

KANSAS FARMER

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Established 1863. \$1 a Year

KANSAS FARMER.

Established in 1863.

Published every Thursday by the
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E. B. COWGILL.....President
J. B. McAFEE.....Vice President
D. C. NELLIS.....Secretary and Treasurer

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H. A. HEATH.....Advertising Manager

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Display advertising, 15 cents per line, agate (fourteen lines to the inch). Continuous orders, run of the paper, \$1.54 per inch per week.

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.

Annual cards in the Breeders' Directory, consisting of four lines or less, for \$16.00 per year, including a copy of the Kansas Farmer free. Special rates for displayed live stock advertising.

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

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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. But the publishers have determined to make it possible to secure the paper at half price. While the subscription price will remain at one dollar a year, every old subscriber is authorized to send his own renewal for one year and one new subscription for one year with

one dollar to pay for both. In like manner two new subscribers will be entered, both for one year, for one dollar. Address, Kansas Farmer Company, Topeka, Kans.

The proceedings of the State Dairy Association and of the big dairy meeting recently held at Salina will be published in the KANSAS FARMER of March 26. Extra copies ordered in advance can be had at two dollars per hundred.

A valuable monograph entitled "A Practical Corn Manual" has been published by the Iowa Seed Company, Des Moines, Iowa. It contains valuable information for corn-growers, whether they use Iowa Seed Company's seed-corn or some other kind.

GET READY TO SPRAY.

On another page will be found a complete spray calendar, with directions for preparing every kind of spray. In spraying the Wellhouse apple orchards the poisons are sometimes made double the strength given in the formulas. By using plenty of lime, the leaves may be protected from the burning effects. This is especially noted while the leaves are young and growing vigorously.

If attacked by canker-worms make the poison strong enough to kill the worms. Be prompt about it as soon as the worms appear, for if not killed they will ruin the orchard in a few days.

Better get the spraying apparatus in readiness now. Have on hand the necessary poisons and fresh lime. Slake the lime and "run it off" into a pit and cover with earth. Be ready for war at a moment's notice. Keep close watch of the orchard and begin action on the first appearance of the enemy. If no enemy appears there need be no battle.

Where spraying is done in a large way with power machinery using London purple and lime the cost of materials and labor is about 20 cents an acre for trees under ten years old.

CALLED TO HIGHER COMPENSATION.

Kansas takes the lead of all States in producing young men capable of meeting the demand for proficiency in the science and the art of doing things; but Kansas is sadly deficient in her qualifications for holding these young men in the service of the State. It has become a saying at the Kansas State Agricultural College—and although not true, yet not altogether without excuse—that it is a reflection on a member of the faculty to have been long in the institution without having received a call to go elsewhere at a greatly increased salary. The latest robbery of this kind, committed against the State, was by the U. S. Department of Agriculture in raising the salary of Ed. H. Webster, professor of Dairy Husbandry, by the neat sum of \$650 per year.

Mr. Webster's experience is an interesting one. He graduated from the Agricultural College only a few years ago. He had been a diligent and capable student, and, besides learning about a good many things, had learned to do some things. Presently some promoters of a proposed industrial school in Colorado engaged Mr. Webster as its head. His first work was to design the buildings and, later, to superintend their erection. This occupied one season. Then the promoters gave up the scheme and Mr. Webster was out of a job and out of pay for his summer's work. He returned to Manhattan and took work in the farm department of the college at ten cents an hour. This was about four years ago. Changes taking place at the college presented

successive chances for promotion which landed him at the head of the dairy department.

On taking charge of the dairy department of the college, Mr. Webster became dairy editor of the KANSAS FARMER. The ability with which he has performed his editorial work is well known to KANSAS FARMER readers. It has brought him into prominence in the agricultural world, which is always looking for ability to work intelligently.

The Department of Agriculture is to be congratulated on securing the services of a man who will be heard from in the future and will never be an incumbrance upon the pay-roll. His work will be along the lines of experimentation on dairy problems. It is hoped that he will be assigned duties that will keep him in the West.

WANTS TO DRAIN A POND.

EDITOR KANSAS FARMER:—I would like to ask a little advice through your paper as I see others are asking and giving advice in regard to different kinds of work. I would like to drain a pond of about two acres. The branch for my outlet is higher than the pond and tile can not be had without a great expense. I have heard of what they call a mole ditch. Can you give me some advice? An open ditch won't do as when branch is up water would cover five or ten acres.

Oklahoma. L. D. HUTCHENS.

No kind of drain will lead water from the pond to the branch if the water in the branch—or the bottom of the branch if it goes dry—is higher than the pond. But if the branch is usually lower than the bottom of the pond a drain may be arranged. A "mole-ditch" is an underground drain made by a "mole-plow." This consists of a stout beam, a long, stout cutter, and a "mole" attached to the lower end of the cutter. The mole takes its name from its resemblance in shape to the animal of the same name. The mole is of iron. It has a large tail which it wears high so as to follow the cutter and close the opening made by the cutter. This makes a very good temporary drain if the mole finds suitable clay. But if the mole drain should lead from the pond to the branch and be left open, a rise in the branch would cause the water to flow from the branch to the pond.

Probably the most practicable plan will be to make an open ditch, and put in a gate opening towards the branch, but so hung from the top as to be always closed except when opened by pressure of water from the pond.

If the bottom of the branch is higher than the bottom of the pond some kind of water-lift will be required to drain the pond.

SCORE ANOTHER FOR THE JONATHAN APPLE.

The question, "which is the most profitable apple to plant in a commercial orchard?" is often asked. Few orchardists in Kansas have had a sufficiently extended experience on which to base an intelligent determination of this question, and fewer still have kept the necessary records.

In 1877 to 1879 Judge F. Wellhouse planted a large orchard at Fairmount, Leavenworth County, Kansas. The rows were 160 rods long. They were 32 feet apart and the trees were set 12 feet apart in the row. Fifteen years after the trees were set, every second tree was cut out.

This orchard has now served its time and the record has been made up. Following is the record for first-class

apples of the four leading varieties, per row, for the entire bearing period:

Jonathan, 957 barrels per row.
Missouri Pippin, 888 barrels per row.
Ben Davis, 836 barrels per row.
Winesap, 716 barrels per row.

The Jonathans sold at 50 cents to \$1 more per barrel than any other variety. All below the first grade were marketed as culls. The amount of culls ran as follows: Missouri Pippin, first; Winesap, second; Jonathan, third; Ben Davis, fourth.

Judge Wellhouse has been a recognized champion of the Ben Davis; but now, after making up the record, he freely admits that he ought to have planted more Jonathans. The mistake is to be rectified, for, though by no means a young man, the apple king has this winter made 150,000 apple grafts, of which a liberal portion are Jonathans.

The fact, recently developed, that the Jonathan is a superb cold-storage apple, coming out at any time during the winter and spring with color, crispness, and flavor unimpaired, is an added point in its favor. Orchardists formerly avoided it because of its habit of dropping its fruit all at once as soon as ripe. At the last meeting of the Shawnee County Horticultural Society, several members related successful experiences in gathering Jonathans from under the trees and keeping them in cold storage. The apple is so firm and the skin is so strong that it bruises less in falling than was to be expected.

The Jonathan tree is strong, symmetrical, and long-lived.

The consumer will heartily second the motion to plant more Jonathans.

KEEPING CURED MEATS.

EDITOR KANSAS FARMER:—What is the best method of packing hams and shoulders after they are cured and smoked? Mrs. C. R. HARVEY.

Geary County.

There are several good ways to keep meat after it has been fully cured. If you have a tight, dark smokehouse the simplest way is to let it hang until used. The only precaution necessary is to see that the pieces of meat do not touch each other. Another good way is to place each piece in a paper sack of suitable size and lay away carefully in a barrel or box. Still another is to place about two inches of oats in the bottom of a barrel, lay the cured meat on the oats, skin side down, and so that the pieces do not touch each other. Then cover with oats and add another layer of meat, etc. This method renders the oats unfit for anything but hog feed or chicken feed.

NO STATE FAIR.

The Ways and Means Committee of the House have decided that Kansas shall have no State fair. On Monday of this week, they reported recommending that the bill "do not pass." It had been held until the last possible minute in order that the members of the House should have no chance to consider it on its merits. Dr. Hutcherson, of Pratt County, made a gallant effort to have it retained on the calendar subject to amendment and debate, but a motion to lay on the table prevailed by a bare majority. Thus ends the prospect for this much-needed State institution, so far as the present Legislature is concerned. Credit is due the Senate for the passage of the bill, but the ignominy of the defeat rests on the House of Representatives, or to be more exact, the Ways and Means Committee is most guilty, and Messrs. Leland, Francis, and Beeson, who dom-

(Continued on page 296.)

Agricultural Matters.

Corn Culture and Breeding.

By A. D. Shamel, Illinois Experiment Station, Urbana, Ill., at the Thirty-First Annual Meeting Kansas State Board of Agriculture.

THE IMPORTANCE OF FERTILE SOIL.

The important points under the farmer's control in the production of a profitable crop of corn are fertile soil, improved seed, and the best methods of culture. By farmer's control is meant, that the corn grower can influence the above conditions so that they may be made to produce the largest yield of corn per acre most economically. The fertility of the virgin soils seemed almost boundless to the pioneer farmer. He planted crop of corn after crop of corn, or crop of wheat after crop of wheat, or rotated corn with wheat, producing large yields of both crops. Little attention was given to the application of the principles of plant growth to our farm crops. In Indiana and Illinois such systems of farming have reduced the fertility of the soil to such an extent that profitable crops can no longer be produced in the old haphazard manner of farming. The early settlers broke the prairie sod or cleared the timber fields and cropped them until they would no longer produce profitable crops. These farmers then moved into a new spot, plowed the new fields, or cleared the timber, and farmed as before. Sooner or later in any State the new and unbroken fields will all be plowed and cultivated. In Illinois the children of the pioneers are being crowded back onto the exhausted fields, and it is their problem to find some practical way of restoring fertility to the soils. Any farming community which practices a one-crop system of farming is bound to become eventually poverty-stricken. The fertility of the soil is like a bank account; by continued drafts without any deposits the balance will, sooner or later, be found on the wrong side of the ledger.

At the Illinois Experiment Station, corn has been grown year after year on a field of the college farm, without any application of manure or fertilizer of any kind. This experiment was begun twenty-four years ago, and the best kind of cultivation and methods of preparing the seed have been used in



PLATE 1.—Showing soy-beans between corn rows just after last cultivation of the corn. Photograph taken August 10, 1901. This growth of soy-bean plants furnished a large quantity of valuable feed, especially for young stock, and was of great benefit to the fertility of the soil.

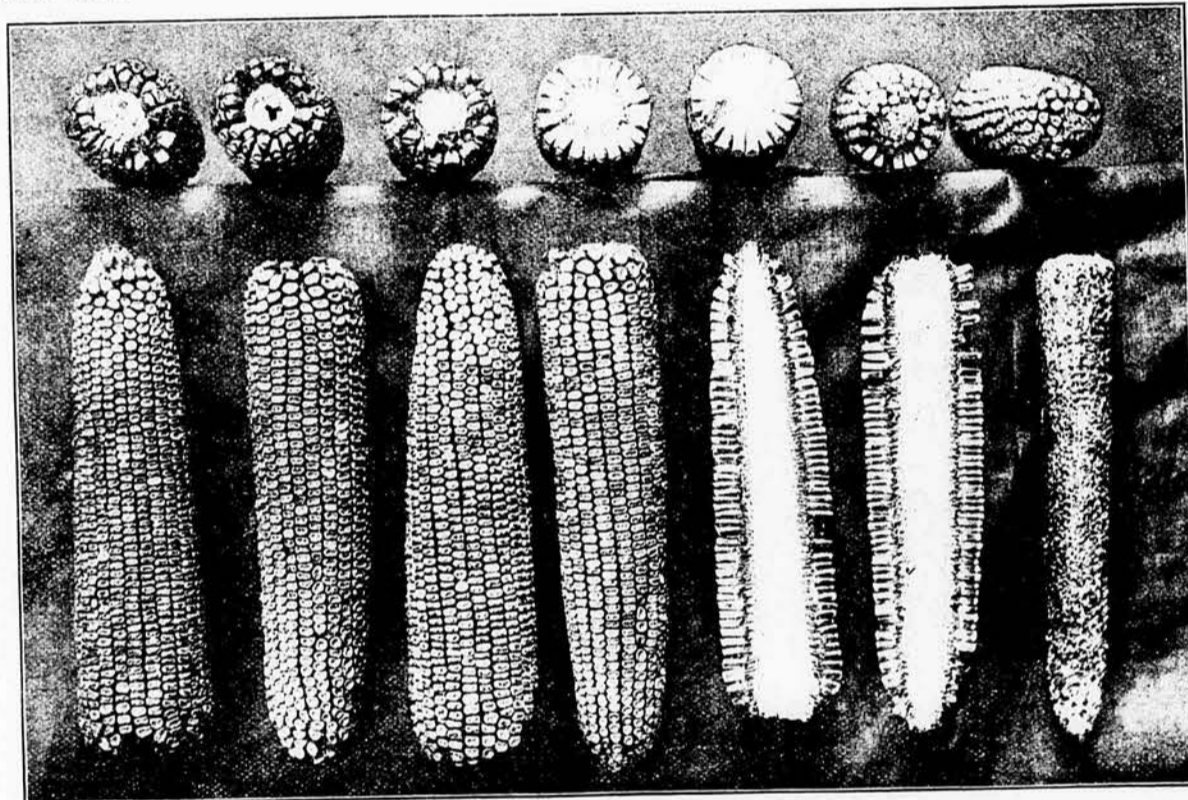


PLATE 2.—Boone County White, a white dent corn, originated by James Riley, of Thorntown, Ind., about 1875. It was selected by systematic methods, and rapidly introduced in Illinois, Iowa, and other corn States. It has a very deep kernel, wedge shape, and is of strong vitality. It is one of the white varieties recognized by the Illinois Seed-corn Breeders' Association.

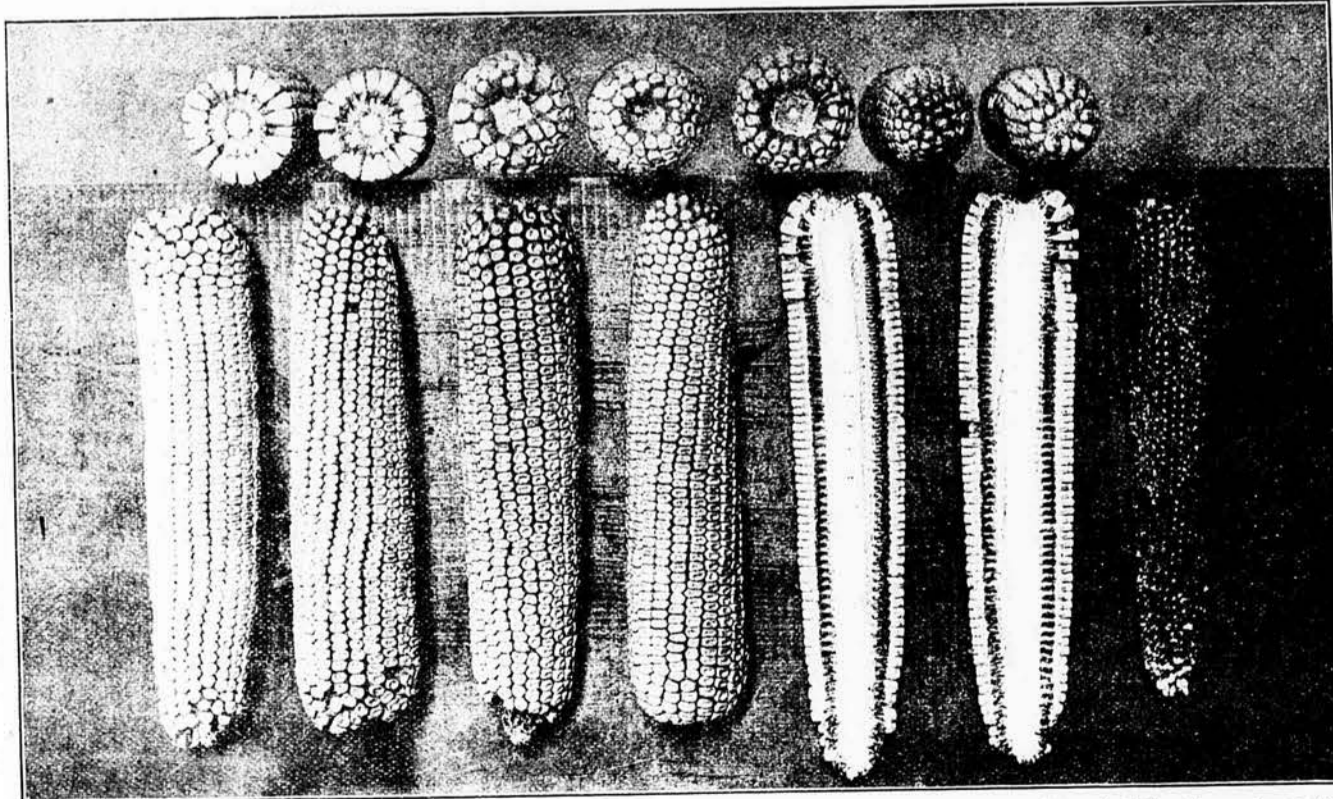


PLATE 3.—The Leaming, a yellow dent corn, originated by Mr. J. S. Leaming, Wilmington, Ohio, in 1825. It was brought to Illinois in 1885 by Mr. E. E. Chester, of Champaign. From this source several strains have been developed in different sections of Illinois and adjoining States. From the original very tapering ear, the corn-breeders have developed a cylindrical-shaped ear, with a large per cent of corn of strong vitality. One of the varieties recognized by the Illinois Seed-corn Breeders' Association.

	Ear corn, bus.	Stover, tons.
1888.....	60.13	1.26
1889.....	47.15	1.21
1890.....	41.87	1.19
1891.....	26.67	1.23
1892.....	30.92	.75
1893.....	21.73	1.04
1894.....	34.83	1.26
1895.....	63.81	1.51
1896.....	62.31	1.74
1897.....	40.10	1.61
1898.....	18.11	1.39
1899.....	50.09	1.61
1900.....	48.03	1.29
1901.....	23.65	1.14

In other words, in 1901 it cost 50.6 cents per bushel to raise the crop. It is a noticeable fact that the yield per acre has gradually decreased on this field. The appearance of the soil has been changed. It is a clayish-white color, compared to the rich black color of the adjoining rotated fields. The yield varies with the season, but is less than half that of rotated fields or the ordinary fields of the station farm, with similar original conditions of soil fertility. There is a marked similarity between these results and the results of continuous wheat-growing for fifty years on the Broadbalk field of the Lawes & Gilbert experimental farm in England. Continuous

cropping and taking the crop off the field exhausts the fertility of the soil, and it has been found that soils so treated are very difficult to bring back to their original state of fertility. The mechanical as well as the chemical condition of the soil is changed, and it requires many years of careful and expensive treatment to renew soil productiveness. This is found to be the case in ordinary practice, and the problem before every corn-grower is to keep up the fertility of the soil, so that it will continue to produce profitable corn crops.

There are several practical methods for accomplishing the desired results, which will be treated briefly in this discussion.

One of the most important ways of getting the soil in good condition for the corn crop is by means of the leguminous or "cover crops"; e. g., cow-peas, soy-beans, clover, and alfalfa. The soy-bean and cow-pea crops have been found to be especially beneficial to the soil, valuable as feeds, and successfully grown under widely differing conditions. In Illinois and Missouri these crops grown in the fields for a single year have been found to increase the yield of corn from five to eighteen bushels per acre. The hay has been found to be at least as valuable as ordinary Red-clover hay, and the crop is harvested in much the same way. As the land becomes more and more exhausted, it becomes more difficult and expensive to secure a stand

(Continued on page 286.)

the growing of the crops. The crop has been carefully weighed from year to year. The yields per

acre have been kept since 1888, but previous to the establishment of the experiment station no au-

thoritative records were kept. The records since 1888 are as follows (per acre):

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

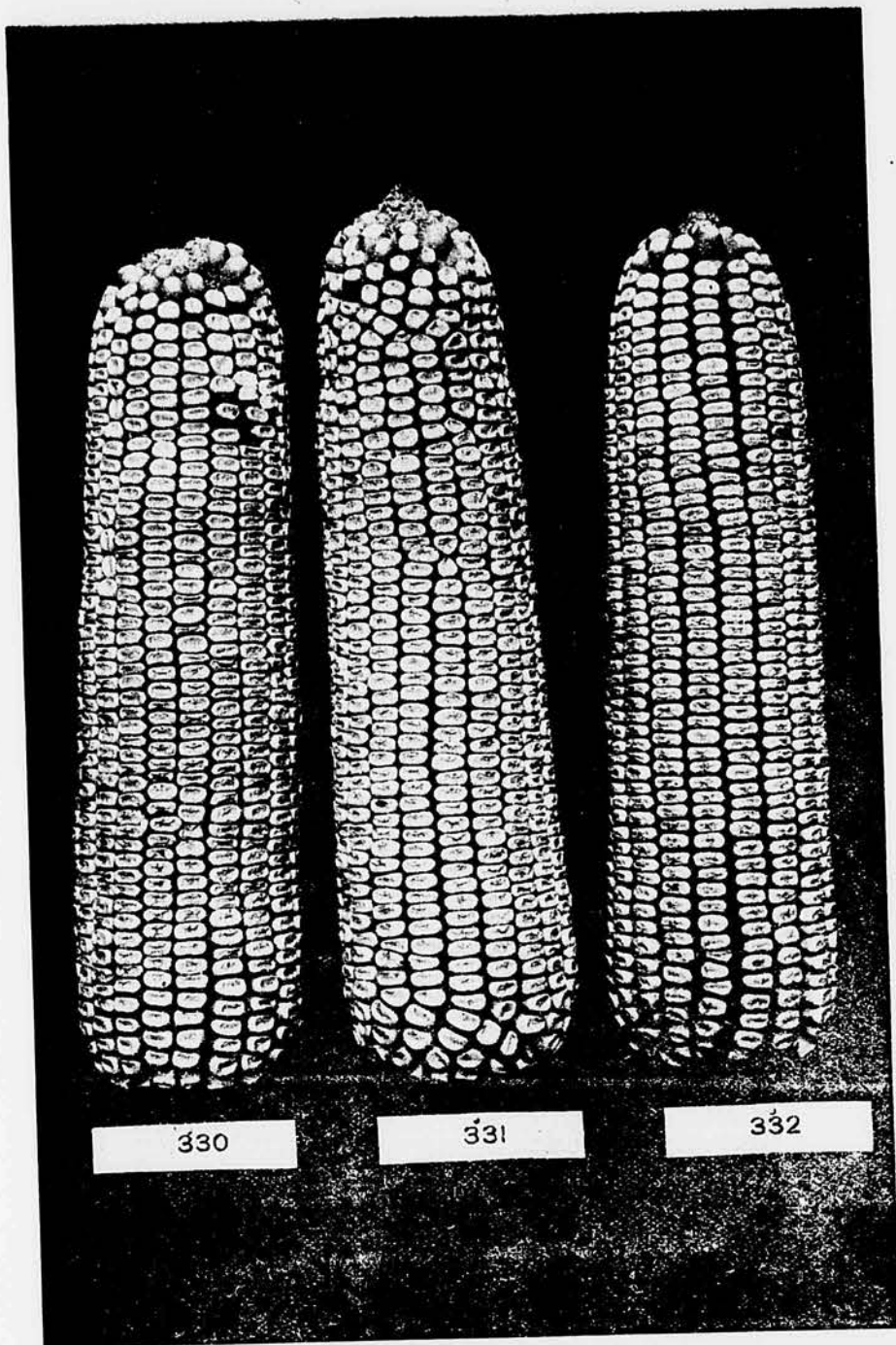


PLATE 4.

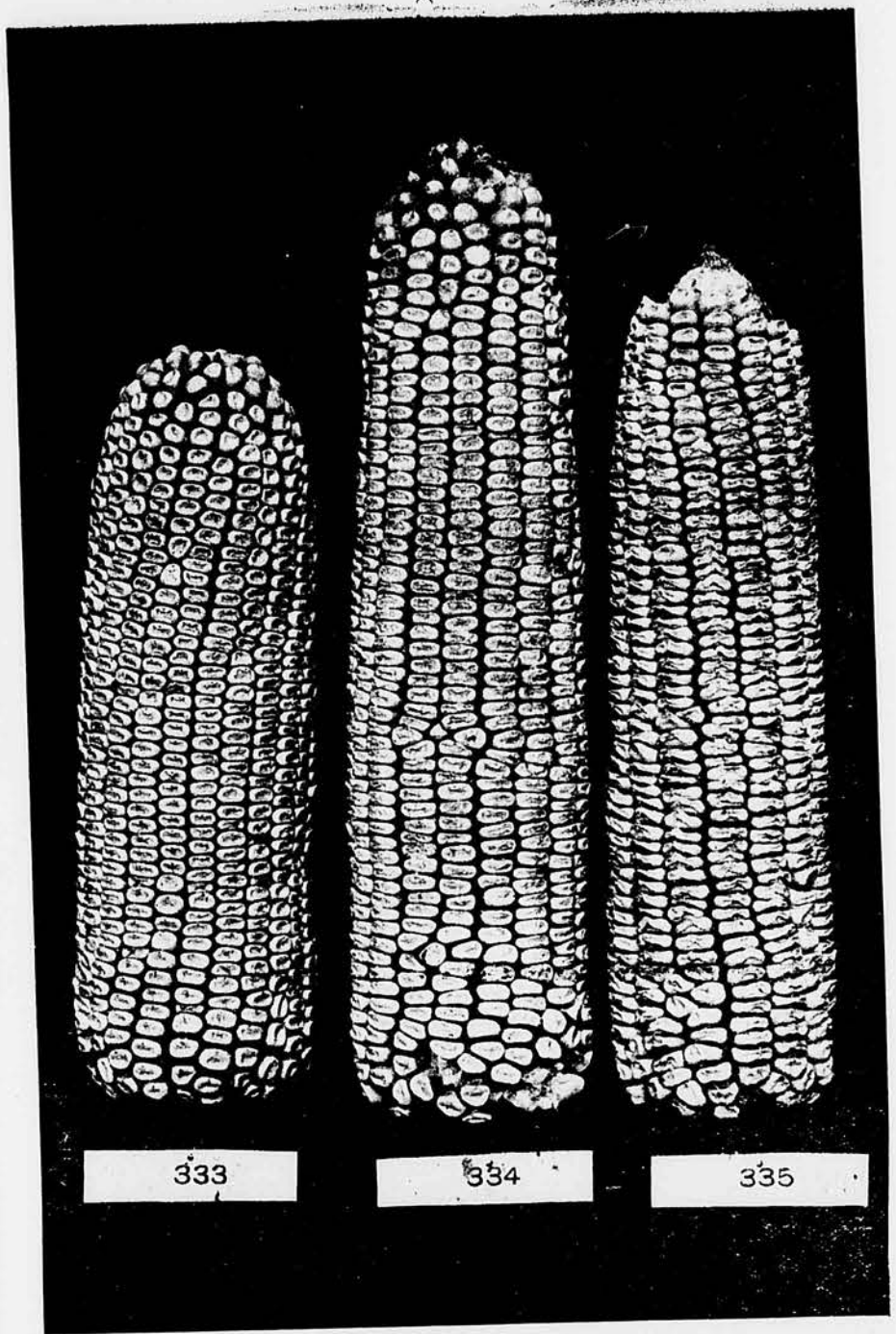


PLATE 5.

