordinary berries; blackberries, \$1.00 for Early Harvest; \$1.30 for Kittatinny; dewberries, \$1.50; raspberries, \$3.00. I sell nearly all my berries in the home market. I consider a well worked home market worth twice as much as a good shipping market. I have my berries carefully grown, carefully picked, carefully graded, carefully handled, and, as far as possible, sold direct to the consumers. I put all first grade berries in boxes differing from all other boxes in the home market, and with a rubber stamp label each box, "Sunny Slope Fancy Fruit, grown by F. L. Kenoyer."

Last year I used stamped Leslie boxes for fancy berries. In a few days after marketing them some of the boxes would reappear in the grocers' windows refilled with scrawny, knotty berries, labelled, "Fancy Fruit, grown by F. L. Kenoyer." This year I used the X. L. box, made at St. Joseph, Mo. It is the most attractive box made. Unscrupulous growers did not gather up these boxes for refilling, as they did not fit their crates. I never fill stamped boxes with inferior berries. The stamp is a guaranty of the quality of the berries.

In the third district the acreage set to small fruits last spring was increased probably 25 per cent over the previous year. The season was favorable throughout for plant growth, and the present outlook is favorable for our welcoming in the twentieth century with the best small fruit crop on record.

Leaves.

EXCERPTS FROM A PAPER BY MRS. LIZZIE HUGHES.

A leaf-bud consists of a tender growing point covered with rudimentary leaves and imbricated scales. The outer scales sometimes have a fine hair or a kind of varnish by which they are sheltered from the cold. These coverings are often called the "winter cradle of the bud." When the leaves are out the scales drop off, for their work is done.

In regard to position, there are two kinds of buds—the terminal and axillary. The terminal buds form the ends of the axes, or branches, and the axillary grow at the nodes. The latter are either active or latent; if active, growth is begun at once and as soon as development fairly commences the axillary bud becomes terminal. The extension of the branch continues as long as its terminal bud is uninjured. Should it be harmed or changed into a flower-bud the growth in that direction is forever at an end.

The straight, branchless, cylindrical trunk, terminating in a crown of foliage, which characterizes such trees as the palms, is occasioned by the total suppression of the axillary buds, the terminal bud alone leafing year after year. In nearly all plants there is a partial suppression, and usually in some definite order. In species with opposite leaves oftentimes only one bud of the pair at each node is developed, and these are regularly alternating. When there is a development of the two buds the branches appear on both sides like arms and are called branchlets. In some species the suppression of axillary buds occur only during the first year's growth, as in the mullein. Suppression exists to a greater or less extent in all trees until the intended form is hidden in an intricate complexity of branches and branchlets.

As the weather becomes warm the bud is enlarged and the leaves are anxious to burst out into the air, and sunlight, excellent opportunity is given for the study of the arrangement of the leaves in the bud.

The bud is capable of vegetating, not only in its original position, but when inserted into another, as is done in the process of budding or inoculation. The tiger-lily and a few other plants grow axillary buds that detach themselves from the plant, and fall to the earth, and are known as bulbets. Leaves, various and multitudinous, blend into one verduous mantle that so daintily enwraps this earth. The forest's monarch, throwing forth his army shade, and the green, juicy hawthorn, do their parts in gladdening all until joy and music are poured forth in every grove and meadow. He whose soul delights in this sublime music and truly appreciates the marvelous beauties of nature all around him can not but find in them a divine companionship.

Apart from its worth in the surrounding landscape the leaf is valuable in the vegetable economy, being the organ of digestion and respiration.

The leaf consists of a thin, extended form, affording a large surface to the light and air, which are essential to the life and growth of the plant. The parts of the leaf are the blade or lamina, the stem or petiole, and the stipules. The lamina consists of a skeleton and a soft tissue, known as the parenchyma filling, between. This skeleton is formed of woody tubes whose function is to convey nourishment to every part. These tubes are called midveins, veins, veinlets, and veinulets, and divide and sub-divide until they are too small to be seen. There are three modes of venation—net-veined, fork-veined and parallel-veined, which terms almost define themselves. The petiole or foot stalk is sometimes absent. The leaf is then said to be sessile, being joined to the stem by its base.

The stipules are small leaf-like appendages found at the base of the petioles. Either of these may exist with or without the others, or they may all be transformed into other organs, as pitchers, spines, tendrils and even into the organs of the flower. The petioles of different trees are of different forms—some being cylindrical, others compressed or channeled, so that leaves vary in stability.

The petiole of the poplar is compressed vertically so that it is unsable and is agitated by every breeze that blows. A leaf, if it consists of one simple blade, is said to be simple; if it consists of two or more, as the rose, it is compound.

In texture, leaves may be membranous, leathery, fleshy, dry or wrinkled.

The surface of leaves may be smooth—destitute of all hairs and bristles, or rough, with small, hard points. Other leaves are covered with hairs of more or less density—some satiny-like, some downy; still others are matted like felt.

The surface of some leaves are covered with a bluish-white, waxy powder, as are those of the cabbage. The surface of some are highly polished; others have stinging hairs upon them, and some are spotted.

If time allowed there is much that might be told of the uses of leaves, for many various uses have been made of them since in the Garden of Eden, Adam and Eve sewed fig leaves together for clothing.

Nothing in nature appeals louder to the lover of the beautiful than the symmetry of form and the grandeur of coloring of the foliage with which the Divine Architect has so beautifully adorned this world of ours.

Small Fruits.

EXCERPTS FROM A PAPER BY H. E. GOODELL, TEICUMSEH, KANS.

Strawberries in new beds came through the winter in good condition. Old beds were badly killed out. First blossoms appeared about April 12, on the Clyde; Bederwood, Captain Jack and Warfield following closely.

Set three patches without removing the dirt from the roots of plants. Was disappointed with results obtained thereby.

Find it pays big to have ground in best possible condition, before putting out plants, and light cultivation should follow at once after setting of plants.

We marketed our first strawberries the 17th of May from Warfield and Captain Jack varieties. The Clyde would head the list, but I sold out so close on plants I was not able to fruit but very few of the Clyde. The Captain Jack and Warfield did exceptionally well with us this year. First few pickings were below par on account of excessive rain followed by hot dry weather. Our picking season was of about three weeks duration, and on the whole, very satisfactory.

Our average price was \$1.50 per crate for entire crop. The Clyde is a



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very promising berry. The Bubach was an entire failure with us this year. The Gandy gave a very light crop. Parker Earle, Shuckless and Ironclad giving a fine crop. The splendid Staples, Lovett and Glen Mary stood the hot dry summer months remarkably well. Have not fruited the latter varieties as yet but they have made a fine plant growth.

The most of our berries going under prairie-hay mulch at this time in good growing condition, without any frost in the ground. Have not found anything as good for mulching as prairie-hay, clear from noxious weeds; good clean straw would be next choice.

Our experience with the Parker Earle differs somewhat from report made last year as to them being susceptible to cold.

Two years ago last October about the 20th we set seven thousand Parker Earle. Failed to get a part of them mulched, but not withstanding they went through the winter O. K. Last winter had a small patch of Parker Earle in a low place, where (after a thaw) they were covered with water, which froze solid and remained so for about ten days. Supposed they were gone sure, but on the contrary they came through nicely and yielded a fair crop of berries this year. Our trouble with them is that they blight badly when crop is about half matured. Not quite so bad where under irrigation. Before leaving the strawberry will note the experience of a neighbor which came under my observation. Two years ago last spring, for the sake of economy (?) he selected fifty nice Warfield plants that failed to blossom. These were put in plant bed, the following year three patches were set in different locations, but were failures in the way of fruit this year, when they should have produced a full crop.

Raspberries were pretty badly killed out in this locality. Ours gave about half a crop, the Kansas doing the best. Know of one man who is making a success of the Kansas Raspberry; is getting full crops every year of fine berries. They are planted on river bottom on the north side of timber, giving them a wind break on the south. Blackberries gave us a good crop this year. Early Harvest, Era, Snyder and Kitatinny doing the best.

Flowering Bulbs.

EXCERPTS FROM A PAPER BY PROF. S. W. WILLISTON, LAWRENCE.

I offer no apology for the subject of my paper—the culture of hardy flowering bulbs in eastern Kansas. Nor is its object an economical one, save, perhaps, incidentally. Home adornment—the cultivation of the beautiful—is as much a part of civilized life as the incessant pursuit of the practical and the economical. What I will have to say will perhaps interest more particularly the home-makers—our wives and mothers; but I wish that it might also interest the home provider and supporter in a larger degree than is usually the case. To the married man of affairs healthful recreation lengthens and sweetens life. Forgetfulness of its cares, even for a few brief hours, gives rest and strength. Let the husband and the father show an appreciative interest in the beautifying of the home and home surroundings, even though the home be humble, and the mother, sons and daughters will be gainers throughout life.

One of the most common mistakes of amateurs is to try too many things at once, a dozen or two bulbs of different kinds, and all of unfamiliar aspect, are attempted; the result is usually unsatisfactory, and failure is more or less imminent. Better get a goodly number of one or, at most, two kinds, for the first year and add each year something else. The best and most satisfactory bulbs are not at all expensive, if one is willing to begin with the old and established varieties of merit. Let novelties alone until you know all that there is to be learned and all there is to be enjoyed from the old friends.

Of all flowering bulbs the first place must be unquestionably given to that royal flower, the tulip. He who can see a bed of tulips in full bloom and not be pleased with them is surely wanting in an appreciation of the beautiful. Prepare the bed as for all other bulbs, save perhaps the Narcissus, by deep spading, in an open sunny place, where shade never comes in the summer. A light, porous soil is best; it must not be stiff and clayey. Most essential of all—in fact, the absolute necessity, before which all other conditions are insignificant—is perfect drainage. This condition of drainage is not so essential during the period of growth, when the bulbs will submit to considerable moisture, as it is during the period of

rest in the summer times; it is for this reason that the beds should be fully exposed to the summer sun, and should receive no artificial watering, unless exceedingly dry, when a little will do no especial harm. Plant the bulbs as early as possible in the autumn, certainly before the end of October, about four inches deep—that is, four inches from the top of the bulb. If one does not mulch in winter I would plant even deeper than this. The bulbs should be placed about four inches apart each way. Raise the surface of the bed so that no water will stand upon it.

The common practice is to mulch the beds with a covering of old manure or straw during winter. This I do not specially recommend, except where the bulbs have been planted very late in the season. The bulbs are very hardy and freezing does not kill them. Alternate thawing and freezing does, however, weaken their vitality. I have had bulbs lying upon the surface of the ground all winter strike root in the spring and produce flowers, though poor ones. The use, then, of mulching is simply to keep the cold in, not the warmth, and anything that will shade the ground from the winter sun is all that is sufficient. If planted deeply, however, in a light, well drained soil, one may have good success with no attention whatever to the beds after once planted. The bulbs begin to make their appearance through the ground early in March, and it is my habit of removing any covering at this time, in order to check their too rapid growth.

If the beds are to be used during the summer, as they should be to prevent their unsightly appearance, plant such flowers as do not root deeply, and do not require much watering. I know of nothing better for this purpose than the old fashioned, though beautiful, portulacca. Do not remove the bulbs, unless absolutely necessary; they are protected better in the soil when not too wet during the summer. If it is necessary to remove them, do not do so before June 10 in this latitude, unless you are going to throw them away.

At the end of the third season, the plants will have increased to such an extent as to interfere with their best growth. Remove them in June, allow them to dry thoroughly in the shade for a week or two, put them in loose cloth bags or thin paper, and store them in a cool, dark and dry place—a clothes closet is usually good—until the middle of September, when they should be again planted.

If one can afford it it is nicest to buy the selected varieties, keeping them separate and planting in proper contrast of color, and time of blossom. But one will do nearly as well if he buys the mixed, single and double; they cost only about a dollar and a quarter a hundred, and a hundred of each will make an excellent beginning.

Precisely the same treatment as for tulips is recommended for hyacinths, except that they should be planted a little deeper, and five or six inches apart. Their success after the first year is not certain as with tulips, and because their first cost is so very much greater, one may begin with a dozen bulbs and add to them as he has success.

Next to the tulips there is no bulb that will give greater success than the Narcissus. Fortunately these bulbs are not so particular about soil and drainage. They never lose their roots in the summer, as do the tulips and hyacinths, and a wet soil has no terrors for them. They multiply with extraordinary rapidity. They should be grown in masses for good effect, and will thrive when naturalized among the grass, provided that this is not set in the lawn before July 1st.

The old fashioned daffodil, with its large double flowers, is one of the most conspicuous, and thrived wonderfully well—unfortunately, with me, they tend to deteriorate in their flowers, becoming greenish.

Next in importance to the foregoing is the crocus. Its needs are more imperative in some respects than any of the foregoing. The soil for their growth must be light and loose. They will thrive best in sandy soil. In clayey soil they die out in a year or two. I have had good success with them, planted about shrubbery, where the numerous rootlets keep the soil light and free from excessive moisture. The yellow variety seems to thrive best of all. To treat fully all of the various kinds of hardy bulbs that I have found well adapted to culture in Kansas would lengthen this paper unduly, but I can not forbear mentioning three or four others—bulbs that with half a chance will become wildlings, so ready are they to care for themselves. The little grape hyacinth, Muscari, when planted thickly among shrubbery,

where the soil suits them well, will in a few years carpet the ground with their small through pretty blue flowers. Next to these is the little Chionodoxia, which multiplies rapidly from seed, until they have become scattered widely in my garden. Ornithogalum umbellatum, with its pretty flower coming a little later than the others, has in not a few places escaped from gardens. They increase so rapidly that they need resetting every second or third year to do well. They are more indifferent about their soil. Another, but rarer bulb I have found very satisfactory in their small, though pretty blue flowers. It is known as Puschkinia, resembling the Chionodoxia. The old crown imperial, familiar to many of you, may not be overlooked, though not vying in beauty with the ones already mentioned. It should be planted eight or ten inches deep. Tritileia, when planted among shrubbery, has been very satisfactory with me.