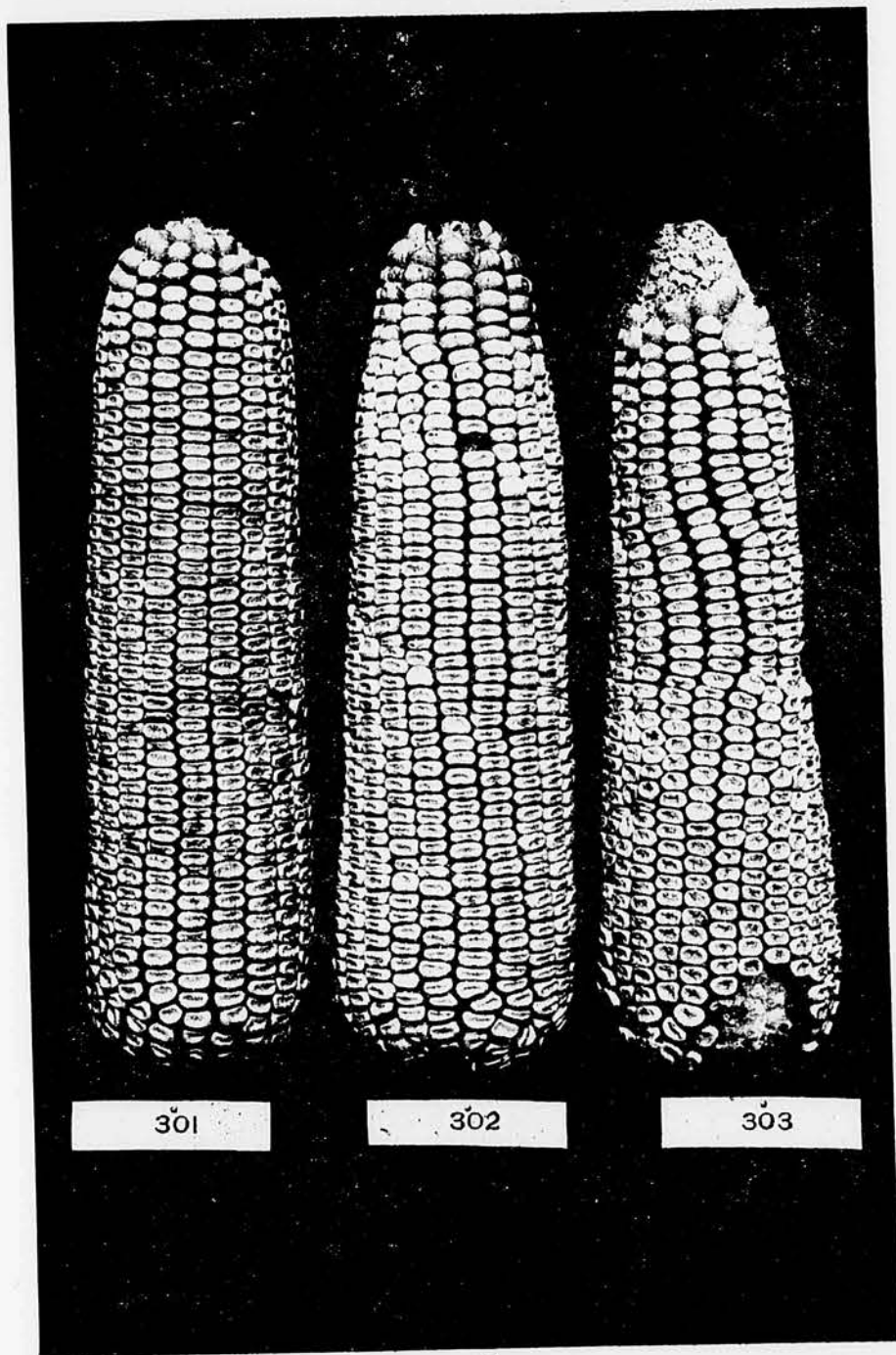


PLATE 6.

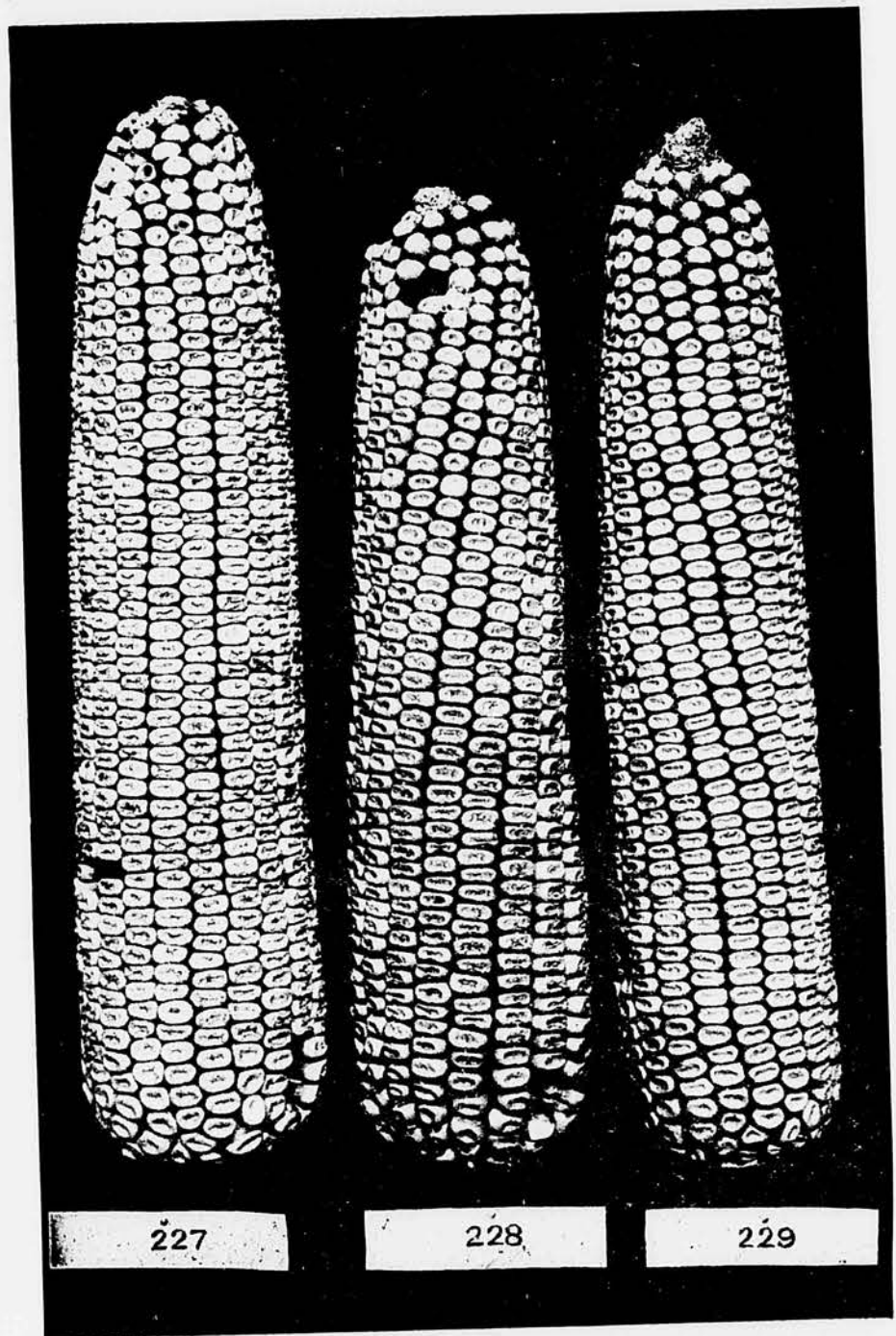


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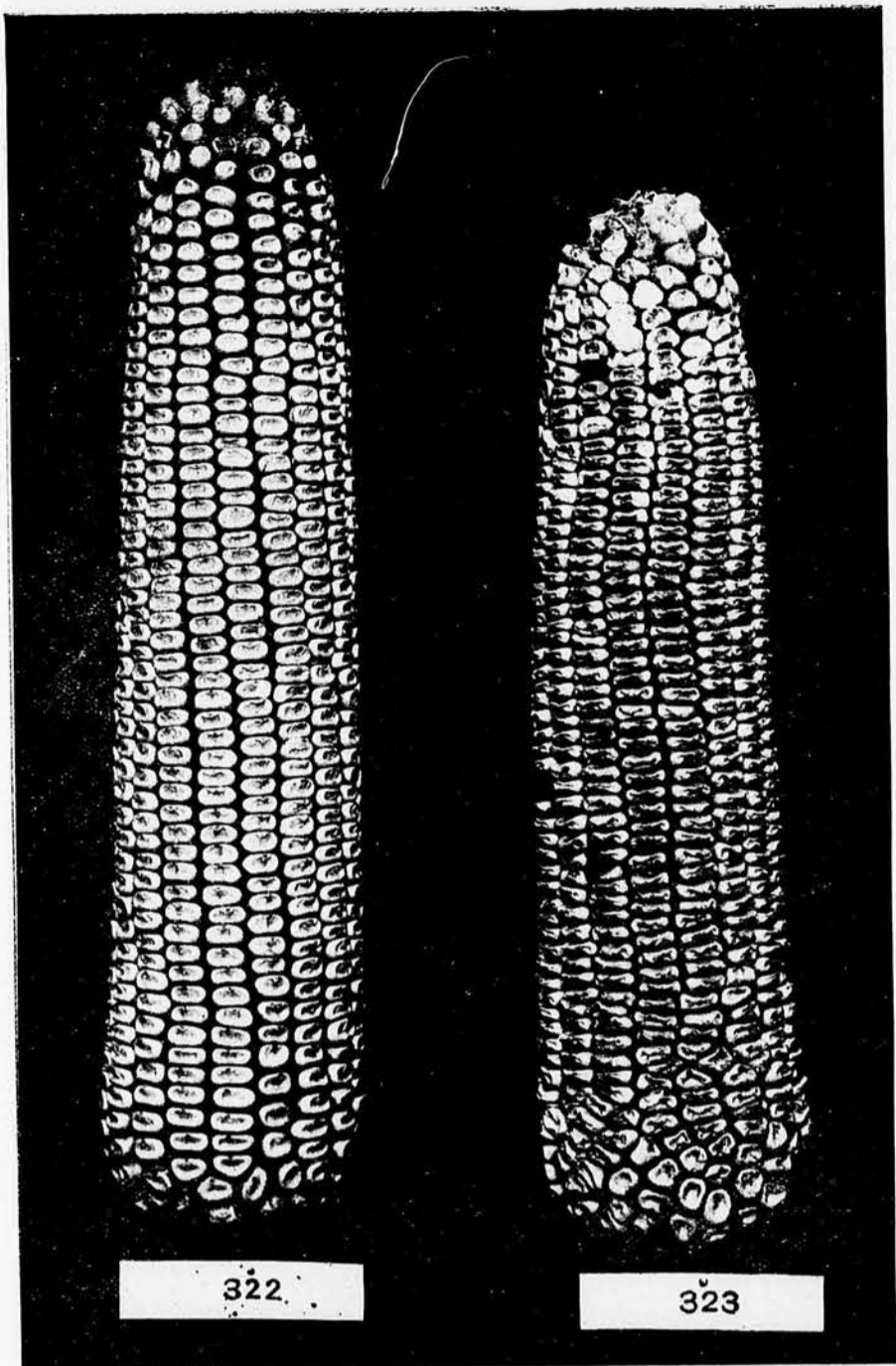


PLATE 8.

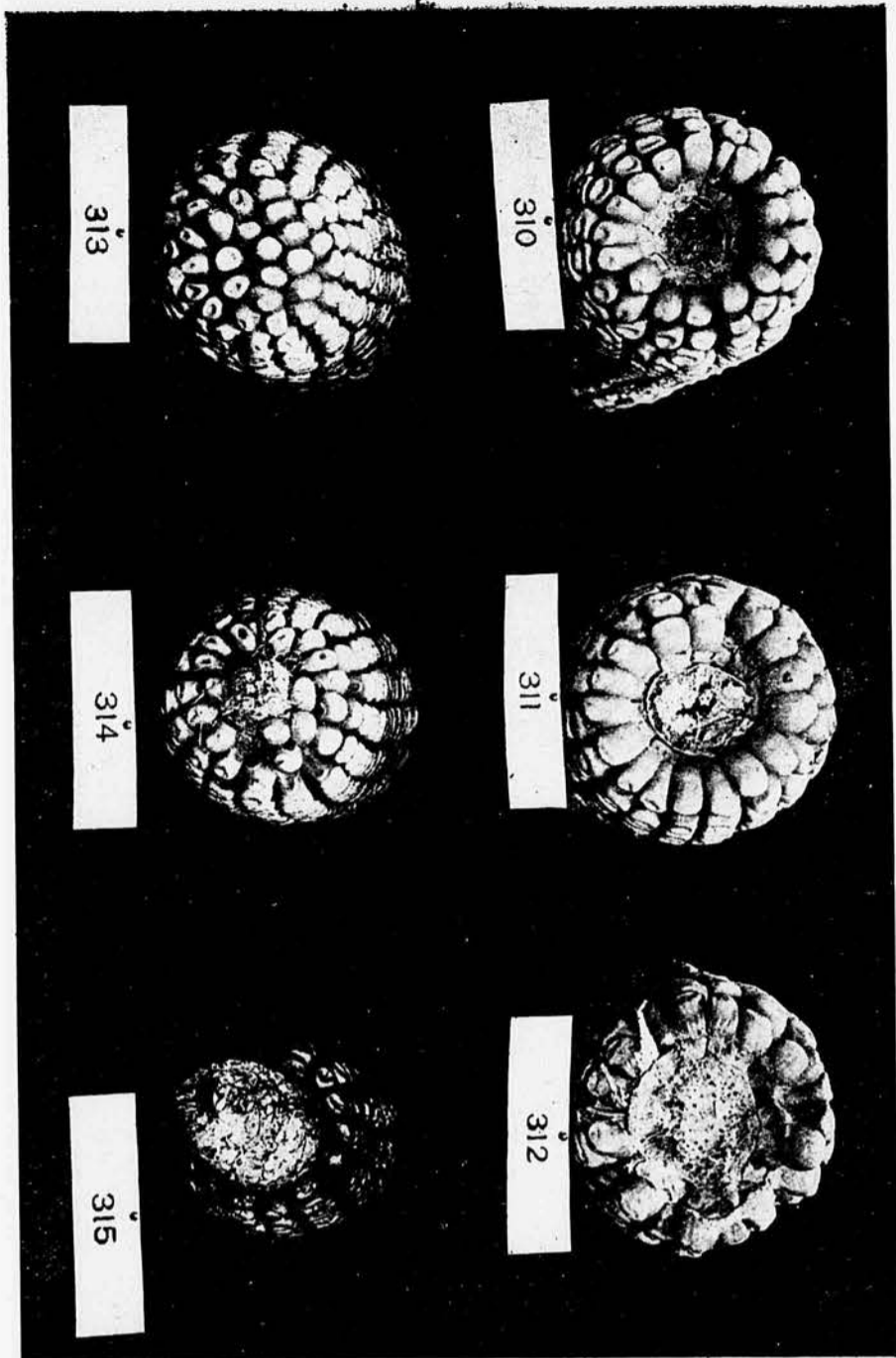


PLATE 9.

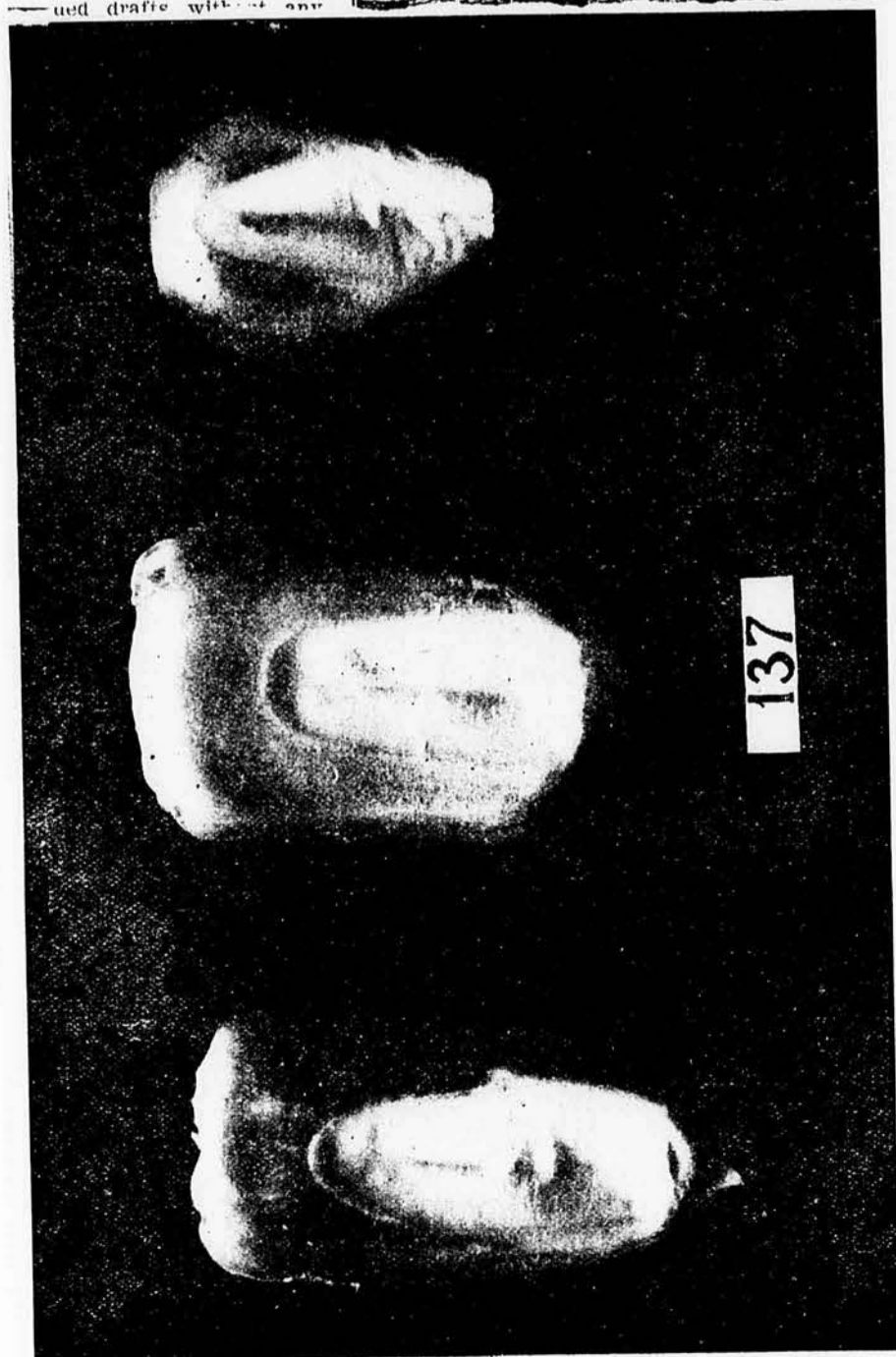


PLATE 10.

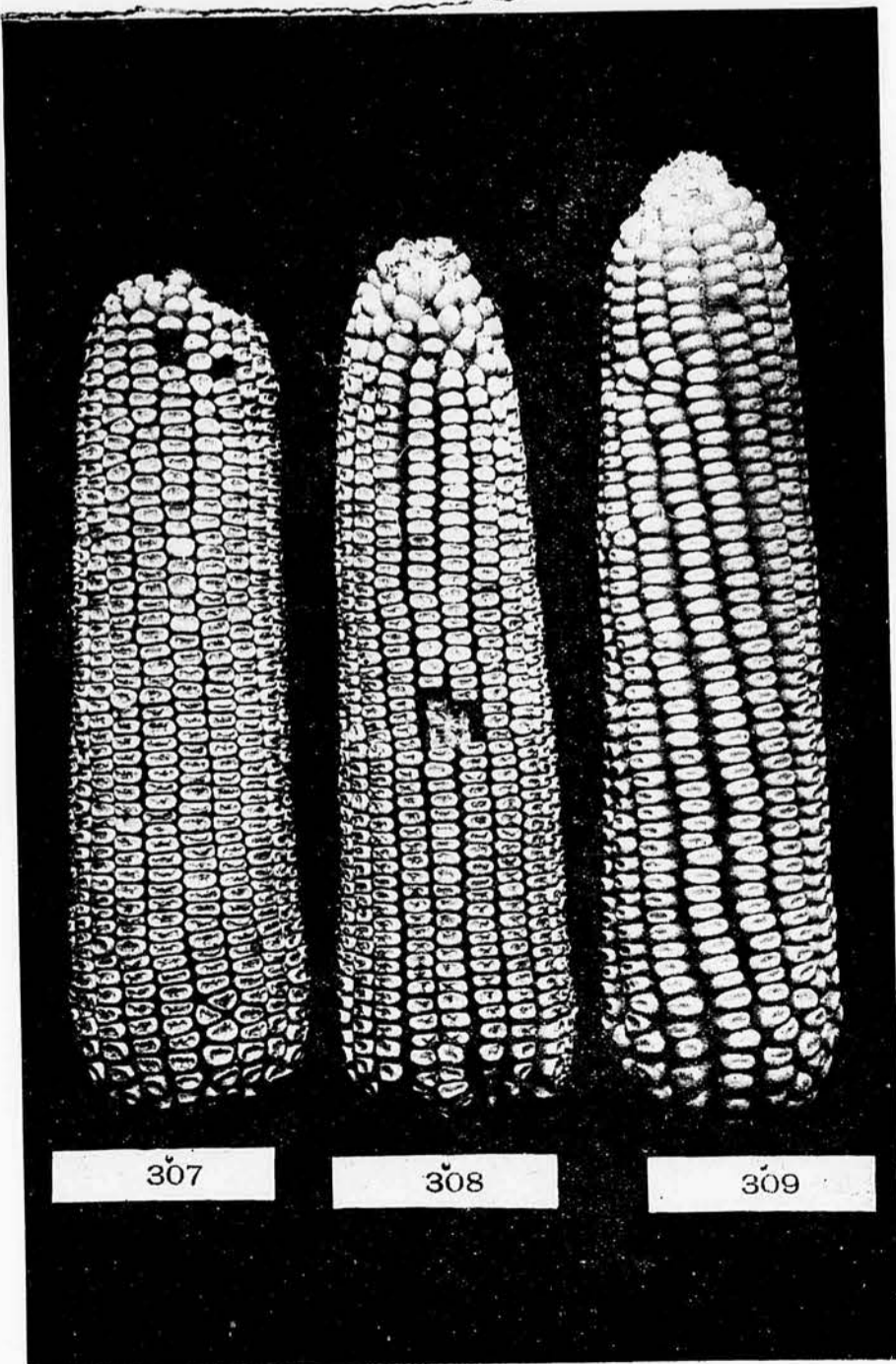


PLATE 11.

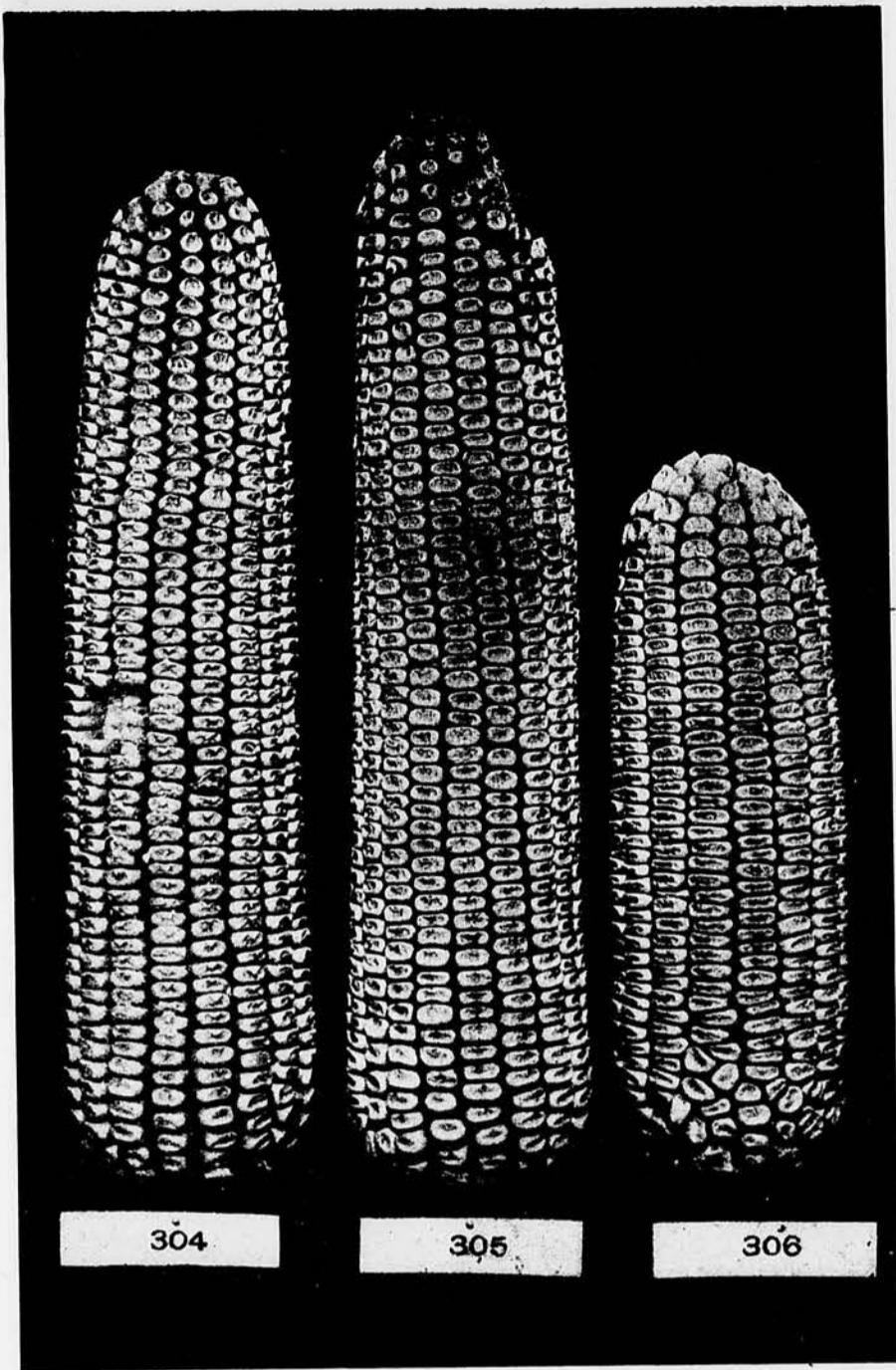


PLATE 12.

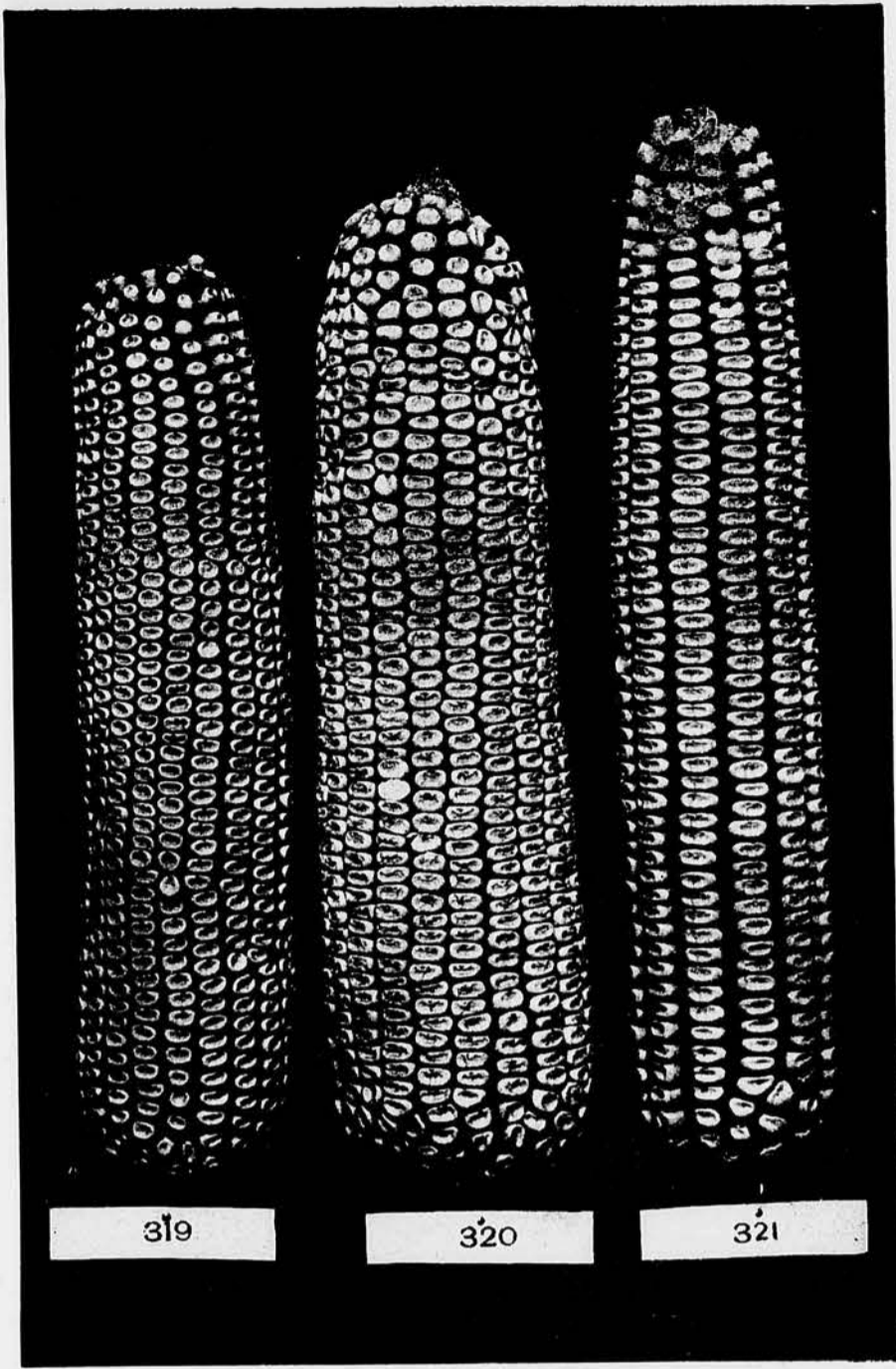


PLATE 13.

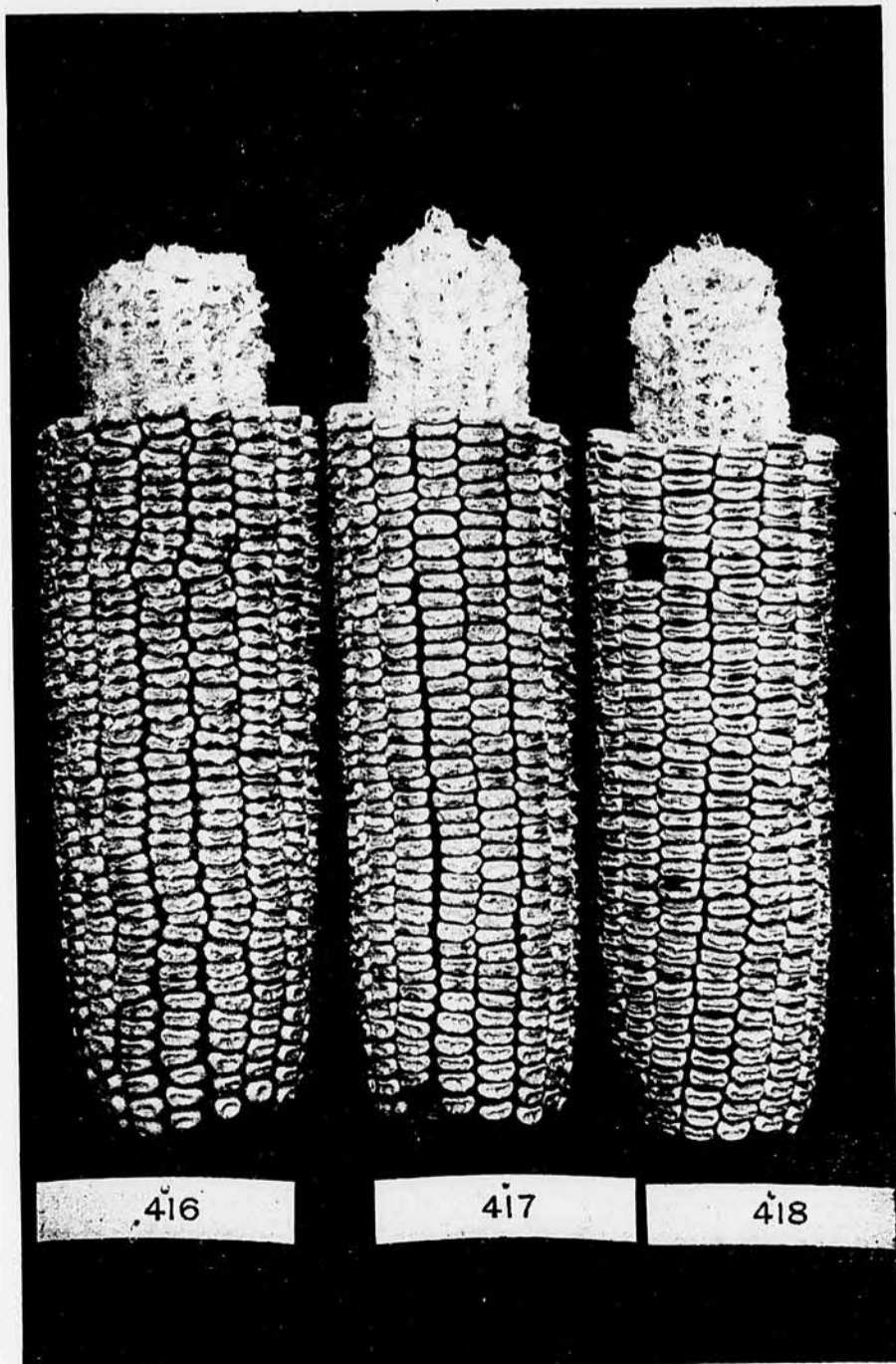


PLATE 14.

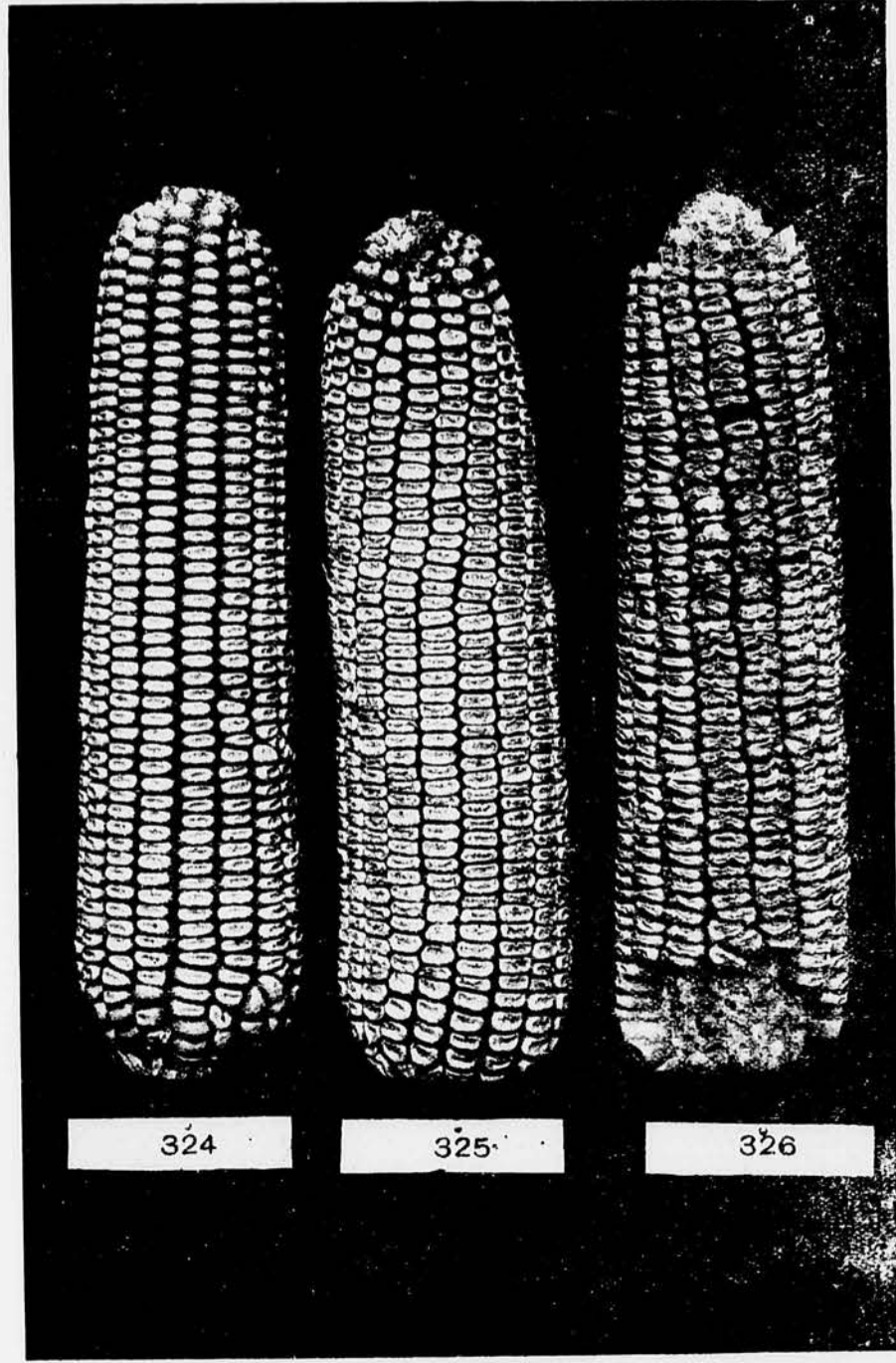


PLATE 15.

EXPLANATION OF PLATES 4 TO 15 INCLUSIVE.

PLATE 4.—Showing uniform ears. The type, shape, color and indentations are uniform. The uniformity indicates the breeding and the degree of improvement in the corn from which the sample was taken.

PLATE 5.—Showing lack of uniformity. The type, shape, color and indentation are irregular and not uniform. Such samples indicate poor breeding and selection.

PLATE 6.—Showing shape of ears. No. 301 is cylindrical; 302 distinctly tapering; 303 very tapering. The cylindrical-shaped ear is best, from the fact that the kernels are of uniform depth, resulting in a greater weight of grain on the cob.

PLATE 7.—Showing arrangement of rows. The rows of kernels should run straight and parallel with the cob. It is an indication of careful selection in the breed of corn.

PLATE 8.—Showing imperfect maturity and market condition. No. 322 is sound and mature; 323 is chaffy and immature. The poorly filled and immature ears are not well developed and are unsafe for planting. The kernels are the same as small kernels, and give a slow, poor germination.

PLATE 9.—Showing butts and tips of ears. No. 310 is deeply rounded; 311 moderately rounded; 312 shallow rounded; 313 capped tip; 314 partly filled tip; 315 poorly filled tip. In most varieties it is more difficult to secure a well-filled tip than a well-filled butt.

PLATE 10.—Showing shape of kernel—wedge, square and rounded tips. The wedge-shaped kernels are best, have least space between rows, shell out the largest per cent of corn, and give most vigorous germination.

PLATE 11.—Showing space between rows. No. 307 is narrow; 308 medium; 309 wide. Space between rows means loss of weight of kernels, less rows on cob, a smaller per cent of corn, and is a sign of degeneracy.

PLATE 12.—Showing length. No. 304 is of proper length; 305 is too long; 306 is too short.

PLATE 13.—Showing circumference of ears. No. 319 is of proper circumference; 320 too large; 321 too small. Too great circumference usually indicates small kernels, of weak vitality.

PLATE 14.—Showing size of cob. No. 416 is large; 417 medium; 418 small. A medium-sized cob is desirable, because it will carry the best-shaped kernels and the most corn in proportion to the size of ear.

PLATE 15.—Illustrating indentation. No. 324 smooth, a shallow kernel; 325 medium rough, deep, wedge-shaped kernel; 326 very rough, chaffy kernel.

Corn Culture and Breeding.

(Continued from page 282.)

of ordinary Red clover. Where alfalfa can be grown, this crop is very valuable for preparing the soil for corn. In most seasons cow-peas and soy-beans, drilled between the rows of corn just after the last cultivation, give good results. These crops will produce from one to two and one-half tons of hay per acre, and will increase the fertility of the soil. Where the soil is a rich prairie loam the soy-bean is more successful than the cow-pea. On such rich soils the cow-pea runs to vines and does not mature a seed crop. It is in such soils that the soy-bean gives the best results. The rich soils stimulate the production of plant and seed, and the crop becomes increasingly valuable. The soy-bean is easily harvested, but great care must be taken to secure good seed.

If the cover crops are grown and rotated with corn, and the crops taken from the fields, the soil will eventually become exhausted. These leguminous crops add to the supply of nitrogen in the soil, but they do not add the other elements of fertility, particularly potash and phosphorus. With continuous cropping of any kind, the fertility is bound to run out eventually. The only way by which corn-growers can continue to grow profitable crops is by feeding the corn and hay crops to live stock and returning the manure to the soil. There is no fertilizer so valuable as barn-yard manure, and it is only by the careful conservation of the manure from the corn and other crops, and its judicious application to the fields, that the soils will continue to produce profitable corn crops.

IMPROVING SEED-CORN.

The second important feature of the growing of a corn crop is seed-corn. It has been found that corn can be bred like cattle. From the fact that we secure a complete crop in a single season, the results from corn-breeding are secured more quickly than from animal-breeding. It costs no more to grow a large crop upon the field than a small crop. The expense of cultivation, interest on investment and labor are the same in both cases. If by breeding the yield can be increased five bushels per acre, this increase is pure profit to the grower. Therefore any advantage from breeding is of very great importance to the farmer.

DEVELOPMENT OF CORN BREEDING.

Previous to 1897 little was done in the way of systematically breeding corn. Some few men, early in the past century, realized the far-reaching importance from well-bred seed, and began crude attempts at improving their strains of corn. One of these men, J. S. Leaming, of Wilmington, Ohio, through selection, so changed and improved the type of corn grown on his farm that other farmers began to secure his seed-corn for their use. This work was begun, according to his son's account, about 1825. As a result this type of corn was brought west to Illinois and rapidly became popular with Western corn-growers. In Ohio, the corn was a tapering, short-eared type, with particularly large butts. When the corn was brought west, the ear was lengthened by careful selection, the shape changed from the undesirable tapering type to a cylindrical shape, and the enlarged butt bred out of the ears. The improved Leaming bears little or no resemblance to the original Leaming; the smooth kernels have been replaced by rough, deep kernels, and the whole type of the variety has been changed through less than fifteen years' selection by Western breeders.

The valuable results from such a long period of attention to selection are found in the fact that in the comparative test of varieties at the Illinois station, since its establishment in 1888, the Leaming variety stands at the head of the list of the many varieties tested in yield per acre.

Another pioneer in this work was James Riley, of Thorntown, Ind. Mr. Riley was a live-stock breeder of high

standing, and they cost as much to grow as the fertile stalks. On the 137 farms of the Sibley estate, Ford County, Illinois, it was found that nearly thirty per cent of the stalks were barren. On this estate especial attention has been given to seed selection, and the probabilities are that the corn on these farms is more free from this condition than on the average farm.

By looking over the corn in the cribs in any of the corn sections of the United States, a very small proportion of uniform perfect ears are found. The majority are very weak in some particular, as in shape of ear, filling out at butts and tips, depth and shape of kernel, purity of color, and other points. That the average quality of corn is very poor is shown by the average yield per acre. The average yield per acre in the great corn States, according to government statistics, is about thirty bushels per acre. If every stalk in a hill produced a well-developed ear, at the average width of planting, three feet six inches by three feet six inches, with only two stalks in a hill, the yield would be about 100 bushels per acre. As a matter of fact, the average number of stalks per hill is more than two. How can we account, then, for the difference between 100 bushels per acre and the actual yield of about thirty bushels per acre? This difference must be due to the fact that every stalk does not produce an ear and that the majority of the ears that are pro-

duced do not become well-developed ears.

In view of these facts, a few extensive corn-growers organized the Illinois Seed-corn Breeders' Association in 1900. The object of this organization is to systematically improve, through cooperation with the State Experiment Station, the breeds of corn in this State.

RESULTS FROM IMPROVED SEED-CORN.

As a result of the work of the breeders of this association, improved and carefully selected seed has been sent to the farmers of various sections of the corn belt. To show the results from such work, a few instances will be cited in the following discussion:

A corn-grower of McLean County, becoming interested in improved seed, secured enough well-bred seed to plant eighty acres. In this body of land there are about 10,000 acres devoted to corn. On this field the yield per acre was within one-half bushel of twenty-three bushels more per acre than in any of the other fields of the farm. This corn-grower has secured enough well-bred seed for the coming season to plant the entire corn land on the farm.

In southern Illinois another farmer secured enough improved seed to plant 120 acres. This field yielded fifteen bushels per acre more than any other field on the farm or in the vicinity where the yield was obtained. This farmer paid forty dollars for the seed, and figures that the net profit from the investment was \$840, all of which

METHODS OF CORN-BREEDING.

The system of breeding is as follows: The variety must be kept pure and free from all mixture. This is a difficult problem in most cases, because the pollen will drift at least eighty rods. The breeding must therefore be done where the breeding field can be protected from other corn-fields, as by hedges, timber, or other natural barriers to pollen drifting, or in a very large field of the same variety that is being bred. This last plan has been used with good results in developing sweet-corn varieties, but is not so quick in results as the plan of isolating the breeding fields. This is due to the fact that if the breeding field is located where it will be pollinated by the pollen of inferior stalks, even of the same variety, this fertilization will be detrimental to the development of the variety and the weeding out of the unfavorable types. A field of about an acre in size of the best corn land is

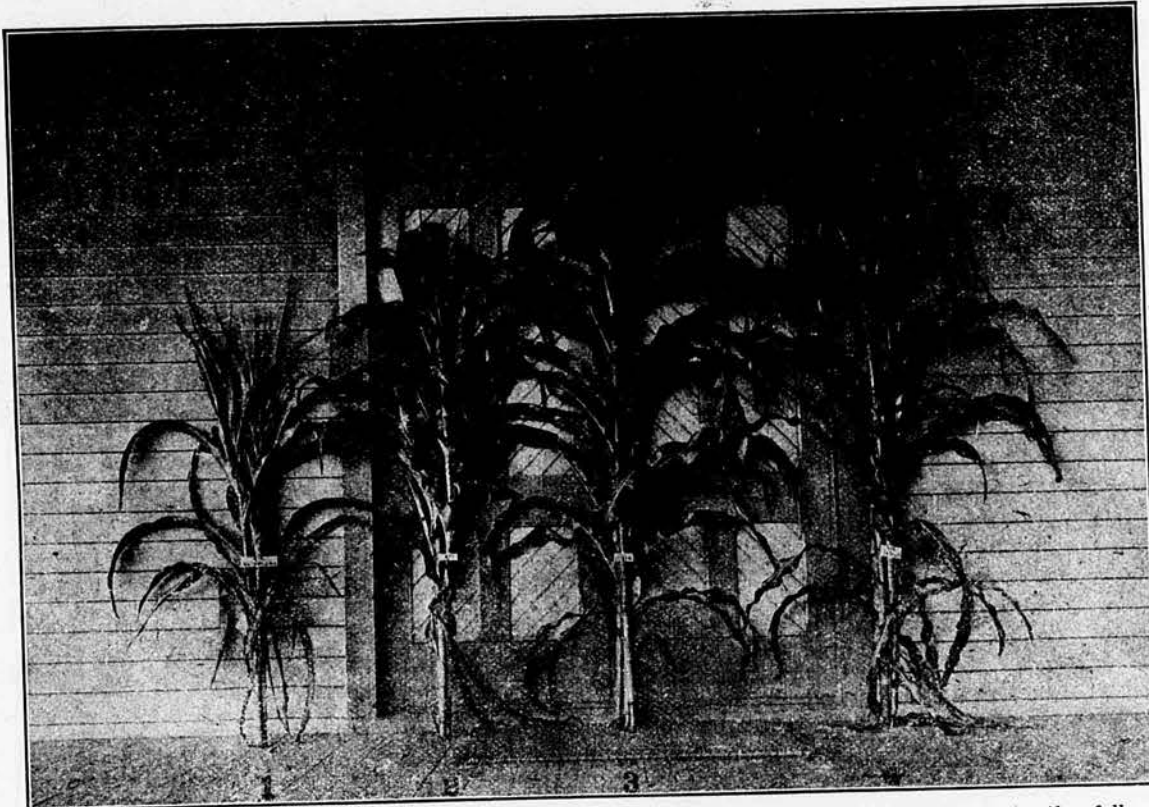


PLATE 16.—Showing effects of root-pruning. Plants taken from plats root-pruned according to the following plan:
Plant No. 1, from field pruned 6 inches deep. Plant No. 3, from field pruned 2 inches deep.
Plant No. 2, from field pruned 4 inches deep. Plant No. 4, from field not pruned.
These plants represent the average hills in the fields under the above system of experimentation, and show the comparative differences in yield per acre. Any injury to the root system reduced the yield per acre.

duced do not become well-developed ears. In view of these facts, a few extensive corn-growers organized the Illinois Seed-corn Breeders' Association in 1900. The object of this organization is to systematically improve, through cooperation with the State Experiment Station, the breeds of corn in this State.

The fact of the matter is, that careful breeding and selection result in more profitable types of corn. The valuable results from improved breeds of live stock have increased the wealth of the American farmer millions of dollars. The results from improved breeds of corn indicate that we may obtain equally valuable results from highly bred varieties of corn.

BARREN STALKS IN FIELDS.