The culture of lilies is a theme all by itself, for their demands are exceedingly exacting, but when these demands are met there are at least five kinds that will grow in this latitude satisfactorily—the old tiger lilies, single, and double, the candidum, the longiflorum, and Japanese lansfillium. It is hardly worth while to attempt any others in the garden, without one is prepared for failure.

For all of the foregoing, with the exception of the Narcissus, I would again impress the necessity of the three essentials to success—deep planting, loose soil, good drainage. If all these are provided, one is sure to succeed—and without them one is almost sure to fail.

Vegetable Gardening.

G. F. ESPENLAUB, ROSDALE, KANS.

The location should be a south or southeastern one, not steep enough to wash. The soil should be a sandy loam; it may be moist or moderately so, but not wet, for wet means cold, and no soil will warm up until dry enough. When one is near enough to market and has good roads, manure hauling should be considered the chief cornerstone for successful gardening, as much as is possible to get on the ground and plow under before freezing up should be the constant aim of the gardener; it will decay and absorb moisture during winter and early spring, and is less liable to fire the ground during the following season than spring manure; ground can also be worked earlier for it. Such ground need not be plowed in the spring, a good harrowing and planking will fit it splendidly for seeding. The first seeds sown in the spring are also those that germinate slowly, such as radish, lettuce, beet, spinach, carrot, parsnip, celery, asparagus, peas, and salsify. The tender sorts must be deferred until frost is over, these are the beans, tomatoes, and egg plant. The early planting of white potatoes can be taken off in time for sugar corn; early peas can be succeeded by late tomatoes and sweet potatoes. Spinach sown early, on very rich soil—as it should be—makes a fine bed for celery, which need not be planted before the 4th to 15th of July, as celery makes its best growth in autumn when the nights are cool. Hubbard squash can be planted among early potatoes, every sixths row; when the squashes begin to run the potatoes must come off. Early potato ground can also be used for sorghum or Kaffir for fodder, or turnips. In following this line of succession the second crop often pays better than the first. Ground should never be idle, and should by no means be allowed to grow to weeds; better by far sow it to oats and plow them under before winter.

Catalpas.

EXCERPTS FROM A PAPER BY SECRETARY WILLIAM H. BARNES.

On March 17, I went to Farlington, Crawford County, to examine the famous catalpa plantation. I found a man who helped to set it out, and with his team he conveyed me through and around the entire grounds. There are 640 acres in the tract. The ground is quite rolling and broken in places by water courses, wide tracts bounding such watercourses were left unplanted, for what reason I can not tell, as the catalpas seemed to do best on the lower ground. Planting on this tract was begun nineteen years ago and it took three years to plant it all. The trees are about four feet apart each

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way, and had apparently not grown much for the past several years. The larger trees were near the north-eastern part where the ground was flat, and apparently much stronger. On some of the higher rolls many of the trees were not over 3 inches in diameter.

I noticed a tract of allanthus (my guide said there was forty acres). They were dying out and falling over, the grub or root coming up as they fell. They appeared to have lost all of their roots close up to the tree. There was also about twenty acres of Boi 'd Arc, or Osage orange. They make a strong, short boll or trunk but do not grow up tall. The grove was divided into tracts of ten acres each by a plowed strip about 20 feet wide every 40 rods crossing it each way. The grove at this time seemed to be, and I understand is, a crows' roost. Not a rabbit or any small birds were anywhere visible.

I visited this grove again on July 30, by invitation of W. L. Hall, who was then in charge of the U. S. Government timber survey crew. The grove was now in full leaf. Meeting the overseer, he expressed himself to us thus: "If the owner would give away three-fourths of the trees to farmers for the taking, the other one-fourth would soon be worth more than the whole is now." I noted one peculiar thing, and that was that the lower branches die but do not fall off. This may be owing to density of grove, allowing little sun and less wind to reach these dead limbs. Around these persistent limbs the new growth had for years formed, but there was no connection. On twisting a limb 1 to 1 1/2 inches in diameter it came out rather than off, and left a hole into the tree trunk often 2 to 2 1/2 inches deep, and we found the wood rotten within, showing that the rain, caught by the limb ran down into the tree year after year; and we saw hundreds of nice trees blown over, broken at a point where the heart had become rotten in the above manner. We found where a limb had been cut off the stub was hard and the annual growth of the tree was fast covering it over. This forced us to believe that catalpas should be trimmed from below as they grow.

On May 1, and on August 11, I visited the Yaggy plantation of catalpas in Reno County. There are 500 acres of varying ages. Most of this grove is kept trimmed up, so the fault spoken of above was not apparent. I was struck with the wonderful growth of a single year, where trees planted five or more years had been cut off and a single sprout allowed to grow. These sprouts over acres of ground were several feet taller than the old trees that were left, and whereas the old trees were schaggy and limby these clean one year sprouts were 2 inches in diameter and seven to ten feet high, ready the next year to push on up and form a new top at a good height from the earth. Mr. Yaggy said he could grow a crop of over 2,000 posts to an acre every seven years. Mr. Yaggy said he could contract all the posts he could cut at 16 cents each, 8 feet long, not less than 3 inches in diameter at small end.

On May 3 I was at Larned and saw black locust and allanthus that had been cut close to the ground after seven years' growth. Both showed splendid growths reaching 7 to 10 feet in one year. The old locusts which were made into posts, were scarred by borers, the young growth was smooth, and as it had such old, strong roots, it would probably outgrow the borers and make smooth posts.

I am favorably inclined to forest-tree growing in Kansas, but believe legal advantages in taxes or bonus should be given to the tree planter. He gets no return for many years and improves the value of the whole township. Yet he is immediately assessed higher because of his valuable timber land.

I understand that the Farlington groves are assessed very high. They ought rather to be assessed at not over \$1.25 per acre, the Government price of land. It takes wonderful grit and determination to set out trees under the unresponsive, unprotective laws of this state. Why not improve the conditions?

Report on Forestry 1900.

EXCERPTS FROM A PAPER BY D. C. BURSON, TOPEKA.

There has doubtless been a much greater interest manifested in forestry in the year 1900 than ever before.

Conservation of virgin forests, restoration of denuded lands, and the planting and care of new forests are alike receiving more than ordinary attention. But as Kansas has never been favored with any amount of heavily timbered lands we will confine our report to the discussion of new forests, although we find many of the older and once heavily timbered states taking even greater in-

terest in this subject than we of the treeless plains. We are receiving inquiries for information relative to forest planting form as far east as the Adirondacks. A corporation from eastern Pennsylvania asks for suggestions looking to the reforesting of 30,000 acres. Indiana, one of the originally heavy timbered states, is making a strong move, not only in the conservation of remaining forests, but also in planting new. The same is true of New York, Michigan, Wisconsin, Minnesota, and many others. All of which have a forestry commission of an association. Michigan's commissioner, a brother to our lamented President Garfield, in a published address to the people of his state, says: "Can our thoughtful citizens be led to investigate the facts concerning the various climatic changes which are affecting deleteriously its greatest industries, agricultural and horticultural? Can the men who are bending over in the toil of our woodworking industries be induced to straighten up and inquire from whence the material is to come that will continue these industries, provided we continue our methods of destroying the forests products and do nothing in the way of replacing them?"

These are pertinent questions and just as applicable to Kansas as to Michigan. But our lands have never been covered with timber, and our lumber supply having to come from other states, causes us to be unable to comprehend the ameliorating effects that forests have on climate or the near approach of a timber famine. Many of the older states seeing, knowing and comprehending the approaching deplorable situation, have already taken legislative action, both to conserve old forests and encourage the planting of new. The general Government has taken up the subject in a more practical and earnest method than ever heretofore. It is sending out practical, well informed men in different parts of the United States to inspect the nature and general conditions of the natural forests, to make close and accurate estimates of growth and value of newly planted groves or plantations; the kind and variety of trees best adapted to certain locations, latitudes and soils; in fact gather all the data possible from which the Government will formulate general instructions on conservation, planting and general care of forests, which will be for general distribution. Now it is hoped while the Government is prosecuting this instructive work, thus each state will cooperate with legislative enactment of such a nature as to stimulate and encourage individual land owners not only to take advantage of this instructive knowledge so generously offered by the Government in the care and protection of natural forests, but make it an incentive to enter more largely into the cultivation of new forests. It is the heavy tax upon timber land that influences the thoughtless farmer who has a few acres of valuable, thrifty timber to cut it off that he may utilize the ground in raising produce from which to procure tax-paying money. This same discouraging feature holds good in the planting and cultivating of new forests. It is along this line that we appeal to the law makers to lend their influence on the side of forestry. Many of the other states have already lead off in this direction. It may be unconstitutional to exempt any of the land from taxation, but Pennsylvania meets this objection by the passage of a law compelling the commissioners to refund the tax paid upon timber land; that is, up to a designated standard. Indiana had a forestry law placing a value tax upon such timber land at only one dollar per acre.

At all events we hope that our present legislature will enact some kind of a law that will not only conserve what little forests we have, but make an incentive for every land owner in the state to plant at least one-tenth of his holdings in forest trees. Of course we have a few enterprising citizens in the state who do not require this stimulating influence.

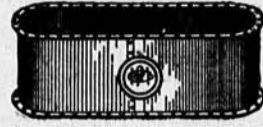
They are capable of reasoning from cause to effect; they know the timber supply will soon be exhausted. Consequently there will be a big demand for a future supply at more than remunerative prices. These parties who have been able to penetrate the future are not deterred by high taxes, but have entered upon the business of forest-tree growing on an extensive scale. Some of these planted forests are now old enough to demonstrate the fact that tree growing is a financial success. These larger plantations are in different parts of the state and are from one to twenty years old. Crawford County has 3,000,000 of these planted trees. Reno County nearly

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2,000,000; Greenwood County, 300,000; Morris County, 100,000; Dickinson County, 50,000; Stafford County, 8,000, besides many other smaller groves or plantations [in many counties], but not the one-hundredth part of what there should be.

This report in connection with our observation the past summer more than confirms what we said of the money-making qualities of tree-growing at our last annual meeting. We find a large variety of forest-trees growing in Kansas, yet there is but a limited number with a commercial value that can be easily propagated and profitably utilized while young. Of these we can only recommend the catalpa speciosa, black and honey locusts, green ash, and bodock. [Bois d'Arc.]

In this connection we would call the society's attention to the fact that a great many would-be foresters strongly advocate the theory of mixing varieties when setting out a timber plantation. This may seem all right theoretically, but practically we fail to see wherein it is the least beneficial to either variety.

Although we do find it very detrimental to some of the varieties. Our attention was specially called to this phase of tree-planting, the past summer by noticing a mixed grove near the Wakarusa which had been growing 8 or 9 years. One portion of the grove had been planted with catalpa and Russian mulberry rows alternating and about 3 or 3½ feet apart. Today we see a mulberry thicket but no catalpas. Another portion of the same grove, the catalpas were alternated with black walnut; in this case we do not think either variety was doing as well as they would had they been planted separately. At all events we know the catalpas would have made a better growth had they been planted alone. We also witnessed here the practical results of surrounding the orchard with a thick forest grove or orchard. On the south side of the orchard and very close to the forest-trees was a row of Keiffer pear-trees, from which, we were informed, \$10 worth of pears per tree had been gathered for a number of years past. We noticed also that other fruit-trees were bearing the best that had the protection of a heavy windbreak. From our observations of this orchard, as well as several others, we would recommend the planting of a number of rows of forest-trees not only around the orchard, but in case of a large orchard, cut it up with plenty of windbreaks running in different directions; these groves or windbreaks in and around orchards in this windy state are not only a great benefit to the fruit, but where planted with valuable lumber trees soon become a financial resource. While we advocate setting forest-trees around orchards we do not do so with the single object in view of having a windbreak, but will suggest that where parties are setting out a forest plantation and at the same time want to put out an orchard, let there be left a hollow square in the timber plantation in which to plant the orchard. The forest-trees will then be subserving the double purpose of furnishing a lumber supply and protecting the fruit orchard. The only objection to this plan of growing forest-trees is, that as a rule orchards are not set on the richest land, and yet there is no land too rich for forest-trees.

Secretary's Report, 1900.

EXCERPTS FROM THE SECRETARY'S REPORT.

The work and influence of the Society has progressed very favorably during the past year. Besides the innumerable questions answered there have been several issues of literature: First, the 24th Annual Report. This report, confined by false economy to 100 pages, was issued March 1. "The Peach," a companion to "The Apple" of last year, was distributed as freely as the small edition would allow, and hundreds of refusal letters were sent in reply to requests for either or both. We have been compelled to be very conservative in the distribution of these works owing to the wonderful spread of a desire for knowledge along these lines and the smallness of the edition allowed. "The Plum," a third work of this series, was issued about September 1, and the endorsements of each are flattering. "The Cherry" is now before you and will be useful for spring information. "The Grape," the next of the series, is being compiled, and it is hoped that much new and valuable material for the same may be obtained at this meeting. This series of works should be continued until general horticultural subjects are exhausted, and then revised and issued again.

The general printing fund is drawn upon for every department of the state,

and while the printing committee may personally and collectively favor agriculture and horticulture, yet they as guardians of the state fund must be impartial; therefore, some legislative actions should be had favoring larger and better bound editions of our bulletins and for taking the limit from our report. In the legislature of 1899 a bill to increase the size and the editions of the report was favored by a majority in the house, but was without a champion to push it, and was left by the time limit agreement between the houses. Our neighboring states send substantially bound reports to this office of the following sizes: Missouri, 480 pages; Iowa, 593 pages; Nebraska, 295 pages; Minnesota, 516 pages; Michigan, 448 pages; Illinois, 448 pages, etc.