By careful counts made in various counties in Illinois, for the last three years, it was found by the farmers that almost one-third of the stalks in the field were barren. These barren stalks are weeds, of little or no value to the farmer. They probably take nearly as much fertility from the soil as the

selected. The character of soil is of extreme importance. The placing of the breeding plat in a poor soil a single year may destroy the work of many years' careful breeding. The land should be carefully prepared, according to the best methods of fitting the seed-bed in that locality. The plan is to plant each ear by itself in this field, either in plats ten hills square or in a row.

The plat and row system are both being used by corn-breeders, and it will take several years to demonstrate the most successful plan. For simplicity, the row system will be described, and the same principles will apply to the plat as to the row plan. Select thirty-two typical ears of the variety to be improved. This seed should be secured from some breeder of this variety, because he has accomplished what would take the beginner many years to develop. In other words, the corn-grower can begin where the breeder left off. Lay out this acre with marker. Shell off the tips and butts of the ears to be used for seed, and plant three kernels in every hill by hand, covering with the hoe. Plant one row 112 hills long from each ear. Now cultivate ordinarily. As soon as the corn begins to tassel, go through the field three times, once every other day, and cut off or pull out the tassels of all the stalks that have produced no shoots, all weak stalks, and all suckers. These barren and poor stalks produce more pollen than the stalks bearing ears, and it is important that this pollen does not fertilize the future seed. The seed kernels will produce plants like

the parents, and if one of the parents is weak, the chances are that this weakness will crop out in some of the progeny. In Illinois this per cent of barren stalks has been reduced from sixty-two per cent to twelve per cent in five years, from such attention. In the fall, the number of good ears should be counted in every row. The seed for the next seed field should be selected from the ten rows producing the largest number of good ears. The prepotency in the seed for the production of this improved type can thus be taken advantage of and the undesirable types weeded out of the variety. The rest of the field can be used for general planting. Following is an outline of the above-described field; the figures at the left are the ear numbers:

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25
- 26
- 27
- 28
- 29
- 30
- 31
- 32

TESTING VITALITY OF SEED-CORN.

The vitality of all seed-corn should be tested. A good profitable stand can only be secured from vigorous seed. This vitality can be tested by every corn-grower by this simple and practical method: Take three kernels out of every seed ear—one from near the tip, one from the middle, and the other from near the butt of the ear. Fill an ordinary china dinner-plate nearly full of sand and pour on water until thoroughly saturated. Now plant 100 kernels, point down, in the sand. Place a second, somewhat smaller, plate over the first, to prevent the too rapid evaporation of the moisture, and set in a warm room. Keep a record of the time and number of kernels sprouted in this kind of table:

Name of variety.....
 Date of testing.....
 Number of kernels.....
 Source of seed.....

Date.	Tem- pera- ture.	Number germi- nated.	Per ct. germi- nated.
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

In seven days ninety-seven per cent should have germinated. If less, the seed should be discarded and better seed secured.

SELECTION AND STORING OF SEED-CORN.

The seed should be thoroughly dry, in order to keep the vitality unimpaired. A simple and effective plan in ordinary seed selection is to select the seed-corn in the field. Tie a box to the rear of the wagon-box and when a particularly fine ear is found on a well-developed stalk, throw the ear into the box. A second selection can be made at the corn-crib and the ears finally chosen for seed stored in boxes. These boxes should be thoroughly lined with screen wire drawn over the open top. This will prevent mice and rats from eating the seed, and will permit of free ventilation. Now set these boxes in an attic or other room provided with a stove, and keep up fire or heat until the ears are thoroughly dried out. The old-fashioned plan of hanging up the seed-ears by husks over the open fire was an admirable plan for effecting this result. After once dry, the seed will not be affected by the extremes of temperature. In moist and immature kernels the cold freezes the moisture in the young plant and swells the cells, bursting the delicate tissue. If the seed is to be stored on an extensive scale, a special building should be prepared, set on tile, to prevent mice getting into the seedroom. The ears should then be ricked up in regular order. A good plan is to lay them between two-by-six uprights and set the ricks several inches apart, so that the dry air may circulate freely on all sides of the ear. A small stove will dry out the seed in two or three weeks' continuous drying.

SELECTION OF EARS OF SEED-CORN.

In selecting the seed ears, the object is to select such ears as will produce



PLATE 17.—Showing root development of the corn plant. This plant was taken up June 14, about the time of last cultivation, and found to have a root system reaching from one side of the row to the other, and the main roots were traced over five feet in depth. At the time of first cultivation the root system filled the surface of the soil to a depth of nine inches. (The figures at the right indicate feet.)



PLATE 18.—Showing the effect of inbreeding. 1, cross-bred; 2, inbred five years.

the largest amount of shelled corn. The grower is after corn, and it is with this idea in view that the seed must be selected. In the first place, rough ears of medium size, with a large number of rows of kernels, weigh out the most shelled corn. The rough kernel is the deep kernel, and with a large number of rows on the cob the greatest amount

of corn can be crowded on an ear. This can best be illustrated by an actual weighing test of two different types of corn. In one instance, an unimproved ear seventeen and one-half inches long, with broad-smooth kernels, weighed fourteen ounces; an improved ear of Boone County White, nine and three-

(Continued on page 290.)

Horse Owners! Use



GOMBAULT'S
Caustic Balsam
 A Safe, Speedy, and Positive Cure
 The safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle, SUPERSEDES ALL CAUTERY OR FIRING. Impossible to produce scur or blemish. Every bottle sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars. THE LAWRENCE-WILLIAMS CO., Cleveland, O.

The Books Are Free

If you have a horse that is lamed or blemished by any kind of a growth or enlargement, that is Knee Sprung or has Fistula, Poll Evil or Sweeney, or if there is a case of Lump Jaw among your cattle, write us at once. We will send you two big booklets. One tells you just how to cure these diseases and blemishes. The other proves that you can cure them, and we guarantee you success besides. Same methods employed by over 140,000 farmers and stock owners. Write for the books and tell us what kind of a case you have to treat.

FLEMING BROS., Chemists,
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MOORE'S HOG REMEDY
 The Original Hog Dip.
 Used on Outside and Inside of Hogs
 Kills lice and fever germs, removes worms, cures mange, canker and cough; aids digestion, promotes healthy growth, and Prevents Disease, at Small Cost.
 At dealers in Sealed Cans Only. Useful book with illustration of Dip Tank FREE. Address
MOORE C. & M. CO. L 1501 Genesee St. Kansas City, Mo.

LUMP JAW.
 A positive and thorough cure easily accomplished. Latest scientific treatment, inexpensive and harmless. NO OPIUM, NO PAIN. Our method fully explained on receipt of postal.
 Chas. E. Bartlett, Columbus, Kans.

Immune Hogs

The pigs are born Cholera-proof.

Innoculation before birth the most scientific and best hit ever made in preventing Hog Cholera. Write for free book and agency.
ROBERT RIDGWAY, Box 300, AMBOY, IND.

BALMOLINE The Corn-Husker's Friend.
 And Nature's Perfect Healing Salve
MAN OR BEAST.
 Druggists, or by mail. Trial box, 4c; 2 oz., 25c; 6 oz., 50c. Balmoline Mfg. Co., Sta. B, Abilene, Kas

LABEL
Dana's White Ear Labels
 stamped with any name or address with consecutive numbers. I supply forty recording associations and thousands of practical farmers, breeders and veterinarians. Samples free. Agents Wanted.
 C. H. DANA, 62 Main St., West Lebanon, N. H.

NO HUMBAG Three in One.
 Swine V. Stork Marker and Calf Dehorer. Stops swine from rooting. Makes 48 different ear marks. Extracts horns. Price \$1.50. Send \$1 for trial. If it suits, send balance. Pat'd May 6, 1902. Hog and Calf Holder only 75c.
FARMER BRIGHTON, FAIRFIELD, IOWA.

2 Reasons Why the SOUTHWEST (OKLAHOMA, INDIAN TERRITORY and TEXAS) is an attractive Mecca for the Homeowner and Investor.
CHEAPER LANDS. UNEQUALLED PROSPERITY.
 Go and See the Country for Yourself.
 Low Rate Excursions on the first and third Tuesdays of each month.
 Write for Descriptive Literature to "KATY," - St. Louis, Mo.

The Stock Interest.

THOROUGHBRED STOCK SALES.

Dates claimed only for sales which are advertised or are to be advertised in this paper.

- March 13, 1903—H. W. Weiss, Westphalia, Kans.
March 19, 20, and 21, 1903—Combination horse sale at Riverside Barn, Wichita, Kans.
April 1-2, 1903—Short-horn cattle. H. O. Tudor, Holton, Kans.
April 21, 1903—F. P. Healy, Bedford, Iowa, Scotch Shorthorns, at Seneca, Kans.
April 22, 1903—Short-horn Breeders' Combination Sale, Bunceton, Mo.
April 22, 1903—Breeders' combination sale at Kansas City. W. C. McGavock, Manager.
May 5-6, 1903—Collin Cameron, at Kansas City, Herefords.

Lee's Dispersion Horse Sale.

The dispersion sale of Prairie Dell Farm horses, owned by R. I. Lee, Wanamaker, held at the fair grounds, Topeka, March 5, was a great success and easily demonstrated the high esteem of the trotting blood represented by this great offering.

- Jack Daw 14297, 4 years old, 2,284, to Dr. Geo. C. Pritchard, agt., Topeka, \$5,000
Flying Bird 20041, Sam S. Smith, Clay Center, Kans. 340
Royal Highlander 35320, b. s., foaled in 1900, Sherman Bros., Monticello, Kans. 425
Elsiedaw, b. f., foaled 1899, Wm. F. Rodmond, New York. 300
Jack Kelpie 37154, b. s., foaled 1899, F. E. Kimball, Beatrice, Neb. 425
Fairy Daw, b. f., foaled 1900, J. S. Sandus, Minneapolis, Minn. 310
Goblin 37162, b. s., foaled 1902, R. Masterson, Riley, Kans. 100
Julia Daw, b. f., foaled 1902, Alvah Rose, Iona, Kans. 320

- Fergustane 32682, b. s., foaled 1896, J. W. Belk, Osborn, Kans. 590
Lassie, b. m., foaled 1890, Claud Barrington, Saline, Kans. 55
King Jackie 32857, G. A. McKinzie, Poplar Bluff, Mo. 1,575
Jack Bird, b. g., foaled 1897, C. B. Samson, Topeka. 165
Clara Morris, b. m., foaled 1894, W. P. Brockett, Mayetta, Kans. 150
Glenwood 12403, gr. s., foaled 1886, Claud Barrington. 160
Victoria Regina, b. m., foaled 1896, Frank Foster, Topeka. 430
Kilrush 37158, sh., John Foley, Topeka Shamrock Lady, b. f., foaled 1901, Henry W. Delong, Imperial, Pa. 195
Shillelagh 37157, b. s., foaled 1901, J. B. Craig. 175
Elsie Shamrock, b. f., foaled 1902, John Mitchell, Auburn, Kans. 100
Grey Court, g. g., foaled 1899, Hugck & Bradshaw, Topeka. 110
Bute, b. m., foaled 1896, J. S. Lehr, El Dorado, Kans. 305
Pilgrim Prince 34424, G. P. Newell Topeka. 350
Black stallion, foaled 1898, G. E. Beerup, Tecumseh, Neb. 375
Black stallion, foaled 1901, Frank Blanch, Topeka. 200

Seventy-Eight Jacks, Jennets, Stallions, and Mules Sell for \$20,338.

On March 3, L. M. Monsees & Son, Smithton, Mo., held their twenty-second semi-annual sale of jacks, jennets, mules and stallions. These sales are live-stock events that are looked forward to by stockmen as a place in which they can secure first-class and reliable breeding stock and it is very gratifying to announce that the sale was a success from every point of view.

STALLIONS.
Baymont, June, 1900, S. P. Huff, Lamonte, Mo. \$485.00

- JENNETS.
Sadie C. and Jack colt, June 24, 1898, A. D. Driver, Versailles, Mo. \$505.00
Lady D. and Jack colt, 1894, Brooks Wilson, Camp Branch, Mo. 350.00
Pride of Limestone and jennet colt, 1887, J. P. Scott, Fayetteville, Ark. 410.00
Miss Fewell, 1894, J. P. Scott. 470.00
Lady Irwin and Jack colt, 1897, Brooks Wilson. 265.00
Miss Carter and jennet colt, 1893, A. D. Driver. 160.00
Mirtle Ridgeway and jennet colt, 1895, A. D. Driver. 180.00
Miss Duval, 1887, Brooks Wilson. 102.50
Belle Collins 4th and jennet colt, 1898, Brooks Wilson. 130.00
Belle Collins 2d, 1894, Brooks Wilson. 82.50
Lady C., 1890, Brooks Wilson. 97.00
Lady Lyons, 1897, J. P. Scott. 200.00
Tall Jane, 1894, C. G. Starkey, Madison, Wis. 115.00
Jane Lucas, 1894, Jno. Hicklin, Sweet Springs, Mo. 125.00
Tabby, 1894, S. W. Roberts, Pleasant Green, Mo. 82.50
Lady Compromise 2d, 1897, Brooks Wilson. 190.00
Black Bet, August, 1900, Brooks Wilson. 77.50
Lady Gorrell 3d, 1897, Brooks Wilson. 52.50
Black Bet, August, 1900, Brooks Wilson. 52.50
Lady Columbus 2d, 1900, Brooks Wilson. 52.50
Lady Husher 2d, 1901. 57.50
Julia Small, 1901, A. D. Driver. 100.00

A Chance to Buy Galloways.

There will not be many opportunities to buy pure-bred and registered bred Galloways this year at public sale. The most notable event now in sight is the breeders' combination sale to be held at South Omaha, March 18, as advertised in this paper.

The Brookside Farm Company, Fort Wayne, Ind., are making one of the best contributions they have ever made, consisting of nine females and six bulls. The females will have calves at foot or safe in calf by famous herd sires such as the world renowned Scottish Standard, Scottish Chief 3d of Castlemilk. These cattle are in thrifty condition, splendid beef

CATCHING COLD

MORE DANGER FROM BAD VENTILATION THAN FROM DRAUGHTS.

Many Serious Diseases Have Arisen From Neglected Colds—Some Useful Hints.

"Most colds," said a well-known physician, "are caught by infection, generally from the breath of some one else who has a cold."

"When you are in a close room with a person who is sneezing and snuffing, open the window a little or you may catch that cold yourself. More colds are caught through being in ill-ventilated, stuffy rooms than from draughts."

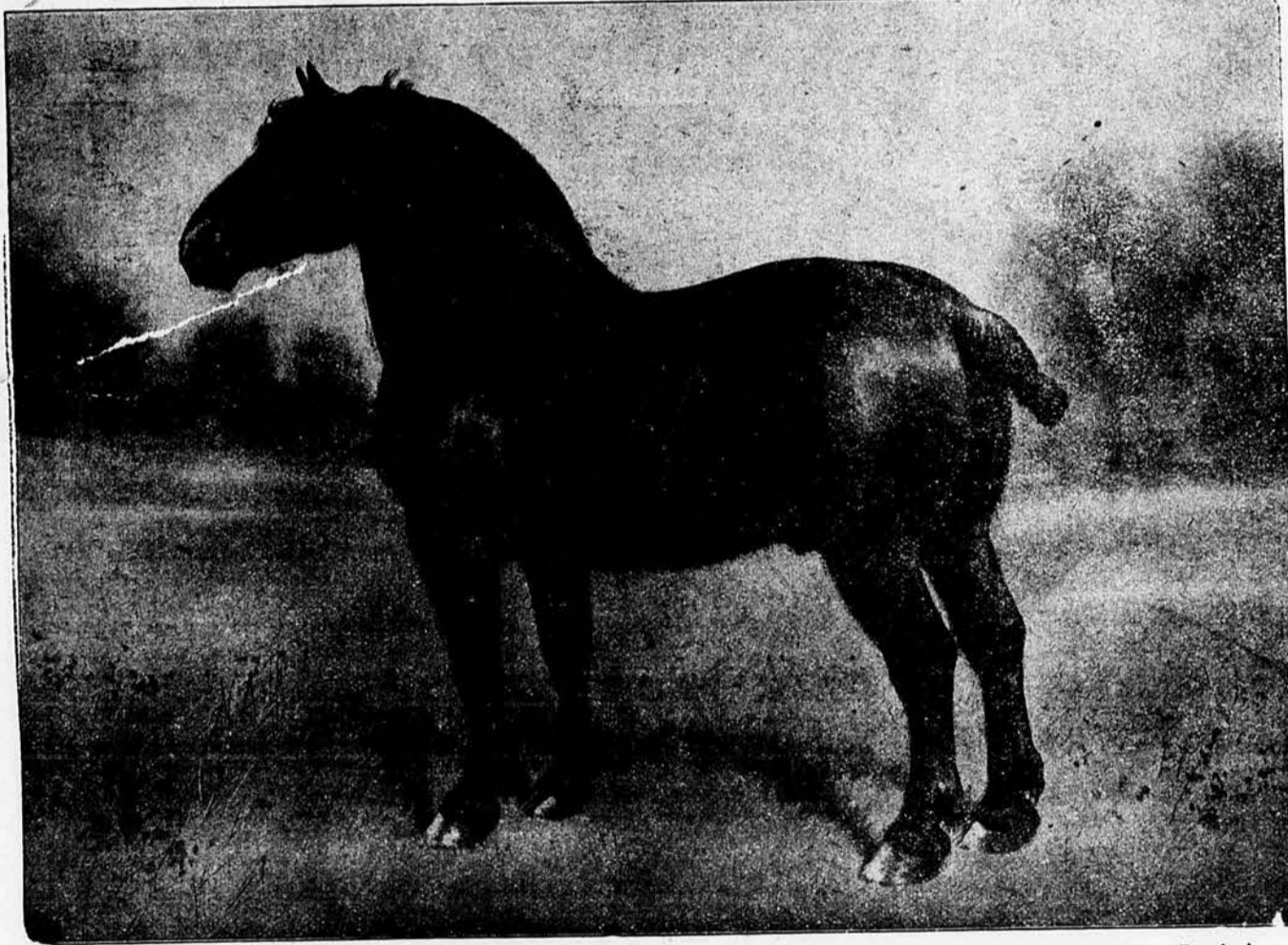
Don't neglect a cold. It may run into influenza, rheumatism, consumption, or any of a number of diseases. As an instance, take the case of William H. Lovett, a farmer of Galva, Kans. He says:

"I caught a little cold summer before last. I didn't do anything for it and before long my health began to run down. Then I began to have twinges in my legs. They grew worse and about the twentieth of June I had to take to my bed with rheumatism."

"What cured me? Dr. Williams' Pink Pills for Pale People. For four months I was unable to do any of the work about the place, my legs swelled, I had terrible pains and the doctor didn't help me a bit. Then my brother-in-law recommended Dr. Williams' Pink Pills and in about two weeks after beginning with them I felt better. They did wonders for me and now I recommend them to every one who suffers as I did."

The cure of the severest cases of rheumatism by Dr. Williams' Pink Pills for Pale People has occurred all over the land and their power in ordinary cases is proportionately greater. These marvelous vegetable pills go directly to the seat of the trouble and exert a powerful influence in purifying and enriching the blood by eliminating poisonous elements and renewing health-giving forces. They have also cured locomotor ataxia, partial paralysis, St. Vitus' dance, sciatica, neuralgia, nervous headache, the after-effects of the grip, palpitation of the heart, pale and sallow complexions, and all forms of weakness either in male or female.

At all druggists, or direct from Dr. Williams Medicine Company, Schenectady, N. Y., 50 cents per box; six boxes for \$2.50.



This is Iams' Montra 29321—5 years old—weight 2,300 pounds. A Sensational home-bred Percheron. Bred by Frank Iams, St. Paul, Neb.

- Julia Arthur, blk. m., foaled 1897, Thos. Lawson, Boston, Mass. 480
Lady Maude Adams, b. f., foaled 1899, David Orr, Topeka. 300
Jack Daniels 37164, b. s., foaled 1900, F. E. Kimball. 420
Jack Creeper, 37161, b. s., foaled 1902, T. U. Benson, Hunter, Okla. 225
Albert Parker 37163, b. s., foaled 1902, J. J. Barber, Hunter, Okla. 160
The Shamrock 31977, b. s., foaled 1895, Dan Duggan, Kansas City, Mo. 1,400
The Mermaid, ch. f., foaled 1899, J. C. Nelson, Milwaukee, Wis. 340
Mr. Dooley 37155, b. s., foaled 1901, C. Lintz, Crab, Neb. 330
Nancy, b. m., foaled 1885, Sunrise Ranch Co., Florence, Kans. 90
Boss McCormick 37159, b. s., foaled 1901, A. Sprague, Selden, Kans. 380
Elsie McGregor, b. m., foaled 1887, A. Grotewohl, Topeka. 25
Rory O'Moore, b. s., foaled 1901, Dr. J. J. Barber. 200
Killala, blk. filly, foaled 1901, Dr. B. H. Bagby, Cairo, Mo. 200
Bratfel, b. m., foaled 1890, C. M. Knowles, Milan, Mich. 245
Fouland, C. M. Knowles. 195
Ballina, b. f., foaled 1902, T. U. Benson. 135
Black Match, blk. f., foaled 1900, Kreipe & Newton, Topeka. 225
The Winner 37139, ch. s., foaled 1901, J. H. Craig, Riley, Kans. 200
Thurle, blk. f., foaled 1901, J. S. Saner, Minneapolis, Minn. 100
The Eloquent 37160, b. s., foaled 1902, Geo. Bradshaw, Topeka. 150
Irmegarde, b. m., foaled 1883, H. A. Kumett, Topeka. 75
Fergus Magic 32682, b. s., foaled 1897, J. R. Campbell, Cairo, Mo. 350

- Woodmont, foaled 1885, J. C. Dean, Nevada, Mo. 260.00
Wilson, June, 1901, J. W. Martin, Odessa, Mo. 210.00
Wenona Bordin, June, 1893, C. M. Moore, Alkenville, Mo. 405.00
Unnamed stallion, Brooks Wilson, Camp Branch, Mo. 167.50
JACKS.
Handsome Duke, October, 1893, Fred Schroeder, Bebra, Mo. \$1,130
Big Tom, 1895, Thomas H. Bagnall, Koping, Mo. 940
Lofty John, July, 1899, L. M. Emmerson, Bowling Green, Mo. 775
Jack Perfection, August, 1899, Lars Hammer, Norwood, Kans. 555
Prince Schroader, June, 1899, Brooks Wilson, Camp Branch, Mo. 445
Hyantla, October, 1900, Brooks Wilson Dixie jr., June, 1900, Meredith & Lucas, Osceola, Mo. 600
Free Silver, June, 1896, J. P. Scott, Fayetteville, Ark. 345
Young Sampson jr., September, 1899, John Hicklin, Sweet Springs, Mo. 255
Gold Digger, September, 1893, L. F. Wente, Lincoln, Neb. 565
Longfellow jr., August, 1900, Henry Reinwalt, Sweet Springs, Mo. 260
Tip Top, 1897, L. M. Emmerson, Bowling Green, Mo. 750
Jumbo 111, September, 1895, Deming Ranch, Oswego, Kans. 515
Rube Deering, April, 1900, Geo. Mahan, Silver Lake, Kans. 700
Klondyke, 1897, J. P. Scott. 330
Zay-Dock jr., 1897, Geo. Logan, Syracuse, Mo. 560
Billy Bryan, September, 1897, J. P. Scott. 305
Ben Butler, 1895, J. P. Scott. 500

type. The bulls are of serviceable age and suitable for herd headers, two of them sons of Scottish Standard, including prize winners at the leading fairs last year. C. B. Roland, Rose Hill, Iowa, contributes two cows and five bulls, including the prize-winning cow, Valmuss 13588, a half-sister to Lady May, the great show cow owned by O. H. Swigert. She could be a winner in the show-ring this season. Sonora R. 18200, one of the show herd last year is also bred to imported Ronald. The bulls are fine, blocky fellows from prize-winning sires and dams. The Rowland consignment consists entirely of prize-winning blood. J. P. Martin, Sutherland, Iowa, has a number of very choice young bulls, while the female consignment consists of Euphemia of Wevertree, by Gallant General Gordon, who is a large cow and the dam of the champion female at Winnipeg in 1901, a cow of good breeding and will be a credit to any herd. Velvet of Wevertree is another General Gordon cow, that won first as 2-year-old heifer at Omaha, 1898, every calf from her dam has proved a first-prize winner when exhibited. Clark's Beauty is a nice large cow and has had good calves. Phil Grace, Rose Hill, Iowa, has an offering of ten bulls that are exceedingly fine, much better than the fancy fellows that sold at Kansas City last year; being sired by Earl of Derby 11968. Two of the younger bulls are by Nicholar of Leyun 16158. These are very choice and will be quite an attraction for buyers. C. N. Moody, of Atlanta, Mo., is putting in the best lot of Galloways he has ever offered at public sale; the five cows and two bulls are very choice. He sells Imp. Paragon, due to calve this month by McDougal 4th of Tarbreoch, a prize winner

in the State fair circuit last year. Also Imp. Gilet of Tarbreoch with heifer calf at side by McDougal and bred again to him. Also the 1,700-pound cow, Semiramis 2d of Macon, that will make a good show cow. Breeders of Galloway cattle who want foundation stock and show cattle should make it a point to be present at this sale. For catalogues address C. N. Moody, Mgr., Atlanta, Mo.

Iams' Montra 29321.