The edition of our reports, limited to 100 pages, is only 3,000 copies; not half enough for our own people; yet the interest outside of the state in our affairs requires several hundred of these. The newspapers of our state require 700 copies, the Historical Society receives by law 60 copies, leaving practically less than 2,000 copies for distribution. There are 40 local societies besides the state society, and these ought to receive at least 40 copies each, 1,600 copies, leaving few for scattered yet interested seekers after horticultural information. Our report should be unlimited—350 pages would be ample, and the editions should be at least 5,000. We were compelled before July 1 to demand postage from many correspondents before sending the work desired. We were also compelled at one time to call upon the Historical Society for copies of a late report which was exhausted. We constantly refuse to send reports in bulk to members of the legislature for distribution, as from the size of the editions they would quickly be exhausted by such liberality. Besides the above issues, we sent forth a mapped report of apple conditions in July, and a circular on the Pan-American Exposition.

As most of you are aware, six years ago the society decided to move its office from a farm house three miles east of Lawrence to the state capitol, and the date of the change, June 30, 1895, found us with a tiny desk, a chair and a few volumes of reports, all by courtesy, in a corner of the office of the then labor commissioner in the capitol. From this small beginning, often in the face of grave objections, the society moved, first into two small rooms on this (ground) floor, and finally on August 29, 1898, into this room, after ward adding two small rooms on the north. These rooms should be suitably prepared and liberally furnished by legislative enactment, at the earliest practical moment. The furnishings should comprise all necessary office conveniences and an educational display along all horticultural lines; such as preserved and imitation fruits, preserved and pictured insects in their various stages; models of horticultural implements and inventions, maps, drawings, photographs, and other pictures, necessary cabinets, cases, frames, etc., for preserving such collections.

The year has been a good fruit year, our state has brought forth a large crop of fruit; no variety was an entire failure. The strawberry crop was immense, other berries better than usual, and, barring the effects of the weather of two years ago, the crop of cherries, plums and peaches was excellent. As is always the case, some localities report failure, some partial success, others abundant success. Apples were in numbers a fair crop, but of inferior size. Ravages of insects, and a lack of tree-vigor caused many to fall and also caused the crop of good fruit to shrink in proportions. Opinions differ as to the total output. This reminds us of the impotence of the society to gather statistics. The statutes give authority to the agricultural board by which they receive regular information in regard to agricultural products, said information coming monthly, provision being made for rewarding the informants. The assessors being compelled by law to gather certain statistics which are aggregated by the county clerks and such aggregates forwarded to the department. On the blanks used there is little pertaining to horticulture, a simple statement of the number of fruit-trees. The duties of the agricultural department are great, and would not be injured in any way if the horticultural statistics were gathered on blanks prepared by this department and compiled in this office. Such work would place this society in direct communication with the horticulturalists of the state and give to ourselves and the world greatly needed and valuable information. At present we have no means of even guessing at

the quantity of fruit grown or of the localities in which the different varieties are most successful.

Our apples have taken several prizes at the Paris Exposition. The fruit of 1899 in May; fruit of 1900 in October.

The time has about arrived when passive submission to untoward conditions detrimental to horticultural progress must cease and aggression of the most vigorous sort be indulged in. The two great draw-backs to horticulture in our state are drought and insect pests.

Irrigation is of national importance; millions of fertile acres of our country which in time will be settled by our ever increasing population, must be irrigated to be useful. The nation should "save the forests and store the floods." These problems are so immense and of such grave importance that the individual, or even associated individual, effort must have little effect and become arbitrary and narrow in the distribution. With the national should also come state cooperation to harmoniously regulate interstate river claims and water rights.

The waters of all streams should forever remain subject to public control, and the right to the use of water for irrigation should inhere in the land irrigated; and beneficial use be the basis, the measure, and the limit of the right.

Now, if this one great draw-back can be thus provided for why can not the other, namely insect pests, be similarly guarded against, controlled or destroyed. Our national board of agriculture is striving to prevent the importation of noxious insects (would that it might have begun this work many years sooner). Many states have passed stringent laws regulating this matter, but Kansas, usually near the advance line, has no law on her statute books on this important subject, and but few laws protecting the interests of horticulture. Late in the session of the legislature of 1899 a bill creating a state entomological board was prepared by Professor Hunter of the Kansas University, and introduced, but did not pass. I thoroughly believe that a similar bill should be passed; and as the majority of the noxious insects are peculiarly detrimental and disastrous to horticulture, I believe this office should be the office of information and the secretary of horticulture should be part of any state entomological board or commission. I hope this body will favor such legislation as it deems necessary.

THE EXPOSITIONS.

At the meeting of this society in 1899 the question of exhibits for Paris and the Pan-American Exposition was up. We had a small amount of fruit in cold-storage for Paris contributed by parties in Sumner and Reno counties.

The official board at first decided to appoint a committee of three to travel over the state and gather fruit at the expense of the society. They finally authorized the executive committee to appoint said collectors when they thought it best to do so. The executive committee waited until sure of a fruit crop, and then decided that as the secretary was provided with an appropriation for traveling it would be economy to require him to do as much of this work as possible. This the secretary has done and he now has in cold-storage 31 barrels of apples and 1 barrel of pears. Each specimen is wrapped, first in tissue paper, then in waxed paper, and all packed in standard apple barrels.

Two barrels of this fruit is now on exhibition here.

About September 1, M. Chandler was appointed to gather 6 barrels of apples in two lots for Paris. Mr. George C. Richardson of Leavenworth, generously furnished two barrels of fine Jonathan apples, making the first shipment 5 barrels.

Governor Stanley has honored this society by appointing its secretary as one of the commissioners to the Pan-American Exposition, which begins May 1, and closes November 1, 1901, at Buffalo, N. Y. The commissioners, of which there are ten, have elected your secretary to gather, care for, and display the horticultural products of the state. This exhibit should be worthy of our cause and second to none. No better chance to display our horticultural resources and to draw immigrants and impress capitalists has been offered since the great Centennial at Philadelphia. The commissioners hope that this society will act unanimously in this cause and hold up the secretary's hands and the good name of the state. This does not mean that we shall neglect this office or its duties nor that we shall stay continually at Buffalo. Buffalo is only 28 hours from Topeka, and mail can be forwarded and a desk set up there, yet your secretary should

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BRAND NEW STEEL ROOFING
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Until you have seen and tested our watch we sell at Factory Price at One-Half and less than what you have to pay elsewhere. Our watches are fitted with the unequalled in. 27 Jeweled Special Limited, or Jeweled Waltham or Elgin Movement, known the world over as the best, and **WARRANTED 20 YEARS**. Case is hunting solid gold pattern engraving, extra 14 karat gold plate; good enough for a railroad president. Special Offer for the next 60 days! Send your O. O. D. and we will send watch C. O. D. with privilege of full examination. Call in any expert and if found perfectly satisfactory and the best watch ever offered for such a price pay \$5.75 and express charge, otherwise not one cent. FREE a \$1.00 chain for next 30 days with every watch. State if Ladies or Gents watch is wanted. Write at once as we may not advertise this watch at this price again. Catalogue free. Excelsior Watch Co., 316 Central Bank Bldg., Chicago.



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Myself cured, I will gladly inform any one addicted to **MORPHINE, OPIUM, LAUDANUM,** or Cocaine, of a never failing harmless home cure. **MRS. J. MARY BALDWIN, P. O. Box 1212, Chicago, Ill.**

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be in Topeka often and much of the time. Expositions must be used to forward, not to hamper, horticulture in our state, and while we hope to meet you at Buffalo, we hope also to be always attentive to our duties here. The state provides a fund for express and freight; this comes handy to pay cartage on fruit received.

As to the Kansas Semi-Centennial of 1904, in Topeka. We have full faith in it, and if in our power, will assist in making it a glorious success; and I recommend that the horticulturists make preparations by liberal planting in spring of 1901-'2-'3 and '4, of choice things, new and old, with a special view to having all in perfection in 1904. But you certainly can not now well divide your attention and assume obligations too far in the future.

LOCAL HORTICULTURAL SOCIETIES.

Here is the great point wherein we lack. There are 40 in the state; there should be 400; and if there were 400 live, local societies in our state, Kansas would be the garden of the world. The memberships run from 10 up to 170 to a society. Many of our counties should have 3 or 4 large, working societies within their borders. If they had, fake nurseries would stand no show; insect pests would be practically obliterated; every farm home would have its table supplied with the goodly products of the soil; importations of indigenous fruits would be rare; our canneries would be working on full time and full supplies; and our exportations of home grown horticultural products would be very large, and Kansas fruits would rival California fruits in the markets of the world. Why do we import potatoes, onions, cabbage, berries, apples, plums, cherries, peaches, water- and musk-melons during the season when our own are being harvested and should have precedence in the markets of our state? The main reason, I believe, is the lack of association and combination for educational, practical and financial benefits, a lack of horticultural coöperation.

While workers in all lines of manufacture, mechanics or mining will on call, take a day off to learn more of their chosen occupation, the state of the market and future possibilities and probabilities, the horticulturist claims and believes that he is too busy and "can not spare the time." We truly believe that if the strenuous worker will take one day in each month off consulting with his co-workers he would by added knowledge, so facilitate and felicitate his labors as that he could and would accomplish more than his stay-at-home, plodding neighbor. I find our most successful, intelligent and practical horticulturists are the leaders and pushers in the nearest local horticultural society. I hope each member here present will go home fully determined that there shall be in his locality a live, up-to-date horticultural society if he has any power or influence.

HISTORICAL.

At no time in its thirty years of history has the State Horticultural Society been so well equipped and prepared for work as at present, nor on so intimate a footing with sister states and Canada. Our membership, especially the life memberships, have rapidly increased since July 1, 1895.

Under the old administration for twenty-six years, up to June 30, 1895, 61 certificates of life membership were issued, of these 20 were for cash, and 41 were for services—obligations unsettled at change of administration required the issue of 10 more for services, making 51 issued for services.

Since July 1, 1895, 50 life certificates have been issued for full pay and one for services.

Of the "Old Guard," including the organizers, 17 have passed into the hereafter, 8 have left the state, and quite a number are not in communication with the society.

The history of horticulture in our state will some day be written, but it will never be possible to truly show how great a work this society has performed, nor its influences on the lives and happiness of our citizens. Kansas owes a heavy debt to the horticulturists who disinterestedly publish the results of life long experience and labor, cost-

ing tens of thousands of dollars, and much tribulation. The results attained at home, the gold and silver medals, diplomas and encomiums received abroad, verify our state motto.

As in our civilization, our education, our self-culture and our agriculture, so in our horticulture, we pass "thro' tribulation to the stars."

Parks and Parkings.

EXCERPTS FROM A PAPER BY S. H. DOWNS, TOPEKA.

We assume that there are few persons but will admit the beneficial effect produced in any community by the establishment and maintenance of parks for the public use. These breathing places for the crowded people of large cities have an up-lifting moral influence as well as physical benefit. Parks are havens of rest for the wearied and over-worked merchant, artisan and laborer. They are tired nature's sweet restorers. Under the restful influence of pure air, of greensward, of plants, flowers, trees, lake, rivulet and running brook, they are brought close to nature, and nature in her kindest mood whispers through the running brook and foliage of tree encouragement to the weary and dejected, freshens the courage of the halting unfortunate soul, who sees in all these surroundings freshness, beauty, life, and will return refreshed to his or her routine of work. The children can enjoy their primal right to fresh air, to sunshine and to be about greensward, and among trees; parks for them are play-grounds, the influence upon their daily life can not be measured or estimated; impressions of pleasure and happiness are long retained, life's duties and conflicts are governed and ameliorated thereby.

Before proceeding to give any statements of progress in making and embellishing parks, let us take a hasty retrospect.

According to the generally received chronology, about six thousand years ago the first park was created and set aside for the use of Adam and Eve. Milton thus describes the first park: "Art can not tell the beauty of this Garden; how from the sapphire fount the brooks rolling on orient pearl and sands of gold; flowers worthy of Paradise; covered profuse hill and dale and plain; groves whose rich trees wept odorous gums and balm; others whose fruit burnished with golden-rind and delicious taste, betwixt them lawns and level downs; flowers of all hues and without thorn the rose—another side umbrageous grots—and caves of cool recess, over which the mantling vine lays forth her purple grape and gently creeps luxuriant about the sturdy oak; meanwhile murmuring water falls rippling down the slopes, dispersed or in a lake gathered; birds fill the air with song and vernal breezes breathing the smell of field and spicy grove and perfume of flowers." Thus was this place a happy rural seat and fit abode for Adam and Eve.

Now in the "shuffle" of human events this park was lost to the race of man; tribes, people and nations came upon the stage of life and went down with the wreck of ages.

The idea was lost of establishing parks and embellishing areas with trees, shrubs, plants and flowers; with lakelet and rivulet with which to attract and please the multitudes of people in their crowded cities.

Not until England and France and Germany came into the family of nations, do we find any provision by municipal government for parks, and embellished thoroughfares for the resort of the citizens. We can date the beginning of the tremendous progress and up-lifting of the human race from the period. The Gaul and Celt and Teuton and Anglo-Saxon emerged from the barbarous and intellectual darkness of the middle A. D. centuries and man's humanity to man became a recognized principal of governmental action. The advent of the Magna Charta brought with it the establishment of Hyde parks in England, beautified boulevards in France, and public parks in Berlin, where all the people, rich and poor, could go for recreation. And now throughout Europe and America the



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With the Principal Prize-Winners of the World's Exposition, Paris, 1900, included in its latest importation, and with

270 STALLIONS AND 235 MARES

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Oaklawn has lately achieved another magnificent victory. At the recent INTERNATIONAL LIVE-STOCK EXPOSITION AT CHICAGO, pronounced by press and public to be the greatest live-stock exhibition ever held in America, the OAKLAWN PERCHERONS WERE AWARDED

Three 1st Prizes, Three 2d Prizes, Three 3d Prizes, Two 4th Prizes and Two 5th Prizes in the three Stallion Classes;

Championship, best Stallion, any age; Championship, best Mare, any age; \$100 Gold Medal for best Group of Five Stallions; \$100 Gold Medal for best Group of Three Mares; 1st and 2d Prizes for Collections.

For more than thirty years the horses sold from Oaklawn have been unapproached in numbers, unrivalled in excellence, and the prices for which they are sold, breeding qualities considered, have never been met. Prices and terms reasonable. Catalog sent on application.

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Our new importation of FRENCH PERCHERON STALLIONS was landed at our barn, at Shenandoah, Iowa, September 16. Buyers will find at our establishment a Head of first-class Percheron stallions from which to make their selections. Prices are made right. Come and see the horses. It will do you good. Mention Kansas Farmer when you write.

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Choicest collection of imported Black Percherons west of the Mississippi River. All horses personally selected by a member of the firm with the aid of our own private interpreter, and a first choice from the oldest and leading breeders of France. All fresh, young stock. If you want a Good Stallion we can suit you. Barns are in town. For further information, address

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We imported more prize-winners at Universal Exposition, Paris, and the Government Shows at Amiens and Mortagne than all others combined. Our Percherons won every first prize except one at the Universal Exposition at Paris. We imported more horses from France than any other three firms in America. We are the only firm buying in France without the aid of an interpreter, hence we get the best horses for the least money. More Coach stallions, more ton black Percheron stallions than can be found in the stables of all other importers.

If you want the best, call on or write **McLAUGHLIN BROS.,** Sixth and Wesley Aves., Columbus, Ohio.

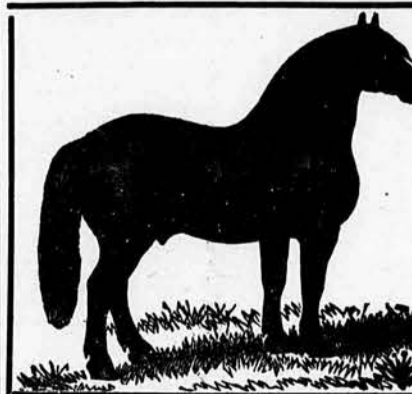
Norman Horses

SAMPSON No. 6866 is at the head of the stud. Present weight, 2,350 pounds, and for bone and quality he has no equal in this country.



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Have sold for, and am booking sales for leading stock men everywhere. Write me before claiming dates. I also have Poland-China swine, Bronze turkeys, B. P. Rock, and Light Brahma chickens. 150 birds, and a lot of pigs ready to ship. Write for Free Catalogue.



German Coach and Percherons

THIRD importation of German Coach and Percheron horses for 1900 arrived in October. At the last Illinois State Fair we took 15 prizes out of a possible 16. Our buying facilities are unsurpassed as the oldest member of the firm lives in Germany and owns a couple of big stock farms. He buys 25 per cent cheaper, taking quality of stock into consideration, than any American buyer can buy. Therefore, intending buyers of first-class stallions and mares will act to their interest by coming direct to our place. Correspondence solicited.

OLTMANN'S BROS.,

Pioneer Importers of German Coach and Percherons. LEER, GERMANY, and WATSEKA, ILLINOIS.

establishment and embellishment of parks for the use of the people is in marked contrast with the neglect of all of the nations of antiquity and is in marked contrast with the conditions existing to-day in antiquated China where over-crowded cities have no provision whatever for the rural pleasure and relief of their citizens. Shall we draw a lesson from this useful to all nations, peoples and municipalities? That a care for the comfort and restful rural pleasures of the citizens has an up-lifting, humanizing influence upon the race. That real progress is made in proportion as the governing power wisely administers the government for the welfare of the people. Let us see what the leading nation of the world is doing for its people; Boston has spent several millions of dollars for its parks and parkways, and within a year issued its park bonds for six millions more for proposed improvements; New York City has one hundred and fifty parks scattered throughout her boundaries, aggregating 7,000 acres, now valued at fifty millions of dollars. Since 1894 Cleveland has spent five million dollars for the purchase and maintenance of her park system. We might enumerate many other large cities that have within the last few years made liberal provision for public parks. The vast expenditure of money made by the different cities of the United States within the last few years to provide suitable parks and play-grounds, have been justified by the results, and the wisdom of such expenditure is shown by the increased moral and physical welfare of the citizens. The largest and most interesting park known to the world is our own Yellowstone Park. Who can estimate the benefit derived by the citizens of New York City from their 150 parks, and the citizens of Philadelphia from Fairmount Park, Chicago from its Lincoln and Lakeshore parks, the citizens of Cleveland from their numerous finely embellished, beautiful parks and park-ways?

If we want a fine illustration of the benefit of a broad, liberal system of parks and park improvements we cite Cleveland as one of the best. A chain of beautiful parks has been put about the city with park-ways to connect them. They are within easy reach of all points of the city, and to these parks go the greater part of the population during the summer months, finding recreation and rest from the toil and wearing cares of life.

And now what shall we do in progressive Kansas? We have no very large cities but we have growing cities, and provision ought to be made in every city in the state for park property; not only for its present use and influence, but to provide for a steadily increasing population. The town of 1,000 will soon have 5,000, the city of 10,000 will soon have 20,000, and every city of 20,000 and upward ought at once to secure a liberal acreage of park property, and provide a fund for its care and embellishment. No tax is more cheerfully paid in all communities where park improvement is being made than for the purchase and improvement of park areas. Every small town should have a park embellished with flowers, shrubs, plants, and greensward, as an object lesson to every citizen and every passing farmer, for the improvement and adornment of his home. Our roadways should be made parkways. Side by side with good-roads movement should go road embellishment, all spaces along our country roads, not in use for road area, should be sown to blue-grass, and embellished at intervals with flowering shrubs; at present our roadways are nurseries for weed seed to be taken up by the wind and strewn over adjoining cultivated farms. Let us hope that some of our progressive road overseers will "set the pace" for country road improvement, by sowing grass seed along the roadway in his bailiwick, to take the place of crops of noxious weeds which are now allowed to grow, and plant flowering shrubs at intervals close to the boundary fences, and make a parkway of the public road which will be an object lesson to the adjoining road overseer.

The following named are a few of the many hardy shrubs suitable for planting roadsides or farm land: Althea, in several colors, lilac, barberry, calycanthus, deutzia, Japan quince and varieties, spirea, snowball, weigelia, 30 varieties, hydrangea, golden bell, dog-wood, sweetbrier.

These are a few of the common and best known shrubs, such shrubs planted on our roadsides, and about the farm house will aid in beautifying our roadways and make them parkways. In consideration of the importance to every community of acquiring park property and improving it, some movement

ought to be made for the passage of a general law which will empower all incorporated cities, towns and villages to levy a tax or issue bonds for park purposes. At the last session of our legislature a law was enacted providing for a tax levy and issuance of bonds for park purposes for cities of the first class; it provided also for the election of park commissioners. The law was rendered inoperative by a court decision, hence the need of a law applicable to all communities. Notwithstanding the unfavorable legal obstruction for park improvement in the city of Topeka, a progressive council and mayor assumed the responsibility of setting aside a sum of money for park improvement, and appointing a park commissioner to have charge of its expenditure. And so Topeka has made a start for the improvement of the small parks within the city limits; Huntoon Park has been improved by laying substantial walks, and will be embellished with shrubs and plants; Holliday Park has been improved with a neat, substantial fence; the city park has been graded and sown to blue-grass, walks have been graded and made ready for concrete or gravel, shrubs have been planted and provision made for beds of flowering plants during the coming summer. At Gage Park some improvement has been made, shrubs and flowering bulbs have been planted for spring blooming, a substantial greenhouse has been built where, under the

(Continued on next page.)

PUBLIC SALE!

ON TUESDAY, JANUARY 22,



J. N. HARSHBERGER, Auctioneer.

I will sell at my farm, one and one-half miles north of Arrington, Kans., on the above date, 75 head of high grade Hereford cows, all in calf to Oltmax 7th, 25 head of calves, 10 head of work horses and mules, 100 tons of timothy hay, 1,000 bushels of corn, and farm implements to run a 600-acre farm, all bought new last spring. Terms: Ten months without interest, liberal discount for cash. Sale commences at 10 o'clock.

I. J. HEDRICK, Arrington, Kansas.

HIGGINS HOPE HERD

Registered Poland-China Swine.

Having disposed of my entire crop of spring pigs, I now offer 25 SOWS, bred to my herd boar, FERRIS W. KNOW. These are tried animals and I offer them to accommodate those who have not secured pigs from this sire.

J. W. Higgins Jr., HOPE, KANSAS.

WHEN WRITING ADVERTISERS MENTION KANSAS FARMER.



1901-CREETING-1901

20th Century Opening

SOTHAM'S

Nineteenth Annual Sale of

HEREFORD CATTLE,

To be held in the Magnificent New, Steam-Heated, Fine Stock Pavilion, KANSAS CITY STOCK YARDS, Kansas City, U. S. A.,

JANUARY 22d, 23d, 24th and 25th, 1901.

ON TUESDAY, JANUARY 22d, will occur the 19th Annual Sale of the Weavergrace Herefords—24 young bulls and 28 heifers, comprising the cleanest sweep of all the best salable product of the Weavergrace Herd ever permitted. This offering includes more sons and daughters of Corrector than were ever offered in one sale. Also sons and daughters of Improver and other Weavergrace sires out of Corrector dams. The best son of Lars, out of the dam of Hesiod 2d; the best son of Beau Brummel, Jr., out of the Champion Lady Laurel; the best son of Dale, with a rare blend of prize-winning blood on the dam's side; one of the best sons of Keep On, from a Corrector-bred dam. The majority of the females safe in calf to Corrector or Improver. The proprietor and manager of Weavergrace warrant this the best offering ever made from this herd, and unhesitatingly state their belief that it is the best offering of fifty cattle ever placed before the public at one time.

ON WEDNESDAY AND THURSDAY, JANUARY 23d and 24th, the undersigned will sell for the Riverside Hereford Cattle Co., Ashland, Neb., 75 head of picked young cattle from the largest collection of pedigreed beef cattle in existence, including 40 females and 24 bulls, "topped" from the celebrated Shadeland Herd, recently purchased by them, as follows: 12 bulls and 12 females by Acrobat; 3 bulls and 3 females by the "record-breaking" Earl of Shadeland 22d; 4 bulls and 6 females by the celebrated English sire, Diplomat; 3 bulls and 3 heifers by Banker; 1 cow by the Royal Prize, Garfield; 1 cow by Tammany; 1 cow by the Champion Sir Hartle Frere, and one by the well-known Gold Dollar; 1 bull by Gold Dust, and 1 by Clarence. This is the only opportunity ever offered to secure the tops of the Shadeland Herd, and the only offering from this herd by auction in ten years. The remainder of the Riverside offering includes four heifers by their celebrated Admiral and one animal each from the well-known sires: Corrector, Washington, Lord Fulton, Java, Climax, Wild Tom, Silky and Almont. It is believed that numbers considered, the equal of this offering has never been made.

ON THURSDAY, JANUARY 24th, immediately after the close of the Riverside sale I will sell for the Egger Hereford Cattle Company, Appleton City, Mo., 12 bulls and 12 heifers by the celebrated sire, Chillicothe, champion over all breeds and one of the best sons of Corrector. For depth and smoothness of flesh combining quality with scale, these are sure to prove a sensation. The heifers will have calves by their side or be heavy in calf by Salisbury 4th or Billy Cummings.

ON FRIDAY, JANUARY 25th, I am instructed to sell for the following well known breeders: Clem Graves, Bunker Hill, Ind., offers 20 head of the tops of his famous herd, including his entire show herd, with the exception of Dale, Dolly 6th and Lady Help. This includes the celebrated Champion heifer Carnation, believed by Mr. F. A. Nave the best animal he ever exhibited, and all other females by such sires as Columbus (sire of the \$500 Columbus 17th, and the \$750 Dale), Cherry Boy, Acrobat, Harold (sire of Corrector), Lyford, Star Grove 17th, and eight bulls by such sires as Star Wilton 20th, Liberator (by Corrector), Imported Freedom and Tiptop.

Makin Bros., Lees Summit, Mo., will offer seven females and three bulls, three of which are by their celebrated prize winner Juryman; 3 by Stanley (a son of Hesiod), 3 by the prize winner Dixie, and one by Stripes. The females will be bred to or have calves at side by Prince Hesiod, son of Hesiod.

A. F. McCarty, Humboldt, Kan., will offer two bulls and four heifers bred from the blood of Garfield, Fortune, Beau Donald, etc. The heifers in calf to Right Sort (by Corrector).

Geo. W. Dennis, Cisco, Mo., will offer one well known bull, Young Shadeland, by the Champion Sir Comewell (son of Corrector), also two bulls and three heifers by the Imp. Lincoln and out of richly bred dams.

J. C. Adams, Mowenaqua, Ill., will offer a daughter of the \$1000 cow Blendress, (by Corrector); 3 splendid heifers by the \$1575 Excellent, champion over all breeds, and a son of Imported Freedom.

D. W. Black, Lyndon, O., will offer an Anxiety-bred bull by Militant, and the Wilton-Grove Anxiety Bull, But Out 3d.

Geo. B. Conley, Marshall, Mich., will sell Kansas King, the only calf that ever beat Mr. Nave's Perfection.

SALES WILL COMMENCE EACH DAY AT 1 P. M. SHARP.

The cattle of each breeder will be sold separately, each contributor's consignment being a distinct sale by itself. Fifty head will be sold each day, in all, 200 head. The sale will be conducted under my rules and management. This will be the best 200 cattle of any breed that ever passed at one time under the auctioneer's hammer.

Auctioneers: Col. J. W. Judy, Col. B. E. Edmonson, Col. F. M. Woods, Col. J. W. Sparks, Col. Carey M. Jones and Col. H. W. Graham.

For further information see reading matter in this paper, or address the undersigned. Sale catalogues ready Jan. 10th. Persons whose names are on my list will receive catalogues without writing for them.

Milton W. Browne, Cashier. T. F. B. SOTHAM, Weavergrace Breeding Establishment, Chillicothe, Mo.

supervision of a competent superintendent, some 15,000 plants are now growing to furnish the various small city parks with beds of plants and flowers.

Floriculture.

EXCERPTS FROM A PAPER BY MRS. J. J. ALEXANDER, NORTON, KANS.