Our illustration is from the largest and most widely advertised importing establishment of Black Percherons, Royal Belgians, and French Coach stallions in the West, that of Frank Iams, St. Paul, Neb. "The home of the winners"—"Iams' Montra 29321", coming 5 years old, Black Percheron, weight 2,310. Bred and owned by Frank Iams, St. Paul, Neb. He is an up-to-date drafter, with 14-inch clean flat bone, an exceedingly smooth, finished stallion of first quality. He has that big style, all his own, that makes all buyers give him a pleasant smile. He is a sensational show-yard performer, an outstanding winner in the best company. He pulls himself together, goes down the line like a whirlwind. He is the kind that will get drafters that will sell for \$150 to \$300 each. He is the type that Iams sells at \$1,000 and \$1,400. Why does Iams sell these first-class, wide-as-a-wagon, imported stallions so cheap? Simply because he knows a good one when he comes to him. He spends five months each year selecting these best stallions from the best breeders in Europe, uses his own money, pays no buyer, no interpreter, no salesman, no commission, has no three to ten partners to share profits with, sells every horse at his home barns. Here are ten facts why Iams is a success, and a money-saver to all his many buyers of first-class stallions. He guarantees to show you stallions that you will wish to buy, and at a less price than elsewhere, or pay your fare to see him, you the judge. He gives a breeding guarantee of 50 to 60 per cent, and every bank in St. Paul, Neb., will say that Iams' guarantee is worth 100 cents on the dollar. He has over 100 head of choice horses on hand, in the pink of condition, 95 per cent blacks, 50 per cent ton horses. Write him for the finest catalogue on earth; containing over 40 illustrations of Iams' horses. It will tell you why buy stallions of Iams, and many ways of saving money and buying a first-class stallion at moderate price. It's a hummer from Hummersville. Iams' recent sales were: Lefler & Horn, Woodbury, Mich., after looking at 200 stallions in Illinois and Iowa, say they saved \$1,000 easy. L. E. Ficklin, Clinton, Mo., after looking in Indiana and Ohio, bought of Iams a 3-year-old, weight 1,900 pounds,

R. A. Chace, of Fort Morgan, Col., bought a crack 4-year-old of Iams, weight 2,100 pounds, after looking a week through other importing barns, says he saved \$1,000 easy. V. B. Wilcott, Battle Creek, Iowa, bought the great 2-year-old "Ibrham," weight 1,900 pounds, for a herd-header for his imported mares. He did this after looking through several of the importing barns; but he says he has the top-notch, and \$500 to \$1,000 cheaper than elsewhere.

Iams has over 80 stallions, 2 to 6 years old, on hand, 95 per cent blacks, 50 per cent ton horses. You can see a better horse show there every day than at State fairs. Visit Iams. He will hypnotize you with first-class horses and low prices.

The Humbert Horse Sale.

A public sale of registered high-class Percheron stallions is not a thing to take place under a man's nose every day. It requires not a little nerve to throw onto the market at one fell swoop sixteen head of young stallions of the highest order of merit. That is practically what the Humberts are doing. Half the number are of their 1902 importation, having been selected and imported under the personal care of Mr. Ernest Humbert, who is fluent in the French language, and who accordingly has advantage as a buyer not to be overestimated. It is certain that Mr. Humbert has secured a strictly high-class string of horses. Most of them are blacks, big, clean-limbed fellows, with finest of action. The imported horses are mostly 4-year-olds, and they were landed without a scratch and are now thoroughly acclimated. The sale catalogue shows them to be bred in the purple. The half dozen or more home-bred stallions are all the get of the great imported stallion Sully, whose picture is seen in advertisement. These horses are of a character to stamp this great stallion as one of the greatest breeding horses ever known in this country. They are all of one type—a high-headed, deep-chested, well-turned draft horse, with fine style and action. They are blacks and black grays, and they fill the eye of the expert horseman in every possible way. Kansas should be represented on the occasion of this sale. A cordial invitation is extended to all enterprising horsemen to visit the Humbert farm on sale day. Corning is on main line of the Burlington. See advertisement and write for catalogue.

Coupe Bros' Shorthorn Sale.

Thirty-nine cattle sold in Coupe Bros' dispersion sale of Shorthorns at Falls City, Neb., last Saturday for \$2,967. This included a lot of calves just weaned from the cows. The massive Cruickshank bull, Scottish Model by Courtier 2d, sold to L. C. Lawson & Sons, Clarks, Neb., for \$170. This was the outstanding bargain of the day. The bad condition of the roads cut down the attendance to a mere handful. Among the Kansas buyers were Convin D. Fisher, of Hamlin, and J. W. Strohan, of Hiawatha.

Gossip About Stock.

Kansas Farmer readers in Oklahoma and southern Kansas interested in well-bred Hereford cattle should secure the catalogue of Johnson & Son of the sale to be held at Arkansas City on Tuesday, March 31.

G. B. Scott, of Carbondale, announces a public sale of forty pure-bred Poland-China sows, bred to Kansas Chief 23175, and thirty-two gilts bred to Scott's Perfection. The exact date has not been decided but will be announced next week. For catalogue address G. B. Scott, Carbondale, Kans.

The new Shorthorn bull, Ravenswood Admiration, under the efficient judging of Mr. John Gosling scored 97 1/2 points during the judging school last week at the Agricultural College. This bull in the estimation of Mr. Gosling seems to approximate perfection and his judgment is of the best. We would be glad, however, to record the judgment of an expert breeder on the same animal and see how near it would approach to that of Mr. Gosling.

A visitor at the Agricultural College on any day when the school is in session can not fail to be impressed with the urgent necessity which exists for the new chapel provided for by the Legislature. With an attendance of about 1,400 students and a seating capacity in the chapel of about 650 it will be seen that it is difficult for the necessary daily assemblage of the students in a body. And when to this is added the increased crowding caused by the meeting of the State Dairy Association, or any like convention, it will be seen that the need for larger assembly room is imperative.

The Rex Stock Food Company, of Omaha, whose Rex Conditioner advertisement for horses and other stock appears in this issue, make some very candid statements in their advertisement. This company is reliable and their guarantee means just what it says. This is just the time of year to use Rex Conditioner to put your horses in proper shape for spring work. Send them an order to-day for Rex Conditioner. It's O. K.

A letter from C. R. Thomas, secretary of the American Hereford Cattle Breeders' Association, informs us that Mr. C. A. Stannard, of Sunny Slope farm, Emporia, has decided to call off his sale of Herefords announced for Kansas City on April 13 and 14. As this was largely a bull sale, an opportunity will now be given to lovers of Herefords to select at private treaty such animals as they may want from the more than 500 head now to be found on the great Sunny Slope breeding farm, Emporia, Kans.

W. C. McGavock, Mt. Pulaski, Ill., announces that there will be a breeders' combination sale of Aberdeen-Angus cattle at Kansas City, April 22, 1903. Watch for announcement in Kansas Farmer.

The big Kansas sale of Shorthorn cattle this year will be held at Holton, Kans., on April 1 and 2, 1903, at which time 140 choicely selected and well-bred Shorthorn cattle will be offered for sale. About 100 females with calves at foot or safely bred to noted sires, and thirty serviceable males will be included in the auction offering. The following well-known Kansas breeders will contribute choice selections from their herds: H. O. Tudor, Holton; D. L. Dawdy, Arrington; John Mc-

Coy, Sabetha; M. C. VanSall, Muscotah; Levi Strong, Valley Falls; C. D. Ludwig, Sabetha; and M. K. Nichols, Horton. This will be the greatest opportunity of the year for Shorthorn buyers, as it is a very large offering from some of the best herds in Kansas. For catalogues of this breeders' combination offering, address H. O. Tudor, Holton, Kans.

We are glad to note that it is now proposed to hold a dairy institute at Oberlin, Kans., on March 14, when a very large attendance of farmers is expected. The records of the great creamery companies show that western Kansas is rapidly developing into one of the best dairy districts in the West, and we are told that a great degree of interest has already been aroused in Decatur and adjacent counties in creamery matters. This section of the State certainly has the advantage of good alfalfa fields on which to feed dairy stock.

The dispersal sale of trotting horses by R. I. Lee, detailed report of which is given in this issue, was quite a success. Forty-six head averaged \$405. Twenty-three stallions averaged \$600, twenty-three mares and fillies averaged \$222.50, making a general average of \$405 for forty-six head. On the same day, March 5, occurred the Lackey horse sale at Cambridge City, Ind. when seventy-seven head of trotting bred horses sold for \$18,825, an average of \$244.50, while Lee's forty-six head of Kansas horses sold for \$18,645.

A recent letter from W. W. Taylor, of the Sunflower Hereford Cattle Company, Sawyer, Kans., brings news of the death of his young show bull, Sunflower Chief. This bull was coming three years old and was intended for the head of the Sunflower show herd, which is now being fitted for the St. Louis show. Mr. Taylor refused \$1,500 for this bull one year ago from so good a judge of Hereford cattle as Mr. John Gosling, Kansas City, and he feels his loss keenly. While we desire to express our sympathy to Mr. Taylor in this loss to his herd we have the satisfaction of being able to say that there are plenty of other good ones still remaining on his 4,000 acre ranch at Sawyer.

A meeting of the Texas Hereford Cattle Breeding Association, held last week, resulted in the election of the following officers: President, B. C. Rhome, Fort Worth; first vice-president, W. S. Ikard, Henrietta; second vice-president, Campbell Russell, Bennett, I. T.; secretary, W. H. Myers, Henrietta. Seven new members were admitted at this meeting which makes the total enrollment sixty-one at the present. At the same time the Texas Shorthorn Breeders' Association met in annual session, and elected officers as follows: President, J. F. Green, Gregory; vice-president, H. O. Samuel, Dallas; secretary, J. F. Hovenkamp, Fort Worth. Executive committee, Stuart Harrison and J. I. Burgess, Fort Worth, Col. P. B. Hunt, Dallas, David Harrell, Austin, and Chas. McFarland, of Aledo.

The Pasteur Vaccine Co. have just moved their headquarters to more commodious and convenient premises at 219 East Randolph St., Chicago. They occupy the whole building, and it is located in the center of the drug business. The Pasteur Vaccine Co. is very well known to all stock-owners who have had any trouble with Anthrax or Blackleg, as they introduced the vaccines for these diseases into this country in the early part of 1895. The extent and success with which the Pasteur Vaccines have been employed are too well-known to need comment. It will be interesting to note that up to the end of 1902 about forty-five millions of animals have been vaccinated with the original vaccines. This is a wonderful showing, and speaks volumes for the success of the Pasteur Company's remedies.

The new dairy barn at the Agricultural College is very complete in its equipments, among which must be named the new silo. This structure stands at the east end of the dairy barn; is built on a stone and cement foundation and is composed of 2 by 4's set upright and banded with heavy iron bands. It is made with small doors opening at intervals from top to bottom and is of sufficient capacity to furnish a succulent ration to all the dairy cows and those of the beef breeds to which it is fed. During the dairy convention there were very many dairymen who were anxious to know the purpose of the building and to examine the ensilage about which they had heard. We hope that the results of experiments which are soon to be published will convince more of Kansas Farmers that the silo is among the important improvements of the farm.

During our attendance at the Marysville Farmers' Institute we had the pleasure of meeting a number of old students of the Kansas Agricultural College. Among them was Prof. Albert Dickens, of the college, County Supt. Geo. K. Thompson and wife, who were class mates in '93, M. W. Sanderson and wife, who were class mates in '98, R. M. McKee, of the class of 1900, John Frost, of the class of 1892, and wife, G. A. Craik, student in '97, and his brother, J. A. We mention these names to show the fact, which is apparent all over the State, that the agricultural college students are making themselves felt in the advancement of agriculture and stock-breeding, wherever their lots may be cast. This was an exceptionally good farmers' institute and we hope that next year it may be able to discount any of its previous records.

Attention is called in this issue to the public sale announced by O. P. Updegraff at his Riverside Stock Farm, which is two miles west of North Topeka on the lower Silver Lake road. For some time past Mr. Updegraff has been almost continually away from home on account of acting as starting judge for some of the biggest race meetings and fairs in this section of the country; and, as his work has increased each year, he has found it almost impossible to properly look after his breeding interests, and for that reason has decided to sell his stallions, Honor, and Senator Updegraff. Honor is the sire of Upright Wilkes, 2.14%, that sold for \$6,000, Red Cliff, 2.18%, that sold for \$3,000, Hila H., 2-year-old record, 2:35, that sold for \$1,700 at auction, and the grand sire of Kipling, 2:20, besides a large number of colts knocking at the 2:30 door. Honor's colts have size, substance, speed and finish, and have been very salable ever

Hallock's success Weeder
IT'S ALL IN THE TOOTH

For a number of years many farmers have known the advantages of the Hallock Weeder. Now everybody knows that the whole secret is in the flat tooth. The recent legal decision restraining the manufacture or use of any other flat tooth weeder best advertises the strong points of the Hallock machine. This weeder will increase grain and potato crops from 25 to 50 per cent. Why and how it will do it and why the flat tooth makes the only successful weeder is best explained by the booklet which we will send free if you write for it.



The Janesville Machine Co. is licensed to manufacture and sell the flat tooth weeder covered by the Hallock patent.

JANESVILLE MACHINE COMPANY, 15 Center St., Janesville, Wisconsin.

since he was brought here from Kentucky. Senator Updegraff is by Simmons, and is the sire of Reta U., with a 2-year-old record of 2.25%, that as a 2-year-old started in eleven races and was never defeated, a record without an equal. Senator is as handsome a horse as is often seen and has proved a sire of great value. In addition to these stallions there will be sold an imported Shetland stallion and a gaited saddle pony, together with single drivers, light and carriage pairs, and a few work horses. These horses are all nicely broken and are ready for immediate service, except three yearling colts. In addition to the horses there will be sold a few young cattle and some pure-bred Berkshire sows with pig and a few boars ready for service. This sale will take place on day and date advertised, rain or shine, and whether you wish to buy anything or not you are invited to attend and partake of the Dutch lunch which will be provided on a large scale.

Never were the evidences of prosperity so well marked among Kansas Farmers as they appear to-day. With plenty of money in the banks, a rapidly increasing number of pure-bred animals, a vast expansion of alfalfa-fields and the subdivision of the great ranches into well-tilled farms, no country could appear more prosperous than does our own State. In fact, one prominent man, who is a keen observer, expressed the present condition of things very well by saying the Kansas farmers are all angry with each other because they can not buy all the land that adjoins them. Education, a good climate, fertile soil, improved live stock and the push and energy which has always characterized the people of this State are ample explanation of the present prosperous condition and an earnest of its future continuance.

W. H. Cottingham & Sons' combination sale held at McPherson on February 24 and 25, proved to be quite successful. They sold fifty-nine head of horses, thirty head of which were unbroken colts under 3 years of age, for an average of \$101.90. These were grade Percherons and Coachers. The highest price paid in the horse sale was \$376 for a span of drivers. They sold forty-five head of hogs, all of which were pigs but seven head, at an average of \$12.75. A few young Shorthorn bulls were also included in the sale from various contributors. Mr. Cottingham's own consignment of Shorthorns sold for an average of \$108. Considering the age of the animals offered and the season of the year, this was a very satisfactory price. Taken as a whole the two days' sale of horses, hogs and cattle was considered a very satisfactory one by the Messrs. Cottingham. It pays to advertise livestock sales in the Kansas Farmer.

The Red Polled cattle have evidently found a place in the development of the pure breeding industry of the West. Whether they answer all the requirements of the ideal dual-purpose cattle or not, they are good animals and well worth a place on the farms of Kansas. There is no questioning their milk-yielding capacity, and, as in other breeds, there will be no question in regard to their beef-producing qualities if the correct type is selected and the individuals well cared for. At any rate they unquestionably have made a place for themselves and inquiries are plentiful as to where the best representa-

tives of the breed may be obtained. Last fall during our round of the fairs, we were pleased to note the quality of both Red Polled cattle and Percheron horses that were exhibited by G. C. Bartlett, Rural Route No. 5, Wellington, Kans., at his local fair. By reference to his card on page 308, it will be noted that he has a number of useful young Red Polls of the choicest strains and of either sex for sale and we take pleasure in assuring our readers that they will not only secure good individuals but the best of treatment from Mr. Bartlett, who always welcomes visitors.

During a recent visit to the Kansas State Agricultural College we had the pleasure of examining the young Columbus 17th Hereford bull which was lately donated to that institution by Mr. F. Rockefeller, Belvidere, Kans. Although the bull labors under the somewhat lengthy name of Soldier Creek Columbus 4th 153179, he is a vigorous specimen of his race and will, we think, reflect credit on his great sire, the herd from which he came, the institution to which he has gone and the great State which he calls his home. It will be remembered that Columbus 17th, the sire of this calf, stood second in class at the great International at Chicago, and by rights was entitled to first and sweepstakes in the opinion of many good breeders and judges. We consider the college particularly fortunate in being able to secure a son of this great bull, especially as he comes as a donation. We regard him as a very promising calf and under the condition which will surround him at the college he will undoubtedly develop into a sire of renown. See advertisement of the Soldier Creek herd on page 310.

Among the many interesting sights that the visitor at the Agricultural College finds may be mentioned the steer-feeding experiments. Four sets of steers are used in an age test on the same feed. They vary in age from calves to 1-, 2-, and 3-year-olds. They are grades with Shorthorn blood predominating. They are fed a ration of Kafir-corn and corn for grain with alfalfa for roughness. The grains are ground together and mixed with the cut hay and fed under the careful inspection of the custodians. The conditions which surround them are similar to what might be found on the average Kansas farm. They have ample shed room with yard enough for plenty of exercise and are making excellent progress. This experiment will be completed in a few weeks and the results published in detail. In a pen adjoining those above mentioned will be found a bunch of ten 2-year-old grade steers which are being fed on the same grain ration, with alfalfa and ensilage for roughness, and whether it be from the use of ensilage or from other causes, this bunch seems to be laying on flesh more rapidly than the others and to be in a more thrifty condition. We make this statement on appearances only, as we did not consult the records, knowing that they would be much more valuable when complete.

The man who lives close to a graveyard has quiet neighbors. The business man who does not advertise will be a quiet neighbor.

DON'T FEED "WORMS" "BAD BLOOD" OR "RUN DOWN" STOCK but get

REX CONDITIONER

25c, 50c, 75c, and \$3.00 BAGS, GUARANTEED.

REX STOCK FOOD CO., - - - OMAHA, NEB.

For "wormy" or "out-of-condition" stock of all kinds, \$1.00 worth of Rex Conditioner will do more work than \$10.00 worth of any kind of Stock Food including our own. Endorsed by State Veterinarians. Insist on your dealers furnishing you "Rex" or write to us. We also make Rex Hog Remedy, Rex Stock Food, Rex Poultry Food and Rex Lice Killer.

REGISTERED BROOD SOW SALE


THIRD ANNUAL SALE OF G. B. SCOTT.

40-BRED-40

POLAND-CHINA SOWS

Carbondale...Kansas.

(DATE NEXT WEEK.)



Eight tried Sows, bred to Kansas Chief 23175; 32 Gilts, bred to Scott's Perfection. All carrying their own guarantee. Leading strains represented. Write for Catalogue. Sale under cover.

COL. W. Q. HYATT, AUCTIONEER.

Corn Culture and Breeding.

(Continued from page 289.)

fourths inches long, and of about equal circumference to the long ear, weighed seventeen ounces. When shelled, the long ear produced nine ounces of shelled corn, while the short ear yielded fifteen ounces of shelled corn. The deep-kernel type actually outweighed the long, shallow type, and there was a difference of six ounces of shelled corn in favor of the short ear. Applying this test to field conditions, providing there were two ears to the hill and an equal number of long and short ears, the improved, short-ear type would out-yield the unimproved thirty-nine bushels per acre.

STANDARDS FOR VARIETIES.

The length of ear will vary with locality—the shorter the season the longer the ear, and vice versa. In general, the ordinary type of corn should be between ten and eleven inches in length and 7.5 and 8 inches in circumference. There is no objection to a longer ear, providing it is proportional and will mature in the season in which it is grown. In fact, one of the objects of breeding is to develop size. With recognized varieties, the standards of length, circumference and per cents have been adopted, as follows:

Variety.	Length.	Circumference.	Per cent.
Boone County White..10	7.5	86	
Silver Mine.....9	7	90	
White Superior.....10	7	88	
Leaming.....10	7	88	
Rid's Yellow Dent.....10	7	88	
Golden Eagle.....10	7	90	
Riley's Favorite.....9	7	90	
General.....10-11	7½-8	88	

These standards will be changed in the process of development, but they tend to fix the characteristics at present. The roughness of kernel, color, etc., will vary with the variety. For the recognized varieties, the following characteristics for the variety have been adopted:

	Rid's Yellow Dent.	Golden Eagle	Riley's Favorite.	Leaming.	Boone County White.	Silver Mine.	White Superior.
Ear:							
Shape.....	Slowly tapering.	Slowly tapering.	Slowly tapering.	Tapering.	Cylindrical.	Cylindrical.	Slowly tapering.
Length.....	10 inches.	9 inches.	9 inches.	10 inches.	10 inches.	9 inches.	10 inches.
Circumference.....	7 inches.	7 inches.	7 inches.	7 inches.	7½ inches.	7 inches.	7 inch s.
Kernel:							
Condition.....	Firm upright.	Loose upright.	Firm upright.	Firm upright.	Firm upright.	Firm upright.	Firm upright.
Color.....	Light yellow.	Deep yellow.	Deep yellow.	Deep yellow.	Pearl white.	Cream white.	Starch white.
Indentation.....	Medium smooth.	Very rough.	Rough.	Rough.	Rough.	Very rough.	Medium rough.
Shape.....	Long wedge.	Broad wedge.	Medium wedge.	Medium wedge.	Medium wedge.	Broad wedge.	Very broad wedge.
Rows:							
Number.....	18-24.	16-20.	16-20.	16-24.	16-22.	16-20.	18-20.
Space.....	Narrow.	Medium.	Medium.	Medium.	Medium.	Narrow.	Medium.
Arrangement.....	Pairs.	Distinct.	Pairs.	Pairs.	Pairs.	Pairs.	Pairs.
Butt:							
Filling out.....	Deeply rounded, compressed.	Moderately rounded, compressed.	Moderately rounded, compressed.	Moderately rounded, compressed, expanded.	Moderately rounded, compressed.	Moderately rounded.	Shallow rounded depressed.
Tip:							
Filling out.....	Regular rows of kernels.	Regular rows of kernels.	Regular rows of kernels.	Irregular rows of kernels.	Regular rows of kernels.	Regular rows of kernels.	Regular rows of kernels.
Shank:							
Size.....	Small.	Small.	Small.	Medium.	Medium.	Small.	Medium.
Cob:							
Size.....	Medium.	Small.	Small.	Medium.	Medium.	Small.	Medium.
Color.....	Deep red.	Deep red.	Deep red.	Deep red.	White.	White.	White.
Per cent. of corn.....	88.	90.	90.	88.	86.	80.	88.

THE SCORE-CARD.

In studying seed-corn the score-card is a very useful helper, and the card adopted by the Illinois Corn-growers' Association is given here as a suggestion in studying the various points in an ear of corn according to their relative importance:

Name.	Perfect Score.
1. Uniformity.....	10
2. Shape of ears.....	5
3. Color of ears.....	10
4. Market condition.....	5
5. Tip of ears.....	10
6. Butts of ears.....	5
7. Uniformity of kernels.....	5
8. Shape of kernels.....	5
9. Space.....	10
10. Length.....	10
11. Circumference.....	5
12. Per cent corn.....	20
	100

UNIFORMITY. (See plates 4 and 5.)

In selecting seed-corn, the ears should be of uniform size, shape, color, and indentation. A uniform product is the result of good selection and breeding, so that it is very important that

the ears be uniform. The variety type should be strong. In Boone County White, the characteristics of this variety should be well developed. This is one of the most important points connected with the study of seed-corn. It is impossible at present to describe these points so that the student may become familiar with the variety type without actual study of the varieties.

SHAPE OF EARS. (Plates 6 and 7.)

The shape of the ear should be cylindrical. This cylindrical shape carried from the butt to the tip of the ear means an even, regular, deep kernel, resulting in a large per cent of corn to cob. In tapering ears, the kernels become irregular at the tip, some of the rows are lost, and the proportion of corn to cob becomes small. This type is undesirable for every purpose. The rows of kernels should run parallel with the cob, straight and regular. If some of the kernels are not filled out, the adjoining kernels swell out into irregular shapes in an effort to occupy all the space. In shelling the ears for seed, the irregular kernels on the butts and tips of the ears should be shelled off and discarded.

COLOR OF EARS.

If a yellow corn, the cob should be a deep red, and if a white corn, the cob should be pure white. In the present standard varieties, the color has not been given particular attention and is frequently not pure. This mixing of color indicates mixing of varieties, which is injurious to the development of improved varieties. Mixture between white and yellow varieties is indicated by a white cap in the yellow ears, and a yellowish cast to the flinty portion of the kernel in the white ear.

MARKET CONDITIONS. (Plate 8.)

The ear should be sound and firm; this indicates that the ear has fully matured and dried out in the season

mately the same season, so that the pollen produced by a variety will be sufficient to supply the entire ear on all of the stalks in the field.

BUTTS OF EARS. (Plate 9.)

The butt of the ear should be filled out about the shank, so that a medium-sized shank will be produced. It has been possible to make the kernels in the butt fill out to such an extent that the shank has been crowded so small that it will not support the ear on the stalk. On the other hand, a big, poorly filled-out butt is usually accompanied by a large, coarse shank, difficult to break in husking and with an unusual amount of husk in proportion to the size of the ear. In such ears fungous diseases, as dry-rot, frequently destroy the ear of corn.

UNIFORMITY OF KERNEL.

The kernels should be of the same shape, size, and color, and should be of the type of the variety. To study kernels, take out two of the kernels from about one-third the distance from the butt to the tip and lay them beside the ear for close examination.

SHAPE OF KERNEL. (Plate 10.)

The best shape of kernel is that of a wedge. This shape will permit of the largest number of rows of kernels on cob. This shape is the result of breeding, and makes possible ears having twenty to twenty-four rows of kernels and with a large per cent of corn. The kernel is the unit of the ear, and great attention should be paid to its development.

SPACE. (Plate 11.)

By space between rows is meant the furrow between the tops of the rows of kernels. It indicates a reversion to the original shallow-kernel type of corn, which is unprofitable to the present-day corn-grower. There should be no space, and with the improved types of kernels there is no space on the ears.