To every lover of flowers there is some one thing, or kind, that is of special interest. To us the mission of flowers in the world, as we have studied it, is of very great interest; while as one writer has said, "some flowers have the power to kill; some the power to

If we are sick they again bear us a sweet message of love and call to our minds the kind faces and loving sympathy of dear friends and neighbors, if sent by a love messenger or if plucked from our own garden, they carry memory back to the time when we were permitted our freedom to work and visit our mute little friends, which told in their silent way of greater, grander and nobler things than mere existence. They lift our minds to high aspirations, to nobler deeds, to some great purpose, to some definite object in life; if bereaved or disconsolate they cast about and around us that sweet influence of

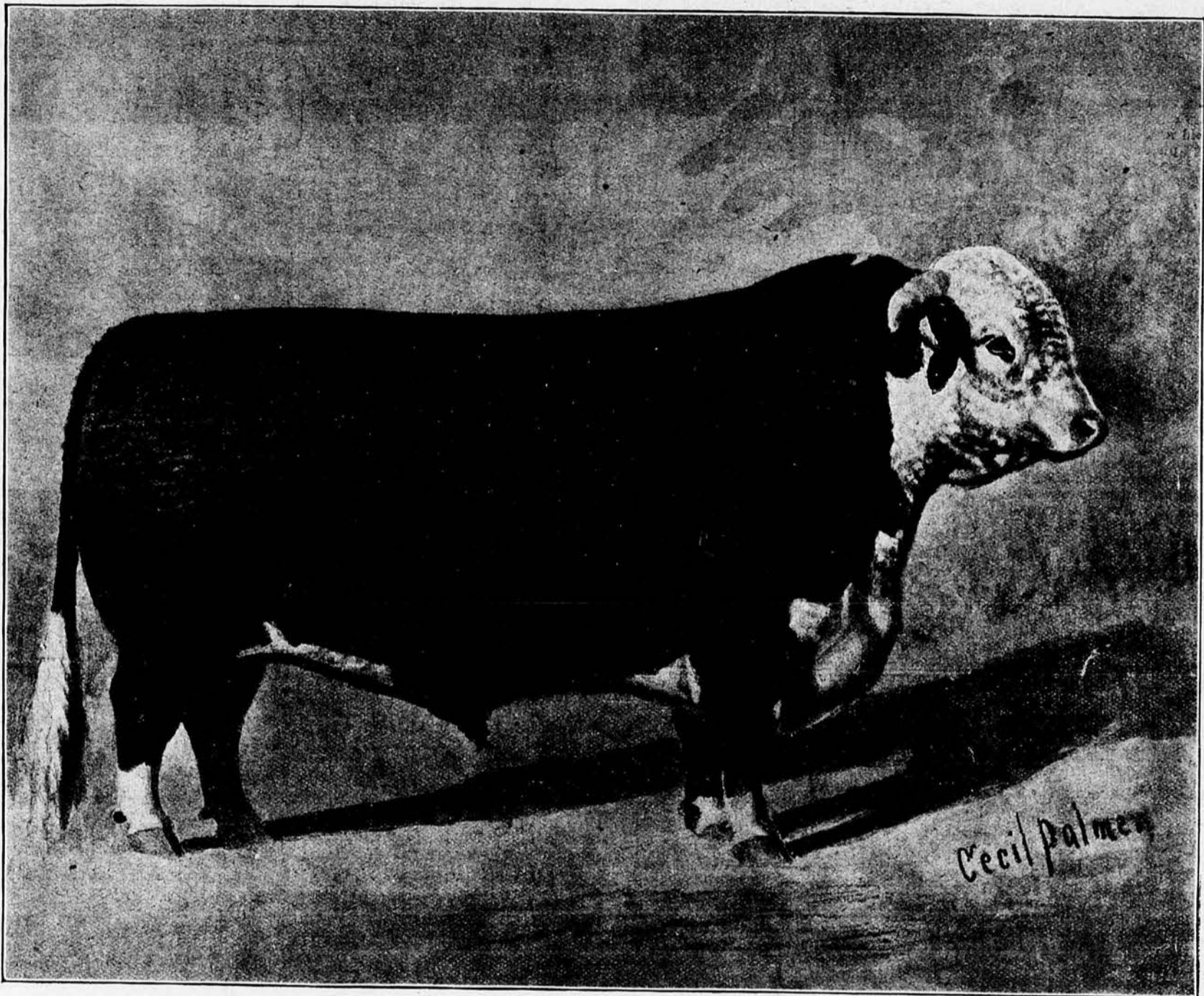
a beautiful and appropriate scripture text.

But this is not flower-culture; nearly everybody loves flowers, but everybody does not know how to raise them successfully. To have beautiful flowers all the year round one must study the varieties and their seasons. At Easter time, unless we have access to some green-house, it is not always easy to obtain flowers and plants for decorative purposes, but this need not be if we think of our need in time.

With a little care palms and foliage can be had at all times. There is nothing more beautiful or appropriate for

flowers in the proper [planting] season; but we need not think we can reap a harvest of flowers without much care, work, and patience. If one has not the time to care for and place to keep flowers, it were better not to try them, for it seems cruel to starve and neglect them.

One writer speaks of the slaughter and willful murder committed in giving flowers their proper care and attention by destroying their natural enemy, the cut-worm and other pests. What about destroying the flowers—how many innocent and beautiful lives are sacrificed in the flower family be-



HEREFORD BULL CHILLICOTHE 58545

Among the great sons of Corrector, in the estimate of many competent judges, Chillicthe, judged by his get, stands first. Chillicthe has a record of his own, and if he did not, the record of his great brothers and sisters would be enough.

Chillicthe was bred by Mr. T. F. B. Sotham and was a member of the Weavergrace Show Herd in 1894, winning first in class and sweepstakes in the get of one sire over all breeds, at the North Missouri Fair, Chillicothe, Mo.; second in class at Tipton, Iowa; first in class and second in calf herd over all breeds at the Iowa State Fair; second in class and second in calf herd all breeds, first in get of sire all breeds, Minnesota State Fair; first at Wisconsin State Fair; first at Illinois State Fair; second in class and second in calf herd all breeds and third grand sweepstakes herd of ten all breeds, St. Louis. His full brother a year older, Cadillac, that won the cup for the best bull calf of any breed at the Iowa State Fair in 1893, besides numerous other prizes. Another full brother is Checkmate, the bull calf in the Weavergrace Show Herd of 1899 and the yearling bull in the same herd for 1900. He is also from the same sire and dam as Lady Charming, exhibited by Mr. Sotham, that was fairly a sensation in the cow class, and has been subject to much favorable comment by all reporters of the great shows in 1899 and 1900.

Chillicthe was purchased at Mr. Sotham's sale at Weavergrace in 1895, by Mr. Fred Egger, of the firm of J. B. Egger & Brother, of Appleton City, Mo. The Messrs. Egger had great faith in Chillicthe from the start. After Mr. Fred Egger's death, the Egger Brothers' business was incorporated in the stock company known as the Egger Hereford Cattle Company, and the late Mr. Fred Egger's plans have been carefully adhered to by Mr. J. B. Egger, president of the Egger Hereford Cattle Company.

They have steadily refused to part with any of the heifers the get of Chillicthe at any price, desiring to build up their herd on this foundation that its members might excel in thickness and smoothness of flesh. When Mr. T. F. B. Sotham announced a year ago that his 1901 sale would be entirely of animals owning the blood of Corrector, President Egger determined to comply with Mr. Sotham's request and put in some of the Chillicthe heifers at auction, and Mr. Sotham in advertising has announced that the get of Chillicthe would prove fairly sensational. He has no doubt reference to their wonderful quality, combining smoothness and depth of flesh with rare scale. In this splendid combination the get of Chillicthe may be really said to excel.

Chillicthe in good breeding condition easily weighs 2,600 pounds and can be made very much heavier. He is but another exemplification of the soundness of Weavergrace's feeding methods. Mr. Sotham and Manager Taylor are fully agreed as to how animals should be fed to develop their greatest good for breeding purposes, hence no young cattle are ever fed clear corn-meal, corn never being allowed to make more than one-third of the ration, the balance being filled out with crushed oats, bran, cut clover hay, etc., foods that tend to make flesh and bone rather than tallow. Hence, the Weavergrace young stock always improve in the hands of their buyers. The same plans have been carried out in the development of the young things bred by the Egger Hereford Cattle Company.

The illustration of Chillicthe is a very life-like one, recently reproduced from a painting by Palmer. We again call attention of our readers to the advertisement of the great twentieth century opening sale, under the management of Mr. T. F. B. Sotham, found elsewhere in this paper.

heal; some the power to cause laughter; and others the power to cause sadness to come to the human family, yet this to us is not their mission. We suppose there is nothing good in the world but what can be counterfeited and turned to evil use. Flowers are sweet emblems of God's love and mercy to the children of earth.

If we are happy and glad, how we rejoice in their beauty and fragrance; if we are sad, sick of disconsolate, they are ever welcome visitors. If sad they are a very gentle reminder of God's mercy and bear a sweet message from some loving friend, that we are not forgotten.

love, faith and trust that alone comes from heaven.

A sweet little flower can plead more earnestly in time of bereavement than any human tongue for faith in God.

Flowers are indeed sweet messages of love sent into the world by the Father to make the innocent glad, the dark places bright, the humble happy, and to teach the haughty and insolent a lesson in meekness; they are a harmonizing of darkness and light.

The W. C. T. U. have through their flower missions been able to scatter many deeds of kindness through this grand old world by means of sweet, bright little bouquets tied with a bit of white ribbon to which was attached

Easter than the lily, and this can be had by forethought and care. Tulips are early bloomers, and may be had with little trouble. Oxalis in variety makes beautiful and tasteful hangings and fills in for church decorations and Easter festivities, if proper care and thought is bestowed upon them. Hyacinths are delightfully fragrant and lend a sweet charm and modest significance to a background of green palms, margarites and vines. Carnations, too, may be had by proper care and forethought bestowed upon window garden or house plants. Geraniums, fuschias, and many other flowers of the commoner sorts may be forced into bloom if we only keep in mind our need of

cause of neglect and lack of care and nourishment?

Flowers must have food and drink if they would grow thrifty and strong and yield a profit. How heartless to place an animal on a barren field without water or grass and expect it to flourish and grow, and when it failed to meet our expectations, grumble and find fault with "we know not what" because there is no profit in raising stock.

It would seem just as reasonable as to plant tiny seeds in barren ground away from shelter or protection from the sun's strong rays or winds piercing blast and leave them to care for themselves; to be smothered by weeds, that rob them of all the nourishment that

should be theirs and then say: "Oh, I have no luck raising flowers and don't try very hard. I plant seeds every year, but they won't grow for me some way." Any kind of flowers in old or new varieties will richly embellish any house and grounds if given a little time and care.

Nothing reminds one of home and mother more than great beds of old fashioned flowers growing in profusion in a yard—such as pinks, petunias, larkspurs, zenias, marigolds, four-o'clocks, rose moss, buttercups, gladiolus, fire-balls, monkey-cups, phlox, nasturtiums, honeysuckles, star of Bethlehem, hollyhocks, and many other varieties that seem almost lost to sight to-day, by a majority of the amateur flower growers.

How the sight of these old flowers carry our memory back to childhood. We remember how the path to the front door was bordered on either side with magnificent bloom and with this memory comes a longing to be once more a child loved and caressed by the hand that planted and tended the flowers that speak to us so forcibly of times past and gone, like that dear mother, never to return. These are some of the things that flowerculture brings to flowerlovers. They carry our memories back and point to that bright future that is ever a ray of light and hope to the true and faithful.

We have purposely left to the last the queen of flowers, the Rose, because we love it best. We seldom meet a person that does not admire the rose, even if illiterate or steeped in sin, if they see a lovely rose they long to touch it and inhale its sweetness. It seems to us it would be Christian charity if we who love the care of the rose would be more liberal in bestowing them as gifts to poor and neglected children, and forsaken and homeless wanderers so often met as we journey through this beautiful world which is a good place if we only live up to our privileges and opportunities.

But we are digressing. Speaking of the rose. We often hear, "Oh, that lovely rose! I wish I could raise them, but I never can, I have tried often." This is a mistake. If care is taken in preparing the soil where they are to be planted that it be rich and mellow, and in a good open location where they will be protected from the hot south winds, then when planted, if furnished with nourishment and moisture, we can raise as lovely roses, and as many of them out in northwestern Kansas as anywhere.

First, the ground must be brought to a proper state of fertility by means of cultivation. Our plan, and we think all others similar, was first to turn the soil, as it was raw prairie, where we wanted to make our flower garden, and let it stand idle one season, only spading often enough to keep the weeds from going to seed on it, then in the fall we covered it with a heavy coat of well rotted stable manure, letting it lay until quite late the following spring, we then planted some very late varieties of summer flowers on it, that we might give it proper cultivation to bring it to a friable condition for the roses. Some may think this great labor to bring so little a reward as roses.

We believe in the adage, "no reward without great labor." We feel richly repaid in the beauty, fragrance and added luxury we realize in our home, besides the sweet remembrances we are able to give to friends and neighbors and in the constant admiration of visiting acquaintances; it is a satisfaction to be able to supply requests for roses for commencement exercises, banquets, funerals and similar occasions; to do this roses and other flowers must be well fed, well watered and well cared for, and if we can not give them the attention they require it were better not to waste valuable time upon them.

In conclusion, I will name some of the varieties of roses we have in our garden: Meteor, a deep red rose, a profuse and almost constant bloomer from May until October, if protected from the frost at night. Bridemaid, a lovely, delicate pink rose, an abundant bloomer all summer. Keizerine, a magnificent rose; President Carnot; Hermosa and Madame Chas. Wood, Little Pet, American Beauty, and La France, these, with many others, find a place in our garden. We have a novel rose with no name. It is a large bush on which last summer there were roses of three colors all at one time—a pure white one, a beautiful pink and a variegated rose—pink and white striped and spotted. It created a great deal of comment. We can not express the pleasure and comfort and delight we realize in the possession of so many beautiful flowers. While it required a great deal of time and care

and labor we were well recompensed and are able to exclaim, in the name of the good and the beautiful, do not neglect nor starve the flowers.

Forestry Report.

EXCERPTS FROM A PAPER BY GEO. W. TINCHER.

"Artificial Forest Condition."

The present condition of the older artificial forests in the state are not what they ought to be. Some of the plantations need thinning badly; unless they receive attention in the near future it will take many years to overcome the injury they will sustain by neglect and lack of care. The older plantations have made a fairly good growth considering their crowded condition. While new ones, when given good cultivation, have made a wonderful growth.

The unfavorable weather during a part of July and August caused many young trees to suffer, and if neglected the loss was certain. Older trees being well established were in a position to resist the trying climatic conditions, and passed through the season with very little injury.

Reports from many planters are encouraging. The prospects are, that more trees will be planted in the spring of 1901 than for many years past. Spring planting seems to give the best results, yet trees are successfully planted in the fall of the year.

We are passing through the experimental stage of forestry in Kansas. It will only be a few years until we will be given positive instruction as to the best trees for profitable planting, together with full information as to the location, soil, culture, pruning, marketing and value of all such stock.

"FIVE GOOD TREES FOR KANSAS."

Catalpa speciosa—I do not hesitate to put the catalpa at the head of the list for the eastern half of the state; it is more largely planted in solid bodies of from 20 to 640 acres than any other tree. The Experiment Station at the agricultural college,

says: "The wood is very durable and much used for fence posts and railway ties." As we are, and will be, using millions of fence posts, I see no good reason why it would not be a good investment to supply part of the demand. I will refer any one wishing information as to the value of the catalpa to the printed booklets by the late E. E. Barney of Dayton, Ohio, and Jno. A. Warner of North Bend, Ohio; also to the Third Annual Report on Kansas Forestry, 1881, page 21; again in the Fourth Annual Report, for 1883, page 25. The above will be of interest to any one who may wish to plant the catalpa. It has proven itself to be a tree of stately habits, and one that is valuable at an early age. I believe the best post timber will be grown on the open prairies; because of the more exposed situations the growth would be somewhat slower, thereby producing a tougher piece of timber than if grown on more favorable ground.

Osage Orange—I give the Osage orange the second place because I firmly believe more posts have been cut from the hedges of the state than from any other artificially-grown tree. There is no question about the lasting qualities of the wood. If it is sought after so eagerly by our people when grown as a hedge, why would they not gladly receive it when grown as a timber tree, producing round solid bodies that would make desirable posts? When the wood becomes seasoned it checks badly at the point where the staple may be driven; is not so easy to work and handle as the catalpa. One of the best written reports to be found on the Osage orange is in the Third Annual Report of Kansas Forestry, 1881, page 10, entitled, "The Osage Orange As a Timber Tree."

The Black and Honey Locust—Both have many good qualities as a timber tree. For the western part of the state it has proven to be the best tree. They will grow and do well where it is almost impossible to make other sorts live. Both are easily grown and produce usable timber at an early age. The worst enemy to the black locust is the attack of the borer; if not for this reason it would be one of the most valuable trees for the Kansas planter.

Black Walnut—Many members of this society will not agree with me in placing the walnut as the fifth tree on the list. My reason is simply this: I am looking at the money to be made in forestry, and not from a sentimental point of view. The annual growth of a walnut tree suitable for saw timber will not average more than 1/4-inch per year. It will take 100 years to grow trees 20 inches in diameter at 20 feet from the ground. Such

a tree, providing it is round, sound and straight, would produce 320 feet of lumber, worth on the market to-day, delivered prepaid to "Sheffield" (Kansas City, Mo.), \$43 per 1,000 feet; as it would take three such trees to make 1,000 feet, together with the expense of cutting, hauling, removing the sap and freight, they would only net the owner between \$25 and \$30 per 1,000, or less than \$10 each for all perfect trees. The price on 34-inch stock and up, first class logs, is \$70, common logs \$27, culls \$15. The facts above are obtained from one of the largest hard-wood firms in the United States, the Des Moines Lumber Co., Sheffield, Mo.

DISTANCE FOR PLANTING FOREST-TREES.

During the last few years there has been an increasing interest in forest planting. The required number of trees per acre has been a perplexing question. About twenty years ago the number was placed at 2,700 per acre, planting them 4 by 4 feet, and cultivating same as for corn. The experience of those having trees planted on above plan has not proved very satisfactory. The early advice given was that trees planted 4 by 4 feet would in from 10 to 12 years average one post per tree. It is folly for any one to expect such results. One acre of ground will not sustain 1,000 producing trees large enough for every one to make a post in 10 years. So far as the 4 by 4 foot plan is concerned, I will say from personal experience, disappointment will surely come to any one expecting such favorable results. I have gradually reduced the number from 2,700 to 1,000 per acre. It may be a few years hence I will prefer to plant only 500. I will suggest the following plan for Kansas planters: Plant at the rate of 1,000 trees per acre; have the rows 8 feet apart, setting the trees 5 feet apart in the row. Such a plan would give room enough between the rows to grow a crop of corn for two or three years, which would lessen the expense on the trees. They should have the best of cultivation for at least three years.

COST OF CUTTING POSTS.

I have one block consisting of 31 acres of catalpas, planted in the spring of 1885, on the 4 by 4 foot plan. I am removing one-half of them by taking out every other row, even if they will not make cull posts. The cost to me is 50 cents per 100 posts, and the remaining trees trimmed up 6 to 8 feet, I do the sorting and cording. Some of the ground has a stand of more than 2,000 posts per acre, while a small portion will produce no posts at all. Large bodies of well grown catalpa could be cut for less than 50 cents per 100. Said price would not include sorting and cording; if the posts are heavy, at least 50 per cent should be added to the expense.

CATALPA AFFECTED BY FUNGI.

During the year my attention was called to some catalpa posts that had only been in use from four to five years, and were rotted off at the ground. The owner was discouraged as to the lasting qualities of the wood, and thought a great mistake had been made by so many thousands being planted in Kansas. At that time I did not know the cause of the decay, but informed the gentleman if he would give me two samples I would ascertain what the trouble was. I removed two portions of the rotted wood, one being the heart, the other sap, also a sound portion taken four inches above the ground, securely packed the samples and sent them to the U. S. Department of Agriculture, Division of Forestry, with full information relative to the decayed wood, requesting from them an early reply.

Washington, D. C., September 13, 1900. Mr. Geo. W. Tinchler, No. 106 East Eighth Avenue, Topeka, Kans.

Dear Sir:—Your letter addressed to the Division of Forestry relative to the decay of catalpa posts has been referred to this Division. The cause of the decay was a fungus working in the wood. This fungus, or fungi—for there may be two or three species present—is very abundant in the soil in Kansas and Nebraska and soon causes the decay of wood in contact with it.

The posts can be made to last longer if the part to be placed under ground is thoroughly charred on the surface and then soaked in hot tar. This, however, will only delay the work of the fungus. Of course if a post has once begun to decay this treatment will do very little good. Very respectfully yours, B. T. GALLOWAY.

Not being satisfied as to the detail of above letter, I wrote again addressing my correspondence to Mr. B. T. Galloway, Chief of the Division of Vegetable

Physiology and Pathology, giving him a more extended report as to the many conditions surrounding the samples of posts under examination; I present the wood from which the samples were taken to this society for their careful consideration. In due time I received the following letter from Washington, which gives us considerable light on the subject of fungi:

Mr. Geo. W. Tinchler, Topeka, Kans.:

Dear Sir:—We regret that the explanation given in your letter of the 13th inst., concerning the decay of catalpa posts, was not complete enough. The decay is caused by the growth of fungi in the posts. These fungi gain entrance to the posts from the soil after the posts are set and were probably not living in the posts before they were used. In many places in the states of the plains the soil is full of fungi of decay, especially in the regions that are now, or formerly were, somewhat wooded, as for example, near streams or in draws. You will probably find that trees grown in the upland will be more suitable for posts than those grown in

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- No. 14. Parsley—"Extra Curly." Very finest for garnishing.
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- No. 17. Peppers—"Red Prince." Sweet and mild. The best table pepper.
- No. 18. Pumpkin—"State Fair." Large but rich. Splendid for pies. Will win prizes for you. Golden show.
- No. 19. Radish—"Apple Flesh." Summer radish, crisp and mild. Can be eaten like an apple.
- No. 20. Radish—"Foot Long Wonder." Largest of all varieties. A winter luxury. Keeps till spring.
- No. 21. Salsify—"Mammoth" come blanch all good qualities.
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the lowland, since they do not grow quite so fast and are more exposed and so form harder wood. A very important point in cutting trees for posts is the time of the year. The cutting should be done in the late summer before the nitrogenous and sugary food materials that fill the leaves have been withdrawn into the trunk and branches preparatory to the shedding of the leaves. These sugary and nitrogenous substances are very favorable for the growth of fungi that may attack the posts and will cause them to work much more quickly and destructively than if the wood were not filled with these substances. As you say, the calpa is one of the most resistant woods to the various forms of decay, but even this wood decays under conditions favorable to fungi. Very truly yours,
B. T. GALLOWAY.

Report on Forestry.

EXCERPTS FROM A REPORT BY E. D. WHEELER

The task of reporting on forestry in Kansas at this time is not an attractive one, and it is only through a sense of obligation to this society that I have attempted to do so. It would be a pleasant task to tell you of the marked progress being made along that line in other sections of our country. In our own state we should look the situation squarely in the face, even if it is not an attractive one. While there is some encouragement in the fact that there are quite a large number of people who still take a personal interest in forestry and tree growing in their different phases, there are a large number who have been actively interested in a public spirited way who are becoming discouraged.

Valuable lessons have been learned in the last few years that will be of lasting benefit, but while some have learned facts, others have been misled by those who are incompetent to teach them, owing to the fact that their investigation has been very limited, or perhaps confined to their own personal experience in a single neighborhood. A large portion of our state is yet undeveloped and home-making is the first step in that direction. Though a man may own a thousand cattle upon the hills, broad fields of golden grain and walls of corn, his home may be, and often is uninviting and even repulsive. Quite frequently straggling relics of former attempts to grow orchards and groves add to the unnatural and even hideous surroundings. Many of the owners have for a time displayed sublime faith and courage, but repeated failures have left them disheartened and dissatisfied. Where a mistake has been made in the location of the home it can sometimes be corrected, but unless the discouragement is crowded out by the conviction that he can succeed if he goes about it in the right way he never will make more than a spasmodic and feeble effort. He is usually easily convinced of the fact that in order to have the good garden and orchard that he so earnestly desired he must provide protection from the drying winds of summer, and catch the snows of winter. It plainly devolves upon us as members of this society to furnish the reliable information along our different lines, of which he and others are standing in need of.

Groves of honey locust should be planted extensively, and such trees as the hackberry, green and white ash, elm, pine, cedar, and perhaps a few others may be planted on the lawn to a lawn to a limited extent. But the white and green ash are subject to the attack of the borer, also the black locust, which has been a great disappointment in much the larger portion of Kansas. though there are men in eastern Kansas who have found it profitable on land that will force a rapid growth so the tree will be large enough for posts before the borer attacks it. Under favorable conditions it may be grown profitable further west, but would not advise planting it. Russian mulberry, Osage orange, black walnut, and a few others are hardy, but grow so slow in the west part of the state that it is not advisable to plant extensively. With red cedars, pines and Russian olive, they may be planted as wind-breaks. Pines are hard to start, but very hardy after they get started. Dry dirt or other muck must be used, and it will hasten and insure more rapid growth if they can be irrigated. Cottonwood is well adapted to low land, planting where water is plenty. Timber belts and irrigation are so important in home making and fruit growing that this society cannot afford to ignore them.

There is an element of profit and necessity in their skillful and practical application that can not be ignored.

The best display of fruit shown at our meetings came from Mr. Long-

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ADDRESS _____ THE KANSAS FARMER, Topeka, Kansas.

streth's irrigated orchard in extreme western Kansas, and this society will be enlarging its usefulness and establishing its hold upon the confidence and support of the people by manifesting their interest in both forestry and irrigation. Nearly all of those who have taken active interest in trying to bring our state forestry department up to a higher degree of efficiency, where it would be a credit to the state, are no longer willing to be held responsible for its continuance without a revision of the law. They are looking to the State Horticultural Society to launch out into this field of usefulness which is as broad as the state.

It is not safe to leave the work to the national department alone, for they realize that local conditions are so different that they prefer the establishment of a commission with which they can cooperate. We should have a law that will encourage the planting and perpetuation of forests in a thriving and remunerative condition.

Grape Report.

EXCERPTS FROM A PAPER BY M. E. CHANDLER, ARGENTINE, KANS.

The grape crop of the past season has been the largest we ever handled.

With prices ranging from 10 to 12 cents per 8-pound basket for Concord and Worden; 15 to 20 cents for Moore's Early.

Some vineyards on high prairie land were badly affected with black rot, some losing the entire crop, while with us on sandy clay the rot was less than 10 per cent.

Spraying would have been almost useless this season, owing to the excessive amount of rain, washing the spray off. But when the seasons are favorable spraying with Bordeaux mixture (6 pounds copper sulphate, 4 pounds lime, to 50 gallons of water), will check the black rot.

Grapes should be sacked for home use, to be used after the main crop is gone, but it will not pay for market with the low prices of the past few years.

Tender varieties have almost recovered from the effects of the cold winter of '98 and '99. As commercial grapes I would recommend Moore's Early, Worden, and Concord; a few vines of Champion may be planted for extra early. For table grapes Moyer, Delaware, Lindley and Goethe for red and pink. Niagara, Moore's Diamond and Green Mountain for white.

Vineyards should be trimmed in the fall, raked up and burned. New posts reset and not left until spring when the ground is cold and wet.

New grapes are McPike, Green Mountain, Campbell's Early and Hicks. We have not tested enough to know what they will do.