LENGTH. (Plate 12.)

The length will vary with the variety. In general, a good ear of corn is between ten and eleven inches in length. Measure the length from the extreme butt to tip.

CIRCUMFERENCE. (Plate 13.)

The circumference will vary with the variety. It should be measured at about one-third the distance from butt to tip of ear. In ordinary corn, seven and one-half to eight inches is the circumference proportionate to the ordinary length of ear.

PER CENT CORN. (Plate 14.)

The corn-grower produces the corn for the actual amount of shelled corn produced. With the rough, deep-kernel type, with a large number of rows of kernels on the ear, all available space being taken up with corn, the per cent is greatest; hence, such corn is the most profitable to grow. To find per cent, weigh the ear, shell the corn, and weigh the shelled corn. Divide the weight of the shelled corn by the total weight of ear, and the result will be the per cent of shelled corn. This per cent will vary with the variety, but in general it is about 88 per cent. A large enough cob to support the rows of corn is needed, and this per cent of corn represents about the proportion which will give the best results.

SELECTION FOR QUALITY. (Plate 15.)

The composition of the corn kernel is of great importance to the feeders, stockmen, and glucose factories. If the per cent of protein can be increased by breeding, the corn becomes more valuable feed for live stock. It is brought nearer a balanced ration, in other words, and is of great importance to stockmen. The composition of the kernel can be varied by breeding through selection of seed, as proved by experiments of the Illinois Station since 1896. The variation in the crop is shown by the following table, quoted from the work of the station. The table further shows that the proportion of oil may be increased at the will of the breeder. This will be of tremendous importance to the glucose factories, where the corn oil is extracted on a commercial scale. The following is the table:

	Protein in seed.	Protein in crop.	Oil in seed.	Oil in crop.
1896.....	12.54	10.92	5.33	4.70
1897.....	12.49	11.10	5.20	4.73
1898.....	13.06	11.05	6.15	5.15
1899.....	13.74	11.46	6.30	5.64
1900.....	14.77	12.32	6.77	6.12

The analysis of corn, showing average composition, is as follows:

Ash.....	1.43
Fiber.....	2.66
Oil.....	4.70
Protein.....	10.92
Carbohydrates.....	80.35

the cob projects beyond the kernels of corn. Poorly filled-out ears indicate a small proportion of corn to cob and poor selection. By selecting well-filled-out ears, the maturity of the different parts of the ear is brought to approxi-

WAIT FOR THE WATKINS WAGON



It means money saved and health preserved. Our special agent will call on you, direct from our \$500,000 medical laboratory, with

WATKINS'

Vegetable Anodyne Liniment

and 51 other standard household preparations, all guaranteed. You may try them before you buy them. Thousands of families use them.

Looked Like A Corpse.

Sheldon, Iowa, April 4, 1902. Last harvest, while shocking grain, the weather being very warm, I was taken with cholera morbus so bad I thought I would die; my wife said I looked like a corpse. I went to the house and took some of Watkins' Vegetable Anodyne Liniment, two or three doses, and before night I was able to go to work again. I wouldn't be without the liniment in my house if it cost \$5.00 a bottle. JOHN HEITZMAN.



Send to-day for free copy of Watkins' Home Doctor and Cook Book. (100 pages illustrated.)

THE J. R. WATKINS MEDICAL COMPANY,
28 Liberty Street, Winona, Minn.
We have a good proposition for live young men who are not afraid of work. Write for territory.

The composition of the kernel may be determined in part by simple mechanical examination. The proportion of hard flinty part of kernel to soft starch at the top of kernel indicates per cent of protein and starch. The size of the germ indicates the approximate proportion of oil. In selecting seed, it is a good plan to select ears having hard, flinty kernels, with good-sized chit. These breeding experiments have proved that the amounts of protein, oil, and starch may be varied by the corn-breeder, both to increase or decrease any one of these elements of composition. The development of milk in the dairy breeds or the per cent of sugar in the sugar-beet indicates what may be accomplished in corn-selection.

CULTURE.

The third important feature in the production of a corn crop is the culture; that is, the preparation of seed-bed, kind of planting, and cultivation. The preparation of the seed-bed should be of such a nature as to furnish the requirements for germination of the seed-corn, moisture, warmth, and air. The depth and time of plowing, the floating, disking, and harrowing of the seed-bed, must vary with the soil and climate. However, the general principles of a thorough fitting of the soil, destroying the weeds before the corn is floated, and the securing of a mulch to prevent the escape of soil-moisture, are the foundations of successful corn-culture.

DISTANCE APART OF HILLS.

In planting corn, the distance apart of the rows and the hills in the row is important. The general tendency is to bring the hills closer together and plant fewer kernels in the hill. Ten years ago, the ordinary width planter was at least 3 feet 10 inches, and varied to as wide as 4 feet 4 inches. To-day the most popular width planter is 3 feet 6 inches, varying to as narrow as 3 feet 2 inches. To show the reason for this bringing together of the rows, a 3-foot-8-inch planter will plant 3,240 hills in an acre. A 3-foot-6-inch planter, just two inches closed together, will plant 3,556 hills per acre, a gain of 316 hills. If these hills contain two well-developed ears, this would mean a gain of about nine bushels per acre.

NUMBER OF STALKS IN HILL.

With improved seed and planters, it is not necessary to plant a large number of kernels in the hill. The latest improved planters are so arranged that, if set to drop two kernels in a hill, about 90 per cent of the hills will be found to contain two kernels. With improved seed-corn, at least 97 per cent of the kernels will produce stalks, so that, if two kernels are put in a hill, we are certain of securing two stalks. As the seed-corn becomes more and more improved, we can depend on every stalk producing an ear. When this condition is secured, two stalks in the hill will produce as large yield per acre as the soil can yield in a season; so that the evolution of the number of stalks per hill is toward less stalks to the hill, an average of about two stalks per hill giving best results.

HILLING VS. DRILLING.

In a new country, the usual practice is to drill corn. With few of the nox-

ious weeds, with abundant soil-fertility, the farmer was able to put in more stalks in an acre than would be possible in hilled corn, and the results were generally satisfactory. However, as the most destructive and harmful of weeds spread over the corn belt, it was found to be difficult to get rid of them in drilled corn. As the excessive fertility was drained out of the soil by continual cropping, the large number of stalks became detrimental; so that the tendency is away from drilling back to the old plan of planting in hills. Many farmers contend that by stringing out the kernels in the row of drilled corn the stalk will produce better ears than in the hills. With the idea of trying to ascertain the facts, the Illinois Station carried on a series of experiments for several years. The experiment was so arranged that an equal amount of ground was given to drilled corn and hilled corn. The same number of stalks in the hill were strung out in the row of drilled corn. The corn was all thinned after planting, so that we secured an equal number of stalks in the drilled field as in the hilled field. The fields were kept free from weeds, and the same cultivation given in both cases. The experiment was repeated with different soils, varieties of corn, and seasons. As a result, we found, in figuring up the average yields, there was less than a bushel difference in the yields of the drilled and hilled fields. Further experiments are in progress along this line, which will add to the interest of the experiment. But it is safe to say that there is little difference in yields in the two practices, and that one system has little advantage over the other, up to four stalks in the hill. With improved seed, it is not necessary to plant this number of kernels in the hill. In view of the great advantage of hilled corn during cultivation, the evidence is largely in favor of the practice of hilling.

The depth of planting is another question which varies with the soil condition. Corn can be planter deeper in a sandy soil, which drains out readily in the spring and warms up quickly, than in the heavier clay soil. The corn should be planted deep enough to secure sufficient moisture for the best germination, but not so deep that it will be placed in a cold, wet soil, where the kernel is liable to rot and decay, and, in any event, to cause protracted germination, which is injurious to the plant. No matter what depth the seed is planted, the roots branch out at about a constant distance from the surface. In ordinary prairie loam this distance is between two and three inches. If the kernel is set down lower than this point it sends out a root system, which develops a tube-like structure, reaching to within two or three inches of the surface. At this point the real root system branches out, the stem of the plant is sent to the air, and the first root system decays and is lost. Such a condition must result disastrously to the young plants, and reduce the yield of the crop.

CULTIVATION OF CORN.

The cultivation of the corn crop must depend upon the condition of seasons, soil, and the amount of weeds in the field. The cultivation of the crop is for the purpose of destroying weeds, conserving soil-moisture, and aerating the soil. The weediness of the field will depend upon the work done on the seed-bed. If the seed-bed has been properly handled preparatory to planting, most of the weeds will have been destroyed, so that the principal object of cultivation is that of conserving the soil-moisture.

AMOUNT OF MOISTURE PER GROWTH OF CORN CROP.

At the Wisconsin Experiment Station, it has been found that it requires about 310 pounds of water to produce a single pound of dry matter. By figuring up the amount of dry matter in an eighty-acre field of corn, and multiplying by 310, the pounds of water required to produce the crop will be secured. The result is astonishing.

It does not seem possible that such an enormous quantity of moisture can be secured by the corn plants during the growing season; and more important than all, this moisture in most part is used during June, July, and August, the months of least rainfall in the year; so it can easily be seen that the conservation of the moisture in the soil is a most important problem, and one which must be investigated by the corn-grower.

CONSERVATION OF SOIL-MOISTURE.

The Illinois Station conducted exhaustive tests of the comparative

amount of moisture consumed by the different methods of cultivation. Two things were found to be true: First, that deep cultivation conserves soil-moisture; and, second, that frequent cultivation conserves the moisture most effectively of all kinds of plans for cultivation. It was found that in the deep cultivation, despite the excess of moisture, the yield was very low, compared with shallow culture. To find the cause of this, an extensive series of experiments with the pruning or cutting off the roots of corn plant were conducted.

EFFECT OF ROOT-PRUNING. (Plate 16.)

In this root-pruning experiment a field of corn was selected, and one row was root-pruned two inches deep. This root-pruning was done with a broad, sharp spade. The spade was set down about six inches from the stalk of corn in the hill on every side of the hill. The spade was pushed down into the soil, and a guard allowed it to penetrate just to the depth planned for the experiment. The whole field was cultivated with a weeder, and all weeds not removed in this way were cut out by hand. This was done so that the rows of corn would receive equal cultivation and be under like conditions. The pruning was done three times in the season, at about the ordinary times of cultivation. The second row was not pruned, and the third row was pruned four inches deep. The fourth row was not pruned, and the fifth row was pruned six inches deep. This was repeated until a large field was treated in this manner.

The resulting yields were as follows, for three seasons:

	*Bus. per acre.
Not pruned.....	62
Pruned two inches deep.....	60
Pruned four inches deep.....	45
Pruned six inches deep.....	30

In fact, these and all other similar experiments simply prove that any injury to the roots of the plant reduces the yield. The amount of this reduction was about in proportion to the number of roots cut off. These experiments explain the reduction of the yield by deep cultivation.

FREQUENT CULTIVATION.

The best results of experiments and from practical experience are to the effect that continued cultivation, keeping a loose mulch on the surface of the soil, gives the best results. The general practice coming into vogue among the most progressive and successful corn-growers is, after the corn reaches a height to interfere in cultivating with the ordinary two-horse cultivator, to use a single horse with a five-tooth harrow or drag, and cultivate between the rows or corn during the setting of the ears on the stalks. The yields per acre of 100 bushels have been secured by this plan, and experience has proven it to be a practical and successful plan on a large scale. Of course, if there is plenty of rainfall, such precaution is not necessary.

METHODS OF CULTIVATION.

A test of a few of the different methods of cultivation in use at present resulted as follows:

	Bus. per acre.
Weeds allowed to grow.....	53
Weeds cut out with hoe, and a loose mulch made with hoe, "frequent cultivation".....	96
Two-inches-deep cultivation, small shovels.....	90
Four-inches-deep cultivation, small shovels.....	91
Six-inches-deep cultivation, small shovels.....	84
Six-inches-deep cultivation, large shovels.....	87
Golpher or blade cultivation.....	88
Deep early and shallow late.....	85
Shallow early and deep late.....	89
Mulch with grass.....	82

The weeds must be kept out at any cost, and if they have not been removed before the crop appears they must be destroyed. The kind of cultivation will depend upon the local conditions, but the implement that stirs the soil and leaves a loose mulch, destroys the weeds and avoids root-pruning will give the best results under all circumstances.

DISCUSSION.

A Delegate: What shall we do for seed-corn this year?

J. W. Robison: I hardly know how to answer that. I have made up my mind since coming to this meeting what I will do—and that is to send back to Illinois and get a portion of the corn that was exhibited to us here to-day by Professor Shamel. Three of that association membership who are raising that corn, and have been for several years, are old Illinois acquaintances of mine—men whom I know to be perfectly reliable. They are not the kind of men who will send out anything that is not what they claim for it. They go to the pains of producing it that have been explained to you

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here. Ten dollars a bushel is the price asked for the first quality. That is the quality where they grew an acre of it, and watched every stalk of it, and perfected it, and prevented it from being fertilized from any outside corn. That is just a little too steep for seed to plant a thousand acres of Kansas land; but they grow another kind of corn that is probably good enough for us, and that is on the outside plots that haven't had quite so much care, yet it is the product of that seed that is grown in those little plots—the surplus after they have taken out what they want to experiment with in the little plot by itself. That corn they offer at \$2 a bushel. Seed-corn in Kansas to-day, in my part of the State, can not be taken out of our corn and selected and shelled properly for much less money than \$2 a bushel. I made a contract the other day, with one of my men farming there, to take enough corn to replant the same farm at \$1.25 a bushel; but I think I shall cancel that and take the Illinois corn at \$2. These varieties of corn shown here by Professor Shamel will surely make up for the difference in price between the corn we can go to our own farms and gather and what we may reasonably expect from their seed. We grow corn here, but there have been no pains taken in any part of its lifetime in eradicating the barren tassels from the field. We admit that like produces like, and as we were told to-day, so very ably and so clearly, how much improvement has been made in five years, what may we expect when we have twenty-five years' experience? What would the man do who started in to raise the finer breeds of sheep, hogs, cattle, or horses, in five years? He would just begin to get a start—just begin to know what he wanted to accomplish. The same thing, in my belief, will be accomplished in corn. My answer to that question is, so far as I am personally concerned, that I am going to get my seed-corn from the Illinois Experiment Station.

Andrew Shearer: Isn't it a little too far to bring seed-corn from Illinois to Kansas?

J. W. Robison: I don't think it will be hurt in the travel at all.

Andrew Shearer: That is not what I mean. Isn't the change in climate rather too sudden?

J. W. Robison: The change of climate is sudden. The change of climate for the Percheron horse, the Southdown sheep, and the Shorthorn and Hereford was sudden—transporting them here, but they had to take the chances on that temporary drawback for what might be accomplished in the future. I think this same proposition will apply to the seed-corn from Illinois.

Andrew Shearer: Do you think it would be better for us in northeastern Kansas to send to Illinois than to Iowa?

J. W. Robison: I don't think it material, so long as you get the right kind of corn.

State of Ohio, City of Toledo, Lucas County, ss.

Frank J. Cheney makes oath that he is the senior partner of the firm of F. J. Cheney & Co., doing business in the city of Toledo, county and State aforesaid, and that said firm will pay the sum of ONE HUNDRED DOLLARS for each and every case of catarrh that can not be cured by the use of Hall's Catarrh Cure.

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TOWSER SHAN'T BE TIED TO-NIGHT.

Slow the Kansas sun was setting
O'er the wheat fields far away,
Streaking all the air with cobwebs,
At the close of one hot day,
And its last rays kissed the foreheads
Of a man and maiden fair.
He with whiskers short and frowzy,
She with red and glist'ning hair,
He with shut jaw stern and silent,
She with lips all cold and white,
Struggled to keep back the murmur,
"Towser must be tied to-night."

"Papa," slowly spoke the maiden,
"I am almost seventeen,
And I've got a real lover,
Though he's rather young and green.
But he has a horse and buggy,
And a cow and thirty hens,
Boys that start out poor, dear papa,
Make the best of honest men.
But if Towser sees and bites him,
Fills his heart with sudden fright,
He will never come again, pa;
Towser must be tied to-night."

"Daughter," firmly spoke the farmer,
Every word pierced her young heart
Like a carving knife through chicken
As it hunts a tender part.
"I've a patch of early melons,
Two of them are ripe to-day,
Towser must be loose to watch them,
Or they'll all be stole away,
I have hoed them late and early,
In dim morn and evening light,
Now they are grown I must not lose them,
Towser'll not be tied to-night."

Then the old man ambled forward,
Opened wide the kennel door,
Towser bounded forth to meet him,
As he oft had done before,
And the farmer stooped and loosed him
From the dog-chain short and stout,
To himself he softly chuckled,
"Bessie's feller must look out."
But the maiden at the window
Saw the cruel teeth show white,
In an undertone she murmured,
"Towser must be tied to-night."

Then the maiden's brow grew thoughtful,
And her breath came short and thick,
Till she spied the family clothes line,
And she whispered, "That's the trick."
From the kitchen door she glided
With a plate of meat and bread,
Towser wagged his tail in greeting,
Knowing well he would be fed.
In his well-worn leathern collar
Tied she then the clothes line tight,
All the time her white lips saying,
"Towser must be tied to-night."

"There, old doggie," spoke the maiden,
"You can watch the melon-patch,
But the front gate's free and open,
When John Henry lifts the latch,
For the clothes line tight is fastened
To the harvest apple-tree.
You can run and watch the melons,
But the front gate you can't see."
Then her glad ears hear a buggy,
And her eyes grow big and bright,
While her young heart says in gladness,
"Towser, dog, is tied to-night."

Up the path the young man saunters,
With his eye and cheek a-glow,
For he loves the red-haired maiden,
And he aims to tell her so.
Bessie's roughish little brothers,
In a fit of boyish glee,
Had untied the slender clothes-line
From the harvest apple-tree.
Then old Towser hears the footsteps,
Raised his bristles fixed for fight,
"Bark away," the maiden whispers,
"Towser, you are tied to-night."

Then old Towser bounded forward,
Passed the open kitchen door,
Bessie screamed and quickly followed,
But John Henry's gone before,
Down the path he speeds most swiftly,
For old Towser sets the pace,
And the maiden close behind them
Shows them she is in the race.
Then the clothes line—can she get it?
And her eyes grow big and bright,
And she springs and grasps it firmly,
"Towser shall be tied to-night."

Oftentimes a little minute
Forms the destiny of men,
You can change the fate of nations
By the stroke of one small pen.
Towser made one last long effort,
Caught John Henry by his pants,
But John Henry kept on running,
For he thought that his last chance,
But the maiden held on firmly,
And the rope was drawn up tight,
But old Towser kept the garments,
For he was not tied to-night.

Then the father hears the racket,
With long stride he soon is there,
Where John Henry and the maiden
Crouching for the worst prepare.
At his feet John tells his story,
Shows his clothing soiled and torn,
And his face so sad and pleading,
Yet so white and scared and worn,
Touched the old man's heart with pity,
Filled his eyes with misty light,
"Take her, boy, and make her happy,
Towser shall be tied to-night."
—Duroc Bill.

How the Small Boy Hired the Help.

CLYDE C. ADAMS.

[The following story, we understand, is written by one who is himself not far beyond the age of small boyhood.—EDITOR.]

The small boy came into the kitchen carrying an armful of stovewood and looking very anxious. The boy's father was sick; and that meant, at this time of year, that the wheat needed cutting and had no one to cut it. The fact that the neighbors had already been cutting wheat for two days only seemed to make it all the more urgent for the Haimeses to do something. It was this that was worrying the boy—not so much that the wheat needed

cutting, as that possibly the mother would refuse her consent to a plan of his for saving it. Being a very small boy, he was not sure that his mother would listen to his advice.

"Ma," said he, depositing his load into the woodbox, "Ma, I'd better go to town, hadn't I, and hire some help?" His mother turned from over the hot range, and faced him eagerly.

"If you could?" she questioned, and a deep, anxious look came into her eyes. "But it is sixteen miles to town, and you have never been there alone before—what do you think, Walter?"

"I think I can go right away, ma," said the little boy, glancing up at his mother quickly. "You know I know how to drive—an' I've been to town some with pa. I can go out and hitch up right now, ma,—an'—an' you can put up my dinner for me!"

There was something in the boy's sturdy way of saying this—something in the manly appeal of his eyes—that brought tears to the eyes of his mother. She stooped down and kissed his little flushed face.

"I am so proud of my little boy!" she exclaimed. "But do you really think you can do it, Walter? I hate to send you off on such a long errand—and then—"

"But, ma," interrupted the little boy. "Yet, I think I'll let you do it! Yes, Walter, I think I'll let you go. Your pa is too sick to advise us any, and the neighbors are all too busy to help us out. If you will be careful, and not get lost, and will be a good little boy!"

She stooped down and kissed him once more; and then the boy, taking this for more than a consent, turned gladly and hurried out to the stables.

Mrs. Haimeses knew that she was sending her little son upon a very uncertain errand. There is the greatest difficulty in the world for farmers in obtaining what help they need; and even a grown person must sometimes put in a week in town before he can find his men.

Even after hiring his men he is not sure of them. Because, for some unaccountable reason, hordes of tramps flock to these wheat districts, hire themselves out to the farmers, and then refuse to work. The farmer must be able to tell the honest workers from the tramps; for, to take one of these fellows home with him, give the rascal two or three meals, and then wake up some morning to find him gone is no pleasantry—to say the least.

At this time of the season—and being two days late makes a big difference out in that country—it was quite likely all the good "hands" had been "taken up." The man who would hire his help now, ran a great risk of getting mere "riffraff," a fellow whom no one else would have.

An older person might have felt some anxiety, but not so the boy. His anxiety had been lest his mother should refuse her consent. That given, the pliant soul of the 10-year-old boy was soon vibrating with hope. He looked about him as he was hurrying out to the stables, and thought of what a very happy home he had. His father owned 160 acres of the finest grain-producing land in the State; and besides that, a fine growth of young corn was coming on down in the bottoms; truly his father was a thrifty man. The small boy, after the vague manner of all small boys, thought of these things, and was proud of his father, and determined to save that wheat.

The Haimeses ranch supported quite a number of horses and cattle. Among the horses, the old grays were the favorites with mother and son. The grays were two large, gentle work-horses whom neither man, woman, nor child need fear. Besides, they knew the small boy for master; his control over them was perfect, and so far as they were concerned, a drive over a long, smooth road to town was neither perilous nor uncertain for the boy.

"Walter," called Mrs. Haimeses from the back porch.

"Yes, ma, I'm 'most ready," he answered, "have you my dinner ready?"

"Yes," Mrs. Haimeses stood watching the boy make the back and turn, to assure herself, mother-like, that he could really drive. Then the small boy and the big, proud team clattered up to the back porch.

"Ma," said Walter, as he reached down after the package. "Ma, pa forgot to get the bindin' twine, last time he was down town—hadn't I better get some?"

"Why, yes. I had forgotten that. Go to Higginses hardware on the corner. And Walter, you ask Mr. Higgins to get the help for you. Two hands to do the shockin', and a man to run the binder. Don't offer the shockers more'n a dollar and a half, Walter."

"Yes, ma. Get up. Good bye."

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The road to town was smooth and rolling. It was one of those ideal roads of which we of Kansas boast. It was not fenced in. On both sides the wheat-fields extended out. In almost every field the harvesters were at work. There was no fence between one field and another, and only just a little interval where no wheat grew, then, beyond, another yellow patch indicating the next field. It was a beautiful sight, and the small boy let the lines hang loose while the horses trotted quietly along.

A soft breeze was fanning the prairie and waving the wheat in long, golden-crested billows. The boy drew in many a deep, full breath, and felt in and around him that joy and strength which comes with each new summer.

Often the harvesters would have been at work close up to the road, and then the wheat in the shocks formed long rows back and forth and up and down. Walter looked enviously at those fair fields, and imagined in his heart that his father's were so arranged.

After the wheat has been put up in the shock, it is gathered and hauled to a particular spot in the field and stacked; then the great engine of the prairies comes puffing up, and the wheat is thrashed. This last is usually done under contract; the farmer is practically through working when once his wheat is in the stack. He simply stands by to see that it is thrashed rightly, or he sometimes sells the wheat as it is, and when this is done, he absolutely ignores all responsibility. He is a very independent man—is this prairie farmer; and it is something of this spirit of independence that is making itself felt to-day in our history. With such independence, the 10-year-old boy was now undertaking a man's duty, nor thought it more than play.

Somewhat late in the afternoon, he reached the town. It was one of the typical wheat-towns: A railroad, two flourishing mills, and various kinds of stores and trade-shops. The enterprising citizens of the town claimed for it a very large population, but in wheat time this population was increased two-thirds. To the small boy the town always appeared a most wonderfully large and busy place.

He drove into town from around behind the station, and hence up the main street to the Higgins' hardware store. Mr. Higgins always found time to come out and meet whoever drove up in front of his store, and he now came out onto the sidewalk.

"Why, hello boy! Did you come in alone? How's your pa? Reckon your ma didn't come in too?"

"No," said Walter, climbing down, "pa's sick, an' ma, she stayed to home, too!"

He went around and tied the team. "So your pa's sick, is he? Well, that's bad! Did you come in for the twine?"

"Yes, sir," said the small boy, tripping along beside the merchant into the store, "an' I've come for help, too."

"What! Haven't you begun harvestin' yet? Well, of course not, seein' you haven't had the twine. What help do you need?"

The merchant looked kindly down at the boy.

"We want a man to run our binder, and two to do the shockin'. Has everybody got all the hands?"

"Oh, no," laughed Mr. Higgins, "everybody hasn't got all the hands because all the hands haven't shown up yet. Good work hands are pretty scarce in this part of the country. But you see that man over there—that tall fellow over by the postoffice window?

He wants work on a binder. Go tell him to come here."

Now, after all, Walter was only a little out-of-town boy. He was even freckle-faced. And when a freckle-faced farm-boy comes to town, he is apt to be bashful before strangers.

Walter stepped shyly back into the store, and up to the postoffice department. The tall man was talking to a group of other men. The tall man was a very pleasant man to look upon—he had ripples of smiles all over his face. The little boy just stood and looked up into the tall man's face. Presently the man became conscious of two brown, wondering eyes peering into his. He stooped and picked the little boy up.

"Who's small boy are you?" he asked, laughingly, chucking Walter under the chin.

"I'm Mr. Haimeses boy." "My pa's sick," he continued, "an' I've come for help."

The tall man looked startled.

"For help! The doctor?"

"No," said the boy, soberly, "a man to run the binder."

The tall man laughed long and loud.

"Oho!" Well, I guess you've found him. I've been hunting a binder for over a week—every farmer runs his own binder, seems like."

"Worse luck to them," interrupted a little, red-faced man in the group, "they always choose the snap article." "Come on, lad," said the tall man, moving away with the boy on his shoulders, "I'll go home with you."

As they passed through the front of the store, Mr. Higgins saw them and came around from behind the counter.

"So you got him, did you?" he said kindly to Walter. "Jim, I hope you will kind of take the lead out there. The old man is sick. Just see that the hands don't shirk any—and—"

"Sure," answered the tall man, addressed as "Jim."

"Now, the boy wants two shockers," continued Higgins, "wonder where he can get them? Let's see. How much will your pa pay for good shockers this year?"

"Dollar and a half," replied the boy. The merchant shook his head dubiously.

"Fraid not," he muttered, "About all the good hands—Oh! there's Andy; here Andy, come here! Huntin' work? Dollar and a half? You will? Well, that's what I call luck—Haimeseses kind of luck. Yes, Haimeses is wanting a shocker—this is his boy. You can go right out with him and Jim here."

"But ain't Jim going to take the binder? I don't want to shock alone," objected Andy.

"No, we'll get another shocker."

Just then, the little, red-faced man pushed his way through the crowd in the store. His eyes were flashing; he appeared to be angry.

"No one will hire me!" he roared. "No one will hire me! And here I've come all the way from back East. Just because I'm dead broke, and slept in the box—"

"You are certainly highly recommending yourself," interrupted Higgins coldly.

The man was about to reply with another tirade, when the small boy spoke up. The man's words and actions, while frightening him, had also awakened his pity. He hid his face on the tall man's shoulder, and spoke in a muffled voice.

"I'll hire you," he said.

"Sh! whispered the tall man, but the other had heard.

"What's? What's?" he roared. "Who says they will hire me? It's a pretty time of day, when a baby can sass a man of my age—it's—"

"Oh, ring off!" exclaimed Higgins,

disgustedly, "the lad means what he says, all right. And if you will work it's all we can ask of you. If you want the job of shocking, say so."

"We-ell, ye-es," said the tramp, doubtfully. "If the little skeezics means it, all right!"

After closing a bargain of this kind, the farmer is expected to set his newly-gotten help up to a meal at the restaurant. I half suspect that this is an institution built up by the tramps—or which at least very much accommodates them. At any rate, the farmer who doesn't do this preliminary act of democratic fellowship is thought to be a very strange, if not stingy fellow, in deed.

Mr. Higgins now went back into the store after the twine and when he returned,

"Men," said he, "what do you say to a dinner? It's 'way after noon now?"

The tramp visibly brightened; the other two men merely nodded in a dignified manner.

"All right. Halmes is my friend, and I guess I ought to set you up—see-in' he's not here. You go down to Jakey's," he continued, addressing Jim, "and order what you want—tell him I sent you."

Walter was delightfully surprised; he was hungry, and had been wondering where he could hide to eat his lunch. He squirmed down from his tall friend's shoulder and took the large, rough hand. Then they four set off to Jakey's restaurant.

At Jakey's they were served with chicken and vegetables, milk and coffee, bread and butter, and syrup! After that—which the small boy took in at one grand supervisory glance—the dishes kept coming on so plentifully that he quit trying to keep track, and only ate! Yet he acted very becomingly for a small boy. He sat prim and gentlemanly between Jim and Andy, and the men were proud of him. I think the tall man rather wished to circulate the impression that the boy was his. "No, sir," said Walter; and, "Yes, sir, if you please;" and, "Will you please pass me the pie now."

Everybody laughed when he said that. He wondered why. He had never heard that stale joke about the small boy and the pie. The joke is, that the boy ate too much pie and was sick—so every little boy who asks for more pie when company is around gets laughed at. When the tall man had finished his meal, he excused himself, and told Andy to look after the boy. "I have to do some tradin'," he said. "I'll meet you at the wagon about three or half past."

Presently Andy took Walter from the table and they hurried away from the little red-faced man. They left him still eating enormously. Perhaps Andy hoped to drop him in this way. Andy took Walter around the square. He took him to watch the fish swimming in the fountain, and to hear a man auctioneering horses. Then they went over back of town to a merry-go-round. In this way Andy taught Walter to become very well acquainted with him, and also with the town. To the small boy it seemed a regular show day. When they got back to the wagon in front of Higgins hardware, it was just four o'clock. Sure enough there was the tall man, and in the wagon sitting on the sack of binding twine was the little red-faced man. Andy was not displeased to find the little red-faced man there. "I guess he means business after all," said Andy in a relieved tone of voice.

It was not long now until they got started. Walter sat on the tall man's lap and insisted on driving. Andy sat beside them on the high seat. Walter was very tired and didn't talk very much—he was "just thinking" he said when they asked him. Now as they drove along homewards, the evening became very far advanced. The sun sank low and hung in the southwest heavens. The workers in the wayside fields could be seen doubling their efforts to wind up the day's work in good shape, and the qualls to the right and left began their early evening songs. Under the spirit of the beautiful evening, Andy and Jim and the other each began to hum songs in soft, low tones. It was the golden hour before the sunset, the hour of unconscious prayer, and of joy for good work well done. But in the midst of it all the small boy fell asleep. He gave a little twist, and let the lines slip out of his hands.

Jim said "Hi!" and caught him before he could tumble out.

Andy smiled and caught the lines before they could tumble out. Then the sun went down. In this way, letting the horses lead, they reached the Halmes ranch long after nightfall. Mrs. Halmes was worried. She met them at the front gate. The moon,

just rising, shone across the road in front of her, and a rabbit hopped quietly over the drive. A peace seemed to hover over the place, and made the word "home" seem real to the home-comers. Mrs. Halmes opened wide the gate.

"Where's my little boy?" she asked. Just then she saw him asleep.

"Hand him out easy, there, he's sound asleep! Can you put up the horses, please? Just turn them into the horse-lot, and throw the harness into the wagon—then come in to supper."

Walter was sound asleep, but before the men had come in he slightly woke up. "Why!" he droned, looking sleepily up at his mother.

"Are you awake?" she smiled—moving around the kitchen busily. "Did you get very tired? Did you like the dinner I put up for you?"

At the mention of dinner, Walter became very much awake.

"Dinner?" he repeated. "I guess!" And then he laughed a little gleeful, happy, and contented laugh.

For the Little Ones

THE CHIPMUNK.

I know an old couple that lived in a wood, Chipperee, chipperee, chip! And up in a tree-top their dwelling it stood, Chipperee, chipperee, chip! The summer it came, and the summer it went, Chipperee, chipperee, chip! And there they lived on, and they never paid rent, Chipperee, chipperee, chip!

Their parlor was lined with the softest of wool, Chipperee, chipperee, chip! Their kitchen was warm and their pantry was full, Chipperee, chipperee, chip! And their four little babies peeped out at the sky, Chipperee, chipperee, chip! You never saw darlings so pretty and shy, Chipperee, chipperee, chip!

Now winter came on with its frost and its snow, Chipperee, chip! They cared not a bit when they heard the wind blow, Chipperee, chip! For wrapped in their furs, they all lie down to sleep, Chip!

But oh, in the spring, how their bright eyes will peep, Chipperee, chipperee, chip!

How It All Happened.

Tommy had a cold. It was just a wee bit of a cold, not enough to count, brother Fred said; but then Fred didn't know anything about it, of course.

"An' I can't bring in the kindling-wood or feed the chickens or go to school!" announced Tommy, jubilantly, and then he coughed, such a funny, made-up cough that brother Fred laughed "Ho! ho!" and sister Kate laughed "He! he!" and mama Stone said, "Deary me! You're not a bit like George Washington, are you?"

Tommy didn't know what it was all about, and he said so, and then mama laughed, a bright, cheery laugh. "Do you know who George Washington was?" she said.

Tommy stood very straight and tall. He put back his shoulders and let his arms hang down by his sides. He looked just exactly as he did when he stood at the head of his class at school. "George Washington was a great general," he said, quickly, "an' he was a soldier, an' a President of the United States, an' he was the Father of his Country," 'sides lots of other things!"

"Good!" said mama. "And George Washington was never too sick to do his duty, and that is one reason why he was a great general and a good soldier."

Tommy sniffed. "I guess George Washington never had a cold like mine," he exclaimed.

"Ho! ho!" laughed brother Fred. "He! he!" laughed sister Kate again.

"Never had a cold?" said mama. "Ounce upon a time he had a fever, and he had to stay in his bed for days and days, but the minute he was able to get up and go out again, back to his soldiers he went! Are you able to go out, Tommy, or must I put you to bed?"

Tommy looked solemn. "I don't want to go to bed," he said decidedly.

"Then," said mama, "a whole army of woodsticks wants to see you, and some feathery soldiers want their breakfast, and a whole schoolroom of boys and girls will expect you to lead the march. If you wish you can play you are George Washington instead of Tommy Stone, only one thing you must remember if you play that play, that you are never too sick to do your duty!"

And that is how it all happened that Tommy fed the hens and filled the

wood-box, and when he went to school he had a new George Washington story to tell; and it was such a good story that the teacher put a star on his slate, which means that it was a very good story, indeed.

When Tommy came home at noon his cough was gone and he had forgotten all about his cold, which all goes to prove that brother Fred was right. It was not enough to count.—F. Margaret Bremner, in Youth's Companion.

Puzzle Corner

Riddles.

- 1. Barnum had in his museum 10 horses that had only 24 feet in all, and yet traveled as well as other horses; how was it possible?
2. What country ought to be the richest in the world?
3. Why would a man never starve in the desert of Sahara?

Acrostic.

- 4. (1) A small pet animal.
(2) A part of speech.
(3) That, a touch of which makes all the world akin.
(4) That which distinguishes man from the beast.
(5) What happens to a man if he breaks the law.
(6) That in which the cup sits.
The first letters of the words described form the name of the greatest State in the Union.

Homonyms.

- 5. Her cheeks grew * * * as she * * * the letter.
6. The butterfly * * * from her resting place on the * * *, and floated off to where the ferryman * * * twice a day.
7. I watched His Majesty, the * * *, march proudly off, * * *ing his prey in his teeth, and grumbling now and then as he followed the track made by some child's * * * feet.

Answers to Last Week's.

- 1. Clover, lover, over.
2. Invest.
3. Misunderstand.
4. P L E A S E
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E N T R E E
A E R I A L
S L E A V E
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The Home Circle.

Conducted by Ruth Cowgill.

A MARCH GLEE.

I hear the wild geese honking
From out the misty night,—
A sound of moving armies
On-sweeping in their might;
The river ice is drifting
Beneath their northward flight.

I hear the blubird plaintive
From out the morning sky,
Or see his wings a-twinkle
That with the azure vie;
No other bird more welcome,
No more prophetic cry.

I hear the sparrow's ditty
A-near my study door,—
A simple song of gladness
That winter days are o'er;
My heart is singing with him,
I love him more and more.

I hear the starling fluting
His liquid "o-ka-lee;"
I hear the downy drumming
His vernal reville;
And from out the maple orchard
The nuthatch calls to me.

Oh, Spring is surely coming,
Her courtiers fill the air;
Each morn are new arrivals,
Each night her ways prepare;
I scent her fragrant garments,
Her foot is on the stair.
—John Burroughs.

Miss Ellen Stone's Story.

A year ago the whole world was in commotion over the bold kidnapping of Miss Ellen Stone, a missionary in Bulgaria. To-day the mention of her arouses but the languid animation of a half-forgotten notoriety. "Such is fame!" And yet Miss Stone is by no means an insignificant personality. She is a true woman, yet with the robust sturdy fiber of a man—no ordinary woman, indeed, with that fearless courage and that chivalric tenderness.

Miss Stone is a large woman, plain of face at first sight, but rarely attractive as she talks. She dresses tastefully. There is a knot of crimson velvet in her plainly-parted, dark hair. Her one feature of real beauty is her hands, small and delicately molded, which she uses expressively in telling her story. She speaks very rapidly, with a certain crispness that strikes one almost as a foreign accent.

The story of her capture and her six months' captivity, from her own lips, is a thrilling one. The horror of the things she tells clings to one with an impression of reality that will not shake off. One dreams of lurking brigands, of terrible mountain passes, of cold-blooded murders, and filthy dungeons. It seems that the capture took place in the daylight, an hour or two before dusk. There was a large company, some ten or twelve, mounted upon pack-horses. The women sit astride of their horses in that country, with their baggage upon either side. This is to save the expense of more horses, for it is a poverty-stricken country. This company came happily along the pathway (which is the highway in that strange land of mediæval customs) until they reached a steep bluff at whose feet ran a mountain stream, through which and around the bluff ran the highway toward their destination. Just as the foot of Miss Stone's horse was taking the first step to ford the stream, the Bible woman, who chanced to be the only one ahead of her, turned her face backward with white terror written upon it, and Miss Stone saw the point of a bayonet sticking around the corner of the bluff. Immediately—so quickly and so stealthily that she did not know how they came, but had the impression that they had risen up out of the ground at these places—the brigands were about them, vociferating, threatening with bayonets and sabers. Miss Stone looked back at her little company, and upon each face she saw, what was in her own mind, the thought, "That has happened which I have feared for twenty-three years!"

They were made to understand that they must dismount, which they did as best they could. Then they were driven, pell mell, women and men, through the stream and up the steep, unbroken cliff, the thick undergrowth pulling at their feet and skirts, the low-growing trees catching at their heads and clothing and baggage, and their cruel captors striking them with the butts of their guns to urge them yet faster. At last, exhausted, they reached the top and sank upon the ground.

Behind them, at some distance, a Turk had been traveling alone. When he came in sight, the brigands, fearing what he might have seen, shot at him. Realizing his danger too late, he turned to flee, but was overtaken, stricken brutally from his horse, and driven up the same steep way the other captives had taken; beaten and wounded, and covered with blood, he was taken to the thickest, yet near

enough to Miss Stone and her company so that some of them could see the fearful tragedy, and there cut to pieces with sabers. Such was Miss Stone's introduction to the highway-men, destined to be her companions for 172 long days and nights.

She and a native woman, who was finely educated in America for mission work, and who was her friend as well as helper, were separated from the others, who were released and sent on their way, after they had been plundered, and every bit of the provisions which they had brought with them eaten.

Then these two unprotected women found themselves face to face with a situation of whose outcome they had no knowledge. They were informed after some days that the object of their capture was money, and, when the sum of \$110,000 for which they were held was named to them, they at once gave up all hope of ever seeing civilization again, and begun to number the hours left them on earth, for they were sure so much money would never be raised for their ransom.

How long must the time have seemed, filled with deadly peril by day and by night! They rode horseback over the rough mountains until they were so weary their rude guardians had to hold them upon the saddles; over steep passes, through dangerous ravines, across swift-rushing rivers, through tangled underbrush and low-hanging boughs, in inky darkness and sometimes in deathlike silence. Sometimes a branch of some tree, unseen in the darkness, would strike across them, almost pitching them from their horses. Their commonest shelter and resting place was some dark hovel, where, upon a pile of bandits' coats, ruffianly guards ever over them, they took what little rest was possible.

Once when, after weary months of waiting, no money came, the brigands grown desperate, decided to shoot them. Miss Stone heard them arguing as to what weapons to use. "Why do you use guns?" said one, "is it because they are women?" But a few among them, more tenacious of purpose than the others, persuaded them to wait a little longer, for they were determined to get what money they could, though by this time they had decided to take any sum offered them, for they were tired of their dangerous task of carrying around with them two women.

Once there was a battle. The brigands had been seen by another band of highwaymen, who determined to rob them of their prisoners and secure the ransom for themselves. It was a fierce battle, with the odds in favor of the attacking party. Miss Stone and Madame Tsilka were put into a dark underground hole beneath a small hovel, with one man to guard them. They knew well what his orders were, if defeated he was to shoot his captives, for they were determined never to give them up to any one without the money.

The pathetic part of Miss Stone's story was the birth of Madame Tsilka's little girl, up there in the mountains, among the brigands. A dear little black-eyed baby she was, who won her way at once, even among those rough men. The day after she came into the world, the men asked to see her. So the mother said they might come. She was filled with fear for her poor baby. Often, in their journeys, they had been compelled to perfect silence, not even a whisper or a cough was allowed, and they almost held their breath—at what unseen danger they never knew. But suppose, now, that the baby should cry! Who could say to a baby, hush? Would these men who never scrupled at murder, think of this, and crush out the little baby life? They all came in, congratulated the mother, then looked

at the little pink-faced baby in Miss Stone's arms. They wished it a long and happy life—and Madame Tsilka felt assured that her little daughter was safe, for a day at least.

That same night they took up their march again. Miss Stone having insisted that Madame Tsilka have other means of transportation than horseback, they made a long narrow box, with a quilt in the bottom and deposited her in it, holding it upon a horse's back. It looked so like a coffin, that the gentle lady looked up into the face of the ruffian who put her into it and said, "The Lord forgive her sins," the phrase which it is the custom there to say on placing a dead body in the coffin. The man showed the only sign of feeling Miss Stone observed in all her dealings with them. Tears were in his voice as he said, "No, no, not so!"

Once as they were traveling, the stern order was given for absolute silence. Miss Stone carried the baby, and for every moment that passed without an outcry she breathed a prayer of thankfulness. But the baby began to stir, then to grunt, and soon was in the midst of a good hard "cry." The guard came down the line. "May the baby cry?" asked Miss Stone. "Yes," was the answer, "now it may cry!"

Seventeen days after the baby's birth, they were set down in the cold, dark, early morning, a few steps from a village, and as soon as it was light, they sought help and shelter, and the next day went on to the city where were their friends. And a most joyful return was that, for Miss Stone to her friends, and for Madame Tsilka to her husband, and baby to her father who had never seen her.

Steamed Puddings.

Fruit.—1 cup milk, 3 cups flour, 1 egg, 1 tablespoonful melted butter, 2 tablespoons baking powder. In the bottom of the steaming-dish put berries, peeled and sliced apples, peaches, or pears or canned or preserved fruit of almost any kind, and steam two hours.

Bread Budding.—1 cup molasses, 1 cup bread crumbs with 1 cup hot water poured over them; 1 cup raisins, 1 ar, 1 cup milk, 2 cups flour, 3 teaspoons tablespoon melted butter, spices as you like. Steam two hours.

Chocolate Puddings.—1 cup sugar and ½ cup butter whipped to a cream, ½ pint of milk, well beaten yolks of 2 eggs, 1 ounce of chocolate or cocoa which has been melted over hot water. Beat till smooth; then add the whites of the two eggs beaten stiff, and 1 teaspoon baking powder. Put in cups, and steam three-quarters of an hour.

Feather Pudding.—1 egg, 1 cup sugar, 1 cup milk, 2 cups flour, 3 teaspoons baking powder, 2 tablespoons melted butter; steam one hour.

Ginger Pudding.—1 cup molasses, 1 egg, ½ cup butter, ½ cup hot water, 1 tablespoon ginger; 1 teaspoon soda, enough flour to make pretty stiff. Add ½ cup raisins or any fruit desired and steam one and one-half hours.

Lemon Pudding.—1 cup milk, 1 tablespoon butter, 1 heaping teaspoon baking powder, flour enough to roll out; roll in three sheets. Mix juice of 1 lemon and 1 cup sugar and spread between layers like jelly. Put in a tin and steam three hours. Serve with lemon sauce.

Suet Pudding.—1 cup chopped suet, 1 cup seeded raisins, 1 cup molasses, 1 cup sour milk, 1 egg, 2 cups bread crumbs, 1 cup flour, 1 teaspoon salt, 1 teaspoon soda. Steam two hours.

Club Department.

The Give and Get Good Club.

Our work for charity began over a year ago, the ladies meeting at our house twice a month to repair and make over such clothing as was given to us for the poor of Topeka.

We took several baskets of such clothing to Mrs. Thorpe (police matron) for distribution among the needy poor. We continued the work until February, 1902, when it was discontinued on account of sickness in our family. While we had no officers, no name, and no program, we enjoyed meeting together for the visit and because we thought we were helping others; but we were not satisfied and felt that we might receive more good for ourselves while doing for others.

So, after a summer's rest, in November last a few of the ladies met and planned to organize with a president, vice-president, secretary, and treasurer, with constitution and by-laws. We then announced a meeting, and the ladies responded promptly. At that meeting we elected our officers and asked a lady to draw up a constitution with by-laws, to be acted upon at our



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next meeting, two weeks later. We chose our name by passing slips of paper upon which each lady wrote her choice of name; then we read the names, and voted for the one that we thought would best express our object, and we think the name "Give and Get Good" is a very appropriate one.

We give our time and efforts to help the poor. Besides a large amount of clothing, we bought and dressed dolls, made picture-books, etc., for the little ones for Christmas. Last week we took to the associated charities of Topeka seventy garments. I can not tell how many altogether have been taken to Mrs. Thorpe.

While we are helping the unfortunate we realize that we are being helped in many ways. First we get good by giving. "It is more blessed to give than to receive." We grow to be very selfish unless there is something to draw us out and make us think of others. It is no uncommon thing when we are busy sewing to hear some one with a long-drawn breath, say, "I wonder what little boy will wear these pants," or, "I would like to see the little girl when she receives this doll for Christmas," and this from people that seem to have little thought for the poor. We know that anything that makes us think good thoughts makes us better. "Finally, brethren, whatsoever things are true, whatsoever things are honest, whatsoever things are just, whatsoever things are pure, whatsoever things are lovely, whatsoever things are of good report, of there be any virtue and if there be any praise, think on these things."

Our program consists of short current items given in response to roll call. We find this very interesting, and instructive as well. The items given are often the theme of conversation afterwards in the house.

It is said that a benefactor is one that makes two blades of grass grow where but one grew before, and is a club any the less a benefactor by implanting in our hearts a desire to know and to do?

We are making a special effort to interest the young girls and are succeeding very well. One of our methods is to get as many of them to serve as officers as we can. When they are in office they are always present and soon speak of the club as our club. For that reason we elect a vice-president each month to take the place of the president. The secretary and treasurer are elected for three months.

We are well pleased with our first effort at club work. Our meetings are well attended, and all seem to enjoy themselves and think that we are rightly named, "The Give and Get Good." Yours for the good work,

Berryton, Kans. Mrs. A. A. ADAMS.

The Give and Get Good Club, from whom we have the very interesting report this week, is certainly a bright and up-to-date organization. It is unique, we believe, in having for its inspiration, concern for the welfare of the unfortunate, the intellectual part being merely secondary. Most clubs organize first for the benefit of the members, though I do not know of a single club which does not do some work for others in connection with its regular programs. The report this week ought to be an inspiration to all women, whether they belong to clubs or not, for it is full of the spirit of unselfishness.

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 And Molly wept and I fear Dan swore.
 But after a while they found that they
 Could turn their dairy work to play
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 They're Jolly Molly and Dandy Dan
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Big Profit in Cows
 is but a question of getting all the cream (butter fat) out of the milk. With the old setting system your loss is over 80 per cent greater than with a

NATIONAL Hand Separator

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10 Days Free
 If you like—buy it; if you don't, we take it back and pay all expense—you have nothing to risk. Our catalogue gives full particulars.



National Dairy Machine Co., Newark, N. J.

In the Dairy.

Conducted by Ed. H. Webster, Professor of Dairy Husbandry, Kansas Experiment Station, Manhattan, Kans., to whom all correspondence with this department should be addressed.

The Modern Farm Cow.

BY W. P. HARNED, VERMONT, MO., BEFORE MISSOURI IMPROVED LIVE-STOCK BREEDERS' ASSOCIATION, SPRINGFIELD, MO.

We would like that the basis of our article be that the greatest type of cow is the one that does the greatest service to the greatest number of mankind. This rule is even true of man; the greatest personage is the one that does the greatest service to the greatest number.

There can be no universal cow, neither can there be a universal horse, nor even a universal man. What we wish to mean by universal is the highest type of excellence in many lines. They are not combined in one animal; good qualities can be combined but not the highest point in all. To explain further, a horse can not be the best draft horse, the best at speed, and the best saddler combined.

There can be an all-round man, an all-purpose horse, a dual-purpose cow. As illustrating this you can call to mind individuals who are very expert in one line and very weak in others. Also those that are very successful in all lines or as you may express it can turn a hand to anything.

The typical draft horse of to-day bred to the enormous weight of a ton, is a special-purpose animal—he can draw immense loads, but with this one purpose his usefulness ends. He has his place but it is not on the small farm where one team must haul the wood, draw the plow, take the family to church, tend the garden, and be the saddler. He can be fair at all, even if not remarkably superior in any particular line. The breed war is over. No reasonable champion of one breed is spending his force tearing down another breed. Nobly they have combined against the common enemy to mankind, the curse to live-stock husbandry, the living disgrace to any American farm, large or small, this common foe is the scrub sire. He is the hated thing. He is the universal curse. He is the fostered enemy. Against him and him only, all improved breeds are waging a combined war. Until he is entirely exterminated the war should continue, yet we are glad to realize no improved breed is at war with another improved breed. We have the special-purpose breeds and it is well. We need them.

The heavy dray wagons in our large cities require little else than the ability to draw immense loads. There may be conditions in which the greatest possible supply of butter only is required. It must also be admitted that there are conditions, as on the Western plain, where immense herds of cattle are kept for beef only, that the highest possible attainment, the beef-making tendency, is the prime and almost only requirement. But this is not the condition that confronts the common farmer, or, as we would have it, the average farmer. It is not the condition of a large majority of farms to-day. The only requirements of the ranchman and those of the small farmer are greatly in contrast. The ideal ranch-cow is as much beef as possible with barely enough milk to product reasonable growth in the calf. She requires a robust nature, firm bone and frame, good size and an iron constitution. To these qualities the modern small farm would add as much of the dairy qualities as can be combined till we have the ideal dual-purpose cow. She is the cow of our forefathers, and I would predict in the East and Middle West she will be the coming cow. We still at this day have such a cow, but there has been of late years a great impetus for beef and her double purpose has been neglected. The quality is only latent and can be revived with an effort. The American farm needs her. There is a call for the dual-purpose cow. There should be some encouragement in financial returns.

It might be remembered that the highest cow ever sold was of the family of Shorthorns which combined beef and milk to the highest degree yet attained. The last International at Chicago offered a large prize for the farmers' cow. The dual habit still exists and the cow can be had, but her name is not legion. A hundred years ago she was queen of all domestic animals, and history repeats itself, and it repeats oftener than every hundred years. Unto man's care the Creator left all domestic animals, and of all these the cow is queen and the bull is the king. Her care is no mean vocation and her study is elevating. The

HARD FACTS ABOUT CREAM SEPARATORS.

What the intending buyer of a cream separator wants are **HARD FACTS**—not fanciful nonsense and alluring misrepresentation.

He doesn't care much for silly ditties about "big brother" and "little sister" separators; nor "high" and "low" feed twaddle which means nothing to any one; and he may well steer clear of fake skim-milk "records" which have no actual foundation.

But what does concern him are these HARD FACTS—

That a De Laval Cream Separator is as much superior to imitating machines as such other separators are to gravity setting systems.

That protecting patents make and keep them so—together with far greater experience and superior facilities in every way for cream separator manufacture.

That every big and experienced user of cream separators knows this and uses De Laval machines exclusively—both in factory and farm sizes.

That it is as foolish to-day to buy other than a De Laval separator as it would be to buy an old-fashioned reaper if an up-to-date combined mower and reaper could be had for the same money.

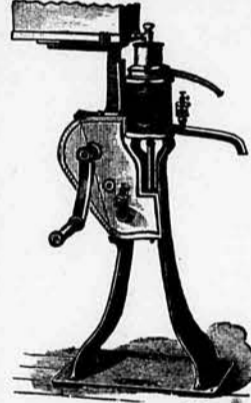
These are simple **HARD FACTS** plain to any one. A machine itself will best illustrate them. The nearest local agent will be glad to arrange this to your own satisfaction.

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THE CHAMPION BUTTERMAKER of All the Annual Winter Conventions USES U. S. SEPARATORS

At the Annual Meeting of the Vermont Dairymen's Association, at Rutland, January 6-8, 1903, there were 150 entries of butter, and that of Mr. J. F. McLam, Supt. of the Green Mountain Creamery, West Topsham, received the highest score



98 1/2 POINTS

and won **GRAND SWEEPSTAKES AND GOLD MEDAL**

This butter was made from cream separated by creamery size U. S. Separators, and was not only the highest score at this convention, but so far this season is the

HIGHEST SCORE AT ANY STATE DAIRY-MEN'S CONVENTION.

THE U. S. ALSO HOLDS WORLD'S RECORD FOR CLEAN SKIMMING.

For Western trade we transfer our Separators from Chicago, Minneapolis and Omaha. Address all letters to Bellows Falls, Vt.

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A CAR-LOAD IN TEN DAYS.

We know of no better evidence of the Empire machine than the fact that we sold a car-load in ten days in January to people who had seen them work.

200 NEW SHIPPERS IN 30 DAYS.

We know of no better answer as to what people think of our system than to tell you 200 new shippers commenced in January. All of these from localities where we had shippers and whose statements they had seen. Write us for any information, and commence doing business right.

Blue Valley Creamery Company, St. Joseph, Mo

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 make better butter and more butter by using the
KNEELAND OMEGA CREAM SEPARATOR
 simple, cheap, efficient. Easily cleaned. Free from repairs. Guaranteed to suit or money back. Send for Free book, "Good Butter and How to Make It." The Kneeland Omega Creamery Co., 225 Concord St., Lansing, Mich.



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science of reproduction is as deep a science as that of the planets, and the laws of heredity are mysterious. She is a commodity, and, like other commodities, may have ups and downs, but every year the well-bred cow attaches herself closely to advanced civilization. I have not even named my favorite breed, but she must be of good scale and have a good udder and good hair and we are on the safe road to improvement.

Reflect for one moment how important is the American cow to the American people. A recent authority stated that if the cow trade could drop out, the railings on the railroads west of Lincoln, Neb., would be covered with rust. Take away the cow from Chicago and over half of the Union Stock Yards would decay and grass would grow in the streets.

Take away the cows from the metropolitan cities of our own State, Kansas City on the west and St. Louis on the east, and in the stock-yards district, the birds would build nests in the weeds that grow at the parlor window. Here in Springfield if the cow and her products could be withdrawn one year, one would stand on the street and wonder what was the matter. Under certain conditions the special dairy cow is the most desired. Under other conditions the exclusive beef animal may best answer the purpose. But there are conditions in which the dual-purpose animal far better serves the purpose and these conditions are more than the other conditions combined. It is a pitiful sight to see on a farm a fine massive cow covered with a wealth of flesh of 1,700 pounds followed by a calf almost starved for milk. I have seen high-class breeding herds with nearly as many nurse cows as breeding cows.

Extra conditions may support this, but the normal condition and the small farmer can not maintain them.

A Good Record.

EDITOR KANSAS FARMER:—I have a cow which has a two-months' record similar to that of your Gray County correspondent. In November and December of 1901 she produced 2,731 pounds of milk, testing 3.6, making 98 pounds of butter-fat. In October and November of 1902 she produced 2,649 pounds of milk testing 3.8, making 100.662 pounds of butter-fat. She was tested each time at the beginning of the milking-period. An average test for a year would probably be higher. However, for the year ending January 31, 1902, she produced 8798 pounds of milking, making 325 pounds of butter-fat. For the year ending January 31, 1903, she produced 8,547 pounds of milk, making 324 pounds of butter-fat. For the same year our twelve cows averaged 242 pounds of butter-fat per head.

Wm. Bowman.
Douglas County.

The Agricultural College at Manhattan has been conducting for some weeks a judging school in which different breeds of animals are the subject of study. Last week the dairy breeds were under consideration. Prof. E. H. Eckles, of the department of dairy husbandry, University of Missouri, was the instructor in charge. The class was composed of some 300 college students and many visitors who are not enrolled in college classes. Typical dairy animals from the pure-bred herds of Jerseys, Guernseys, Ayrshires, and Holsteins belonging to the college were brought into the ring and scored by the judge, who took occasion to give interesting discussions as to their points of merit as well as of merit. One of the animals placed under the judge's hands was a little, pony-built Ayrshire cow which failed to approximate perfection on the judge's score card and yet had a record of 436½ pounds of butter in twelve months. When it is remembered that the average butter product of the milch cows of Kansas is only about 90 pounds per annum, as shown by the reports of the State Board of Agriculture, it will be seen that this little cow is deserving of the place she now holds at the head of the college milk herd.

Countess Tolstoy.

Mrs. Tolstoy, weared from a day's hard work, presides at the table. She is a wholesome-looking woman, not untalented, brave to the point of heroism, and if there are two kinds of halo in heaven, her's may be larger than that of her husband. To be a genius of his type is no small thing, but to be the wife of such a man requires peculiar greatness. No one knows of the long, weary nights of toil, the work with pen and needle, the struggle with peasants and publishers, in the attempt to rescue the lost estates for her numerous children, and to give them such an education as befits their station in life. You will notice a peculiar look of tenderness upon her face as she gazes upon her husband, a look in which love and devotion live and burn. Her dresses show character; they are well worn. Her manner toward the stranger is as cordial as that of her husband. Of course, you may find her at times burdened and preoccupied, but the mother of fifteen children, the mistress of a large household, the owner of estates, can not always smile at you who may be only one of the great army of the curious who look at everything and into everything, going away to mock or to condemn.—From "A Visit to Tolstoy's Home," by Dr. Edward J. Steiner, in The Chautauquan for March.

NO STATE FAIR.

(Continued from page 281.)

inated that committee, are responsible for its defeat.

The failure to pass a State fair measure is a direct slap in the face to every State industrial society in Kansas. The members of the Kansas Improved Stock-Breeders' Association, the Kansas State Dairy Association, the State Horticultural Society, and the State Board of Agriculture have no rights that the political leaders and their supine followers will consider or respect, as is evidenced by the action of the House of Representatives at this session. Could the State fair measure have been considered on its merits there were enough members favorable to it to have passed it, but owing to the fear of the political bosses they failed to assert themselves and make a fight for this measure.

The only objections urged against the passage of a State fair measure were, first, the fact of the liberal appropriation made for the World's Fair, and, second, the possibility that it might be permanently located at Topeka. If we are ever to have a State fair it must either be made a party measure or the farmers and stockmen must get into politics themselves. That Kansas must take the hindmost rank of all the agricultural States in this respect is humiliating. It is to be noted that the people who defeated the State fair measure had a sudden spasm of economy when it came to appropriating something that the farmers and stockmen especially demanded, as is shown by the defeat of a State fair and the small appropriations asked by the Kansas State Dairy Association and the Kansas Improved Stock-Breeders' Association to defray the expense of publishing their annual proceedings.

It is a slap in the face of the prominent and influential stockmen and farmers who gave their time and expense in a public-spirited manner to promoting this measure to have it killed in the Ways and Means Committee of the House after its passage by the Senate and with the knowledge that Governor Bailey was willing to approve it. It is a bad thing for Kansas when this great agricultural State must have its needed institutions placed in jeopardy by men who care chiefly for political positions and power.

SOME ROAD QUESTIONS.

EDITOR KANSAS FARMER:—I wish to make an inquiry about roads. I think about sixteen or eighteen years ago there was a petition for twelve miles of road on section line through Lawn and Ruella Townships. As I understand, the county board granted the road and ordered it opened without survey or viewers. It was all opened but one mile where the town of Attica stands and one-quarter mile west to township line. This one-quarter mile is the disputed point. On the west eighty in Ruella Township there is an apple and peach orchard on and across the section line for about forty rods, or half of the distance. When the road was granted, instead of going on the section line through the orchard, they went around into town. Now they have concluded to open on the line through the orchard without price or money and I claim damage for both land and trees. They say, "No, you bought the farm with the road on section line, but not traveled." I bought the place thinking the road was on the line and the orchard was all mine. I will lose fifteen or twenty fine peaches across the line and lots of peach-trees and forest-trees besides what are in the road. Have they a right to open without survey and viewers? To whom do the trees on the line and across the line belong? Am I not entitled to pay for the land?

The eighty is fenced along the road around the orchard. To whom does the fence belong? The fence was there when I bought it over four years ago. Harper County. L. A. HEACOCK.

If we understand the situation properly, the road was ordered by the proper authorities and a record of the action was made sixteen or eighteen years ago. As an accommodation to the person who had owned the tract now in orchard the opening of the road was deferred, the public going around the orchard tract. The owner of the land built his fence so as to leave a road around the tract. The present owner bought the land supposing that the road did not cross it but passed around it. The road across the orchard tract was neither surveyed nor viewed. It is now proposed to open the road as ordered sixteen or eighteen years ago. The present owner asks damages.

In answering these and similar in-



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Save time and freight by ordering from

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quires the KANSAS FARMER tries to give good advice. It is manifestly not practicable for the editor to give infallible opinions in any case, and to give a correct opinion upon the statement of only one side of a case is still more difficult. But if we can prevent unnecessary trouble and expense we shall be amply repaid for looking into the situations and the questions as presented.

While regular proceedings in opening a road contemplate the appointment of viewers and a survey of the road, where such road is on a section line, the county commissioners may, under some conditions, dispense with this part of the proceedings. It is to be presumed, therefore, in this case, that the omission of this part of the ordinary proceedings does not invalidate the location of the road on the section line.

The fact that the present owner bought the land supposing that there was no road across it cuts no figure in view of the fact that the public record shows the location of the road across it. The present owner acquired no rights not possessed by the person from whom he bought the land.

The land taken for the road does not become the property of the public, but the public has acquired the right to use it for a highway. Should it be abandoned as a highway the right to use the land would revert to the owners of the lands adjacent. The products of the lands during the time they were not used as a highway belong to the owners of the adjacent lands. The public have a right to have these products removed so as to have the highway unobstructed, but the person in possession of the lands before the opening of the road should be allowed to remove whatever he has produced and whatever has grown of itself thereon and to appropriate the same to his own use. All questions of damages not settled when the road was originally ordered have probably lapsed.

In allowing the public a temporary highway around and upon the edges of said land and in building a fence upon said land along said highway the owner gave no rights which he may not resume upon the abandonment of the road around the land. The land temporarily occupied becomes his. The fence has always belonged to the owner of the land.

STOCK-BREEDERS' ANNUAL.

Awaiting the action of the Legislature on the State Fair bill and some other matters, the Kansas Improved Stock-Breeders' Association deferred the issuance of its Annual for 1903 until after March 20. Kansas breeders who have not enrolled may do so before that date.

The Annual will contain a complete report of the thirteenth annual meeting, the best ever held, also the classified Kansas Breeders' Directory of about 1,000 breeders in over 90 counties in Kansas. A larger edition than usual will be gotten out this year.

The membership now has the promise of one thousand by March 20, 1903. After that date it will be too late to get your name and class of stock in the classified Kansas Breeders' Directory.

Every stockman interested in pure-bred stock or improved methods of breeding and feeding is urged to become a member for 1903. You can become a member for 1903 for only one dollar. It is proposed to materially advance the initiatory fee for next year and the present time is the only opportunity to become identified with this great organization for the pres-

ent nominal fee. The benefits received are worth many times the cost. In sending in your dollar be sure to mention the class of stock you breed, the number you own, also what you have for sale or wish to buy this spring. Address H. A. Heath, secretary Kansas Improved Stock-Breeders' Association, Topeka, Kans.

KANSAS FARMER'S NEW WALL ATLAS.

The KANSAS FARMER has arranged with the leading publisher of maps and atlases to prepare especially for us a New Wall Atlas, showing colored reference maps of Kansas, Oklahoma, Indian Territory, the United States, and the world, with the census of 1900. The size of the New Wall Atlas is 22 by 28 inches and it is decorated on the outer cover with a handsome design composed of the flags of all nations.

Tables showing products of the United States and the world, with their values, the growth of our country for the last three decades, and a complete map of the greater United States are given. This is an excellent educational work and should be in every home. The retail price of this New Wall Atlas is \$1.

Every one of our old subscribers who will send us \$1 for two new trial subscriptions for one year will receive as a present a copy of this splendid New Wall Atlas, postpaid, free.

Any one not now a subscriber who will send us 50 cents at once will receive the KANSAS FARMER for five months and will be given a copy of our New Wall Atlas free and postpaid.

COLONIZATION OF THE SOUTH-WEST.

Aid and Inducements Offered by the Missouri Pacific Railway.

The Missouri Pacific Railway is bending every effort towards developing the agricultural, mineral, and industrial resources of the West and Southwest. To attain this end, it asks the aid and cooperation of every farmer, miner, merchant, and professional man along its lines.


The development of the products of any section of the country means just so much more capital to be spent in that section. Prosperous neighbors make a prosperous community, especially if they live and have their interests at home.

It is this class of persons that the Missouri Pacific Railway asks the patrons along its lines to invite to their sections. You furnish the names and addresses, and we will furnish the necessary descriptive and illustrated literature to induce them to settle in your community.

We wish to colonize the West and Southwest, and offer every inducement in the way of excellent transportation facilities and low rates to all prospective settlers and homeseekers.

H. C. TOWNSEND,
General Passenger and Ticket Agent,
St. Louis, Mo.

Necessity is the mother of invention and the mother-in-law of thrift. When necessary to sell pure-bred live stock advertise in the KANSAS FARMER and be thrifty.



DISEASES OF MEN ONLY.

The greatest and most successful Institute for Diseases of Men. Consultation free at office or by letter. **BOOK** printed in English, German and Swedish, explaining Health and Happiness sent sealed in plain envelope for four cents in stamp. All letters answered in plain envelope. Varies, cured in five days. Call or address

Chicago Medical Institute,
518 Francis Street,
ST. JOSEPH, MO.

SPECIAL DAIRY ISSUE.

The annual meeting of the State Dairy Association was held at Manhattan last week. All of the old officers were reelected with the exception of the assistant secretary, to which office Mr. C. H. Dille, Ottawa, Kans., was chosen.

The KANSAS FARMER will publish a special dairy issue on March 26, as one of the regular series of Twentieth Century Specials. It will contain the complete proceedings of the annual meeting of the Kansas State Dairy Association, also a special report of the meeting of the hand-separator dairymen and individual shippers held at Salina last week. This in connection with other important dairy articles will constitute our "Special Dairy Edition." A copy of this issue will be placed in the hands of every patron of a creamery and skimming-station in Kansas, besides a large number will be sent to the dairy farmers in Missouri and Oklahoma. Proprietors or managers of creameries, skimming-stations, or cheese factories, who desire extra copies of this special dairy issue should get in their orders at once. Single copies will be mailed to any address at five cents per copy. For 100 copies or less the rate will be three cents per copy. For large quantities in excess of that number we will make a special price of \$2 per hundred, mailed.

Address all orders to the Kansas Farmer Company, Topeka, Kans.

A Piano at a Nominal Price.

Chicago's largest music house, Lyon & Healy, announces a clearing sale of pianos. Several hundred splendid instruments are offered without reserve until all are sold. In this stock are a number of Steinway and Knabe pianos, and new and secondhand pianos, including instruments of the following well-known makes: Sterling, Huntington, Chase, Vose, Fischer, Weber, Chickering, Lyon, etc., etc. In square pianos there are fine-tuned instruments at \$25, \$40, \$60, and upwards. In upright pianos neat instruments at \$100, \$120, \$140, \$150, \$165, \$190, \$200, and upwards. In baby grands some nice specimens at \$250 and upwards. Nearly all these pianos were intended to sell for much more than these clearing sale prices. This is an opportunity that will not occur again. Immediate action is therefore necessary. A good plan would be to order a piano at a certain specified price, leaving the selection of it to Lyon & Healy. However, they will send a list and full particulars upon application. Any piano not proving entirely satisfactory may be returned at their expense. Address Lyon & Healy, 29 Adams St., Chicago. Distance is no obstacle in taking advantage of this remarkable chance to obtain a piano, for in proportion to the saving to be made the freight charges are insignificant. If you do not already know Lyon & Healy by reputation, any banker will assure you of their entire responsibility and record of over forty years for honorable dealing. Write to-day so as to avoid disappointment.

Publishers' Paragraphs.

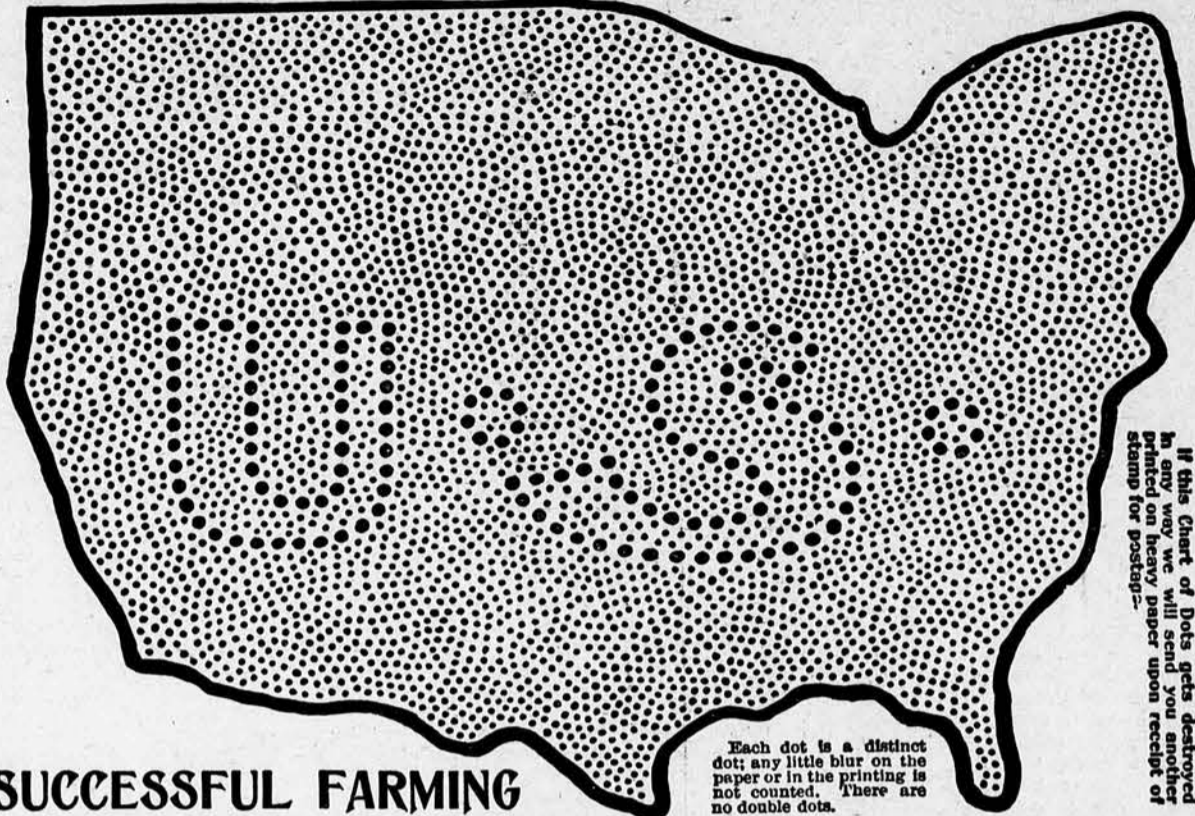
HORSE COMMITTS SUICIDE.—The Wabash Railway, in a damage suit instituted by J. M. Sauvnette to recover the value of a horse which met his death on the Wabash tracks, sets up the novel defense that the horse committed suicide. Perhaps the animal had been reading the advertisements of the Wabash and got it into his head that it was the direct route to heaven.—Globe-Democrat, February 27, 1903.

HAVE YOU SEEN IT?—Many of our readers at this season of the year are planning to buy new furniture for their homes and we wish to call their attention to the fact that they can save money and get the very best of goods by buying their furniture of the Keith Furniture and Carpet Company of Kansas City. Their catalogue No. C, which is one of the finest furniture catalogues ever published, will be sent to any of our readers free if they will mention the Kansas Farmer when writing. We advise our readers to send for this catalogue if they expect to buy anything in the furniture line this spring.

Water Craft of the World, the opening article of the New England Magazine for March, seems particularly appropriate at this season when all water lovers are looking forward with eager anticipation to their summer's outings. It is a far cry from the pre-historic raft made of rushes, to the luxurious yacht and the magnificent war ships and ocean liners of today, and it has taken the combined intelligence and energy of the nations of the world to attain the present degree of excellence. Those who entertain the fallacy that the "good old times" were the best will perhaps lose that illusion, when they read George Henry Hubbard's account of Stephen Burroughs under the title of "A Notorious Rascal of the Good Old Times." Burroughs possessed remarkable ability, of which his "Hay-Mow Sermon," a masterpiece of satire, is an indication, but his escapades were fully up to the standard of modern rascality.

FOREHANDEDNESS.—In farming, as in other lines, it pays to be forehanded. Of course there is always a great deal to be done on the farm, and it is necessary to systematize the work so that nothing will be neglected. Already many agriculturists are beginning to formulate plans for handling their 1903 crops. Although harvest is still months off, that does not deter the thrifty farmer from getting ready for it. If the old binder has reached the limit of its usefulness, the thrifty farmer is always forehanded in his determination to purchase a new machine before the harvest is ready. It is well understood that machines actually work better if they have been delivered and set up several weeks before the harvest. The indications now are that more farmers will buy McCormick machines this year than in any previous season, for

\$1,500.00 FREE TWO \$350.00 SCHILLER PIANOS. IN GRAND PRIZES IF YOU CAN COUNT AND PLAN YOU CAN WIN!



If this Chart of Dots gets destroyed in any way we will send you another printed on heavy paper upon receipt of stamp for postage.

Each dot is a distinct dot; any little blur on the paper or in the printing is not counted. There are no double dots.

SUCCESSFUL FARMING

One of the best 32-page illustrated farm papers published, will give to those who count the dots in the above diagram correctly or nearest correctly, or in case of tie suggest best plan, TWO \$350.00 PIANOS AND \$800.00 IN CASH. Read offer carefully. Greatest offer ever made! You may lose \$500 by not entering contest.

Two \$350.00 Schiller Pianos as first prizes—one to a lady and one to a gentleman; second prize, \$200.00 in cash; third prize, \$100.00; fourth, \$50.00; fifth, \$25.00; next, \$10.00; next, \$5.00; the next twenty-five, \$3.00 each; next thirty-five, \$1.00 each; two special prizes of \$150 each (see below). Surely out of this immense list you can win. If you can count and plan you can.

AWARDS WILL BE MADE AS FOLLOWS: The person giving correct or coming nearest the correct number, gets first prize, next nearest second prize, and so on down the list. The Pianos will be awarded to those who count correct or nearest correct—one to a lady, the other to a gentleman. If there should be a tie in the count for any prize it will be awarded to the one of those tying who suggests best plan of counting the dots. It is likely the person giving nearest the correct count will win as it is no easy matter to count these dots.

GRAND SPECIAL PRIZES—To the gentleman and lady winning the Pianos will be given an Extra Cash Prize of \$150.00 Each if they have three advance subscription counts entered. That is have paid two years in advance to Successful Farming \$1.00 for the two years. If you win the piano and have paid one year at 50 cents the judges will give you the piano only. If you win the piano and have two years paid you get \$150.00 extra. It will pay all to have the three advance counts.

CONDITIONS—The contest is open to all. Fifty cents pays for one full year's subscriptions to Successful Farming, and entitles you to one count; \