Horticultural Implements.

EXCERPTS FROM A PAPER BY F. W. DIXON, HOLTON, KANS.

The men employed on La France Fruit Farm have a standing remark that if there is a new implement under the sun that Dixon does not have just trot it out; but we are not quite so bad as that because our pocket book has limitation, but we do believe that only good work can be done with new, up to date implements. The best horticultural implement ever invented for the strawberry grower is the weeder. It will do equally as good work among sweet potatoes, Irish potatoes, young corn, etc., but it must be used with judgment and at the right time. We have two 7 1/2-foot weeders, and contemplate a 12-foot, two-horse weeder for use the coming summer.

"The man with the hoe" is not in it (Continued on page 73.)

KANSAS FARMER.

Established in 1863.

Published every Thursday by the KANSAS FARMER CO., : : TOPEKA, KANSAS.

E. B. Cowgill.....President J. B. McAfee.....Vice-President D. C. Neills.....Secretary and Treasurer

SUBSCRIPTION PRICE: \$1.00 A YEAR.

E. B. Cowgill.....Editor H. A. Heath.....Advertising Manager W. B. Roby.....Circulation Manager

ADVERTISING RATES.

Display advertising, 15 cents per line, agate (fourteen lines to the inch). Special reading notices, 25 cents per line. Business cards or miscellaneous advertisements will be received from reliable advertisers at the rate of \$5.00 per agate line for one year.

KANSAS FARMER CO., 116 W. Sixth Ave., Topeka, Kans.

NOTICE EXTRAORDINARY. BLOCKS OF TWO.

The regular subscription price for the KANSAS FARMER is one dollar a year. That it is worth the money is attested by the fact that thousands have for many years been paying the price and found it profitable.

We want a good reliable man or woman in every county to act as local agent for the KANSAS FARMER. We offer a good proposition to the right parties.

A bill has been introduced in Congress by Mr. Calderhead of Kansas, providing for the remission of the duty on the seed wheat which is to be imported for the use of the hard wheat growers of Kansas.

T. F. B. Sotham, whose coming sale of Herefords is advertised in this paper, telegraphs that the demand for catalogues has exhausted his supply and urges that those who have received catalogues bring them to the sale.

The United States is now in the lead as an exporting country. Six years ago Great Britain led this country by \$250,000,000. The aggregate exports the past year from the United States were \$1,465,000,000.

BLOODED STOCK ASSURED AT THE COLLEGE FARM.

The agricultural college, the pride of every true Kansan, the largest institution of its kind in the world, and the very center of the stock and farming section of the country, does not have representatives of any of the leading breeds of live stock on its farm, except the Guernsey, and this breed is represented by a single bull.

The question of blooded stock was brought up at the meeting of the State

Improved Stock Breeders' Association last week and discussed with spirit. Many of the breeders were surprised at the facts, and the general opinion was unanimously in favor of the college being made the center of the breeding industry, where all breeds could be given equal chance, thus furnishing an opportunity for the farmer's boy to make a study of the breeds and select such as would best suit his needs.

A resolution urging the legislature to provide, and the appointment of a committee to present the matter, was unanimously carried. As a result of the discussion, just at the close of the meeting four breeders announced that they would donate an animal each from their herds as a starter.

THE GREAT MID-WINTER MEETINGS.

Three of the great mid-winter meetings of the year were held at Topeka last week. The first of these was

THE STATE DAIRY ASSOCIATION.

Its program was arranged with wise reference to bringing out full information on the practical sides of dairying under conditions as they now exist and as they are developing in Kansas. The creamery interest is the motive power behind the dairy association. This interest is dependent upon farmers for supplies of milk and cream.

The following officers were elected: President, E. C. Lewellyn, Newton; secretary, T. A. Borman, White City; assistant secretary, F. H. Teetors, Wellsville; legislative committee: George W. Hanna, Clay Center; C. F. Armstrong, Clyde; George Morgan, Council Grove.

A noticeable fact about the dairy association is that it is composed largely of young men. In this respect it is in contrast especially with the horticultural society, where gray beards predominate, and with the Kansas State Board of Agriculture, some of whose members have attended every meeting for nearly a third of a century.

THE STATE BOARD OF AGRICULTURE.

This organization is known and honored wherever Kansas is known. Its publications are sought as textbooks for colleges and universities. The proceedings of its meetings embody the best thought and experience of the age on the diverse subjects covered by the broad title "agriculture."

The election resulted as follows: President, Edwin Taylor, Edwardsville; vice president, J. H. Churchill, Dodge City; treasurer, Edwin Snyder,

Oskaloosa; secretary, *F. D. Coburn, Topeka, Kans.

Members, W. E. Stanley, governor, (ex-officio), Topeka; Geo. A. Clark, secretary of state, (ex-officio), Topeka; *J. H. Sayles, Norcatur, Decatur County; Chas. E. Sutton, Russell, Russell County; Geo. W. Hanna, Clay Center, Clay County; Geo. W. Glick, Atchison, Atchison County; Ed. R. Smith, Mound City, Linn County; J. T. Cooper, Fredonia, Wilson County; *Thos. M. Potter, Peabody, Marion County; *A. W. Smith, Groveland, McPherson County; *L. L. Diesem, Garden City, Finney County; T. A. Hubbard, Rome.

The only change in the board was as to the officers.

It is a notable fact that this board has been a leading factor in the industrial development of Kansas. During the early period its compilation of reliable statistics as to the state's productions and resources attracted the attention of the home-seeker and resulted in locating in Kansas that most desirable class of people, those who investigate carefully before entering upon so important a move as the location of a home.

No such literature has emanated from any other state. It is a notable fact that the progressive state of Iowa has recently adopted a plan similar to ours. In presenting the matter to the Iowa legislature its advocates found their most potent argument to consist of a presentation of a set of the Kansas board's publications for one year.

The shadow of the Kansas State Board of Agriculture never grows smaller. The eleventh annual meeting of the Kansas Improved Stock Breeders' Association was a great meeting, with an increased attendance and greater interest manifest than usual.

The stock breeders' proceedings were of such value and interest that the publication of a complete report has been reserved for the KANSAS FARMER'S Live Stock Special of January 31, 1901.

The officers of the Kansas Improved Stock Breeders' Association for 1901 are as follows: President, G. W. Glick, Atchison; vice-president, John Bollin, Kickapoo; secretary-treasurer, H. A. Heath, Topeka. Directors: T. A. Hubbard, Rome; H. W. Cheney, North Topeka; John Warner, Manhattan; Chas. E. Sutton, Russell; and J. H. Sayles, Norcatur.

* Members whose names are marked with an * were elected in 1900 for two years.

Among the important events of last week at Topeka was the great poultry show. The editor had hoped to present a detailed report of the awards in this number of the KANSAS FARMER, but the immensity of the poultry show and the horticultural society, to which it has been determined to devote most of this issue, so surpassed expectations that the poultry show and a lot of other good things must be left for future presentation.

Aching in the small of the back is an indication of Bright's Disease. The proper course in such cases is to take a few doses of Prickly Heat Pills. It is an effective kidney remedy and a powerful regulator.

Mothers! Mothers!! Mothers!!! MRS. WINSLOW'S SOOTHING SYRUP has been used for over FIFTY YEARS by MILLIONS OF MOTHERS for their CHILDREN while TEething, with PERFECT SUCCESS. IT SOOTHES THE CHILD, SOFTENS THE GUMS, ALLAYS ALL PAIN, CURES WIND COLIC, and is the best remedy for DIARRHOEA and SOLETS in every part of the world. Be sure and ask for "Mrs. Winslow's Soothing Syrup" and take no other kind. Twenty-five cents a bottle.

Publishers' Paragraphs.

McClure's Magazine for February will contain a character study, "Crocker," by William Allen White, in which this brilliant writer analyzes Tammany's leader and declares the secrets of his power.

Johnson & Stokes, of Philadelphia, call the attention of seedsmen and garden owners to their well and favorably known line of seeds and tools, advertised elsewhere in this issue. Their new catalogue is crowded full of everything kindred to their line, and is about the completest thing of the kind we have seen. Be sure to get a copy. It is sent free if you mention this paper.

A liberal seed offer to our readers is made by J. A. Everitt, Indianapolis, Ind., the well known and reliable seedsmen, who asks our readers to "stop that seed order" until they have read his exceedingly liberal offer in this paper. Seed time is approaching and early purchasers would act wisely before sending their orders elsewhere to read this offer, which comprises a large assortment of improved varieties of vegetable seeds. This offer made at a ridiculously low price is intended by Mr. Everitt only as an introductory to our readers. The superior quality of the seeds he feels sure will insure your future orders to his house and thus justify this expense as an advertisement.

A glance at M. H. Smith & Son's seed corn advertisement in Kansas Farmer this week will show the reader how to hit the bull's eye every time he shoots. Aim high and to the northward and you will just about drop down at M. H. Smith & Son's fine seed-corn growing farms in the famous valley of Washington County, Neb., to the north of Omaha. See the advertisement. It gives you the record of this corn at the Missouri state fair for seventeen years, open to the world for competition. If you want to know more of their Golden Row and Mammoth White Pearl send at once for samples and illustrated price list. Write them at De Soto, Washington County, Nebraska, and always mention Kansas Farmer.

The volume of the Youth's Companion for 1901 marks the paper's seventy-fifth year of continuous publication—seventy-five years, during which it has had the approval of three generations of readers. The constant aim of the Companion is to carry into the home reading that shall be helpful as well as entertaining—reading that shall contribute to the pure happiness of all the family. There will not be an issue during the entire year that will not be crowded with good stories and articles of rare interest and value. A descriptive announcement of the diplomats, explorers, sailors, trappers, Indian fighters, story writers and self-made men and women in many vocations, besides popular writers of fiction, who have been engaged as contributors to the fifty-two numbers of 1901 will be sent free to any address, with sample copies of the paper. The Youth's Companion, Boston, Mass.

A good many of our contemporaries have devoted more or less space to a very interesting, and we think valuable, discussion on the improved conditions of American agriculture at the dawn of the twentieth century, as contrasted with those prevailing a hundred or even fifty years ago. The change is so marked that it is very difficult for most of us to realize under what disadvantages our great grandfathers wrested a living from the soil. Of course many things have contributed to this progress, but no one factor has played anything like the important part now contributed so much to the better methods as improved machinery. The progressive farmer, the man who makes money, who gets ahead in the world, is the man who takes advantage of every opportunity for saving time and labor. We have always been advocates of improved farm implements. They mean better crops and bigger profits for the farmer; but of course we must use discrimination in purchasing them. It does not pay to buy a poor machine at any price. At the same time we need not go to the other extreme and pay double prices for an implement simply because it has somebody's name printed on it. In this connection we would call attention to the new catalogue of the Marvin Smith Company, Chicago, Ill., the largest exclusive mail order farm implement house in the world. Their catalogue of 328 pages lists about everything that the farmer has need of in his work, from the largest machinery down to the simplest garden hoe or shingle nail; and the prices quoted are simply astonishing when we take into consideration the guaranteed quality of these goods, and the years of reputation behind them. We know that many of our readers are regular patrons of this house and we have yet to hear of the first cause of dissatisfaction. Indeed, it is one of the rules of the Marvin Smith Company that their customers must be fully satisfied; if not, the purchase money is refunded without a question. It is a good house to do business with, especially if they guarantee to save you money on every article you buy. Do not fail to send for this catalogue, and look up their special offer on our catalogue, which is a real time-saver. You will find it worth your while to know and how to buy right.

Cataract Cannot Be Cured with LOCAL APPLICATIONS, as they cannot reach the seat of the disease. CATARRHIC and in blood hereditary constitutional diseases, and in order to cure them you must take internal remedies. HALL'S CATARRHIC Ointment taken internally and used directly on the blood and mucous surfaces, is a powerful and reliable remedy, and is a regular prescription of the best physicians in the world. It is composed of the best tonics known, combined with the best blood purifiers, acting directly on the mucous surfaces. The perfect combination of the two ingredients is what produces such wonderful results. HALL'S CATARRHIC Ointment is sold by druggists, or by mail, for \$1.00 per bottle. HALL'S Family Pills are the best.

to the problem, as how shall I dispose of my cull apples? Many of you have doubtless resolved to raise a less number next year. A few of you have had apples of good quality this year, and attribute the cause to spraying. While others have had good apples without spraying. A part of my apples were sprayed three times and yet were the poorest quality that I have ever had.

The common way of disposing of the cull apples, is to sell the best to evaporators and canneries, make the rest into vinegar, and then leave the barrels lie in the back yard until the hoops rust off of them and the vinegar leaks away; while runners from the vinegar factories fill our towns with all kinds of liquors marked vinegar. Gentlemen, we need a pure food law.

There are five different ways in which to dispose of the cull apples. It seems as if all ways combined should dispose of it, as well as skim-milk is disposed of, when fed to pigs and calves. But such is not the case, as thousands of bushels of apples have wasted on the ground this past season, while the Genets are still hanging on the trees and will hang there till the middle of next summer. Everybody admits that the best vinegar is made from apples. Winter apples make the standard article. Where summer apples are used, the cider must first be concentrated at least one-tenth by boiling, or the cider may be frozen two or three inches thick and the ice thrown away or the vinegar may be pumped out and the ice left, or boiled cider may be added instead of freezing. Cider may easily be finished in vinegar in eight months. It can be hastened to vinegar by being put in a standing barrel, with one head out, and occasionally dip from one to another; when finished should be corked tight, and will improve with age.

As this third class apple is too small to be worked by hand or by machinery, it follows that the cider mill is a necessity to its economical disposition. This apple is 90 per cent juice. Why not feed this dry matter to the dairy cow's brother, as I did last year, mixed with corn chop, and then preserve the juice, which can be preserved in four different ways, and I think be made more profitable than the second class apple sold to the canneries.

Prof. Fowler says that fruit acids are necessary to the human system in order to maintain perfect health. Why not drink fruit acids as well as eat them? I don't mean at all times of day, and between meals, or after fermented. Fermented apple juice or hard cider is just as bad as fermented rye water, or corn juice.

Cider made from summer apples in August and September can not be easily be preserved with keepers. This had best be preserved by being heated to 160 degrees, and then canned or jugged. Glass or tin cans may be used, but jugs are cheaper. Fill the jugs to 1 1/2 inches of the top, take a corn cob that is too large for the hole in the jug, then drive it in carefully with a hatchet. This cider will keep sweet until opened, without keeper. If the jug is large there will be a moldy cap on top made by the shrinkage of the heated cider.

This cider may be used the following spring and summer, when apples are gone, for drinking and cooking purposes.

Preserved cider, straight or concentrated, may be used in a great variety of ways. In cooking, large amounts of it ought to be disposed of at bakeries if they only knew its economy and how to use it. The Ben Davis apple ought always to be cooked in cider, for sauce or pies. Crackers, bread, or cake, soaked in cider makes just as good apple pies as apples. If you want it a little concentrated add a little boiled cider or apple butter.

Better lemon pies can be made with corn starch, cider, and lemon flavor than can be made with lemons, and so on with mince pies, layer cake, plum puddings and so forth.

Cull apples may be saved and conveniently stored in apple butter and cider jelly, but does not find a very active market. It is very agreeable to the taste, but its concentration soon makes it clog as a food. It is not healthful for a weak stomach. But I believe that with a second preparation just before using, making it weaker and more bulky, by use of crackers or corn starch, would make it more like the apple and more in accordance with the laws of health.

In my cellar at home are 200 glass cans and 100 jugs of Jonathan apple juice and 240 gallons apple butter, besides the usual amount of cherries, peaches, blackberries, huckleberries, strawberries, and so forth, and about

VEHICLES and HARNESS
Direct From the Makers.



No. 199

\$38.35

Any style desired at lower prices than agents or middlemen can possibly give. **HERE IS ONE OF MANY BARGAINS.** Our No. 199 (see full description in our new 1901 illustrated catalogue, page 28, sent free on request.)

PRICE: Cash with order..... \$38.35
Cash on delivery..... 40.30

Send for the new catalogue and read all the bargains we offer at prices never before approached—as cheap prices on buggies and harness as your dealer pays, saving you traveling men's and dealer's profits. Read our strong guarantee on page 4 of the catalogue and the endorsement of the National Bank of Commerce, of St. Louis. Safe delivery and satisfaction guaranteed or money refunded. Write for new Catalogue today.

HUBBELL & WATERHOUSE CO.,
104 Locust St., ST. LOUIS, MO.

10 bushels of apples, and we have already began carrying out rotten ones. The apple butter is for sale, but the other we will use before next August. If other families did likewise cull apples would bring more than good apples.

But let us take an economical view of this matter. Third class apples are usually sold at 10 cents per bushel. I have, however, bought second class apples at 5 cents per bushel, but we will say 10 cents. A bushel of Jonathan, Winesap or Genets will usually make 4 gallons of cider. Allowing 1 1/2 cents per gallon for making, gives us 4 gallons of apple juice for 16 cents. A bushel of good apples in March is often worth \$1 and after the hired girl has gone through them in her usual careful manner there is little more than a half bushel left for pies. Now we will put up our 25 gallons of apple juice against this little pile of eating apples. Verily, apple juice is the poor man's medicine.

Spraying Machinery and Solutions.
EXCERPTS FROM A PAPER BY S. J. HUNTER
LAWRENCE, KANS.

Early in April, 1900, the following letter was sent to several horticulturists:

Dear Sir:—The time is nearly at hand for the work of spraying, in which we are to engage, and so, in accordance with previous arrangements, I send you the plans which will be followed in a block of five hundred trees which I myself will spray as a test. This outline it will be possible for you to follow and to keep an accurate note upon everything pertaining to your work.

The spray is made from the following formula: Paris green one pound, freshly slacked lime two pounds, water 160 gallons. First thing to do is to be sure you have pure Paris green, since some of the material placed upon the market is composed of colored lime, flour or other adulteration. Place some of your Paris green in ammonia and if the Paris green dissolves leaving no sediment whatever you may then know that your Paris green is pure. Mix it and the lime with just enough water to make a thin paste, then pour this mixture into the required amount of water and allow to stand at least twenty-four hours before using. This spray should be applied with some good spraying pump having some kind of stirring apparatus to keep it thoroughly stirred.

The next question is when to apply it. A careful study of the life history of this little worm of the codling moth shows that it usually enters the apple at the blossom or rose end, therefore the object of spraying is not to cover the leaves, the branches, nor the apple, but simply to fill the rose end of the little apple with it so that the little worm's first breakfast while tunnelling into the apple, will be largely composed of Paris green. A substance which will unquestionably cause serious consequences to the worm in question.

Four or five days after the apple has set the rose or blossom end closes up; that is, the calyx at the outer end of the apple folds in, after which it is impossible to get any of the fluid into this cavity, and the work of spraying then is time and labor lost. Here is where many fail in the desired results. To use the poisonous spray the most effectually we must understand that it is necessary to fill the blossom end of each apple with poison within a week after the blossoms fall, for this is when the little apple-worm gets its first few meals, and it is practically our only chance to kill it with this spray

Watch the developing fruit as the fruit as the blossoms are falling, and remember that while the falling of the blossoms is about the time to begin spraying, the closing of the blossom end is always the time to stop spraying. In other words, there are but four or five days in which the work can be done effectually. One or two thorough sprayings are sufficient, provided that at least 24 hours intervene between the work and rainfall. * * *

Get your spraying machinery in working order at once, and if necessary write me upon any point upon which you may desire further information. Do not fail to keep notes upon the way you mixed the spray, the time when you sprayed, the amount required for each tree, the number of times sprayed and other observations, all of which will be of interest in your paper to be read before the state horticultural society, and a comparison of notes at the close of the season will be of great practical interest.

[It was expected that by devoting this number of the KANSAS FARMER almost exclusively to horticulture and at the same time making it a 24-page number, it would be possible to present the essential proceedings of the meeting of the State Horticultural Society. It has been found impossible, however, to avoid leaving some of the very excellent papers over until next week. Editor.]

POULTRY BREEDER'S DIRECTORY.

BLACK • LANGSHANS.

30 cockerels, score 92 to 96 1/4, and 40 pullets, score 92 to 96 1/4, for sale.
J. C. WITHAM, - - Cherryvale, Kansas.

I HAVE 250 AS FINE B. P. ROCKS as can be found east or west; can furnish pairs, trios and pens, no kin; they are bred right and can not help but breed right. One litter of COLLIE PUPS ready to ship now. Satisfaction guaranteed. W. B. Williams, Box 142, Stella, Neb.

FOR SALE—Mammoth Bronze turkeys, both sexes, 41-pound tom at head of herd. Eggs in season. Barred Plymouth Rocks, both sexes. Eggs in season. Edwards & Parker, Kinsley, Kans.

40 BRONZE TURKEYS sired by a 40-pound tom. Two separate pens. Write for prices. Address, Mrs. Fred Cowley, Columbus, Kansas.

FOR SALE—Canary birds, Pekin ducks, and Light Brahmas exclusively. Chickens hatched from eggs purchased from A. J. Silberstein, Hartness Farm, Mass., obtaining many high scorers and prize-winners. 200 for sale at prices to suit everybody. Eggs booked for future delivery at \$1 to \$2 for 15. Correspondence solicited. Mrs. John R. Kenworthy, Cottage Home Chicken Farm, 1102 Waco Ave., Wichita, Kans.

FOR SALE—Pure-bred Barred Plymouth Rocks, B. B. Games, and White Holland turkeys. Mrs. Porter Moore, Box 541, Parsons, Kans.

FOR SALE—M. B. turkeys, large boned, well marked, and healthy. Write to Emma Anno, Colony, Kas.

WHITE WYANDOTTE COCKERELS—\$1.00 each. White Holland turkey cockerels \$1.50. "Your money back if you want it." Darby Fruit Co., Amoret, Bates Co., Mo.

FOR SALE—Black Langshan cockerels, bred from prize-winners. Ideal form and size. Mrs. S. A. Stonaker, Garnett, Kans.

POULTRY.

HIGH CLASS POULTRY—White and Silver Wyandottes, W. P. Rocks. Will book orders for eggs until February 15, \$1 for 15. White Wyandotte and W. P. Rock cockerels for sale, \$1.50 to \$6 each. R. F. Meek, Hutchinson, Kans.

75 BLACK MINORCAS—(Northrup's strain). Mostly pullets, \$5 per dozen. A. S. Parson, Garden City, Kans.

B. P. ROCKS, AND COLLIE DOGS—Early hatched cockerels, very large and finely marked, and some yearling hens and a few cock birds. Two fine litters of Collie puppies. One fine male pup 2 months old from imported Royal Lassie's litter left. To secure bargains write at once. W. B. Williams, Box 142, Stella, Neb.

BUFF COCHINS—Cockerels \$1. M. B. turkeys \$2 if taken soon. A. B. Mull, Toia, Kans.

WHITE HOLLAND TURKEYS—Toms and hens; pairs and trios. Barred Plymouth Rocks, Pekin ducks. Prices reasonable. J. C. Curran, Curran, Kans.

BARRED PLYMOUTH ROCK—And White Wyandotte cockerels, 50 cents to \$1 each. J. A. Sawhill, Edgerton, Kans.

READY FOR SHIPMENT

A LIMITED NUMBER OF HIGH-SCORING BARRED AND WHITE PLYMOUTH ROCKS, Lash, Ringlet, and Roberts strains. Also a few Part ridge Cochins—Skinner strain. As fine stock as can be found anywhere. Cockerels, \$1 to \$3; pullets, \$1 to \$2. Write for descriptive circular. Printed receipt for making and using Liquid Lice Killer, 25 cents. T. E. LEPTWICH, Larned, Kansas.

Standard Poultry.

Barred Plymouth Rocks, White Plymouth Rocks, Partridge Cochins, Buff Cochins, Light Brahmas, Black Langshans, Silver Wyandottes, White Wyandottes, Silver Spangled Hamburgs, S. C. Brown Leghorns and Belgian Hares. First Class Stock of Standard Birds of Rare Quality. Fine Exhibition and Breeding Stock. Write Me Your Wants. Circulars Free. A. H. DUFF, Larned, Kans.

1000 BREEDERS FOR SALE. 40 PAGE Catalogue and Poultry Book. Articles on winter egg production, diseases, houses, incubators, how to feed, etc. Send stamp. F. Foy, Des Moines, Ia.

SHOEMAKER'S POULTRY
and Almanac for 1901. 160 pages, over 100 illustrations of Poultry, Incubators, Brooders, Poultry Houses, etc. How to raise chickens successfully, their care, diseases and remedies. Diagrams with full descriptions of Poultry houses. All about incubators, brooders and thoroughbred fowls, with lowest prices. Price only 15 cents. G. C. SHOEMAKER, Box 190, Freeport, Ill.

200-Egg Incubator for \$12.00
Perfect in construction and action. Hatches every fertile egg. Write for catalogue to-day. GEO. H. STAHL, Quincy, Ill.

VICTOR INCUBATORS
are made in many sizes to meet every want. Reliable, simple, self-regulating. Circular free; catalogue 6 cents. GEO. ERTL CO., Quincy, Ill.

YOU CAN COUNT...
Your Chickens before they are hatched if you use the
BURR INCUBATOR
It's made right, works right, is simple, sure, and successful. Write for Catalogue. BURR INCUBATOR CO Omaha Nebraska

BELGIAN HARES.
BELGIAN HARES FOR SALE. Pedigreed stock, healthy, and good in every particular. Correspondence solicited. S. W. STEWART, ALDEN, RICE CO., KANS.

The Sure Hatch

is a high grade incubator at a low price. Thousands in use. California red-wood cases and copper tank incubators at the price others ask for common pine and galvanized iron. Our brooder broods as well as our hatcher hatches. Hand-some catalog giving plans for practical poultry houses, yards, etc., free. Write to-day. You need it in your poultry business.

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We pay the freight. The Sure Hatch will pay your rent, taxes, and living expenses. Thousands in use, thousands of pleased customers.



The Sure Hatch Hatches Sure

KLONDIKE INCUBATOR

them successful. Low prices make them popular. What more do you want? For free illustrated catalogue which gives full descriptions, prices and much information for poultrymen, address **KLONDIKE INCUBATOR CO., Box 915, Des Moines, Iowa.**

Sir Bredwell's Success.

The success of Sir Bredwell's... marking as it did a new era in pedigree cattle breeding...

February 13; hog sale is next day... advertisement... The popularity of the Hereford...

The next meeting of the Showmen's Club will be held at the Topeka Commercial Club, Saturday, February 2, 1901...

Mr. VanNatta's tenth birthday... Mr. VanNatta's tenth birthday, Wednesday, January 9th, 1901...

Angora does... 1,500 REGISTERED and HIGH CLASS ANGORA DOES... ON MONDAY, FEBRUARY 25, 1901...

Three days' auction... 60 Shorthorns 120 Herefords... Wednesday, February 6, Thursday, February 7, Friday, February 8...

POLAND-CHINA BROOD SOW SALE OF MISSOURI'S BLACK CHIEF BREEDING, THURSDAY, JANUARY 31, 1901, OAK GROVE, MO.

HEXLINE, OAK GROVE, MO. COL. J. W. WARREN, Auctioneer, Mound City, Kansas.

THREE SHORTHORN BULL CALVES. CRICKSHANK TOPPED AND REGISTERABLE. O. E. MORSE & SONS, Mound City, Kansas.

ANGORA DOES AT PUBLIC AUCTION! ON MONDAY, FEBRUARY 25, 1901. There will be 1,500 REGISTERED and HIGH CLASS ANGORA DOES...

THREE DAYS' AUCTION - SALE OF 60 Shorthorns 120 Herefords AT THE KANSAS CITY STOCK YARDS NEW FEBRUARY 6, 7, 8, 1901. Steele Bros., Miller & Balch, and E. Corbins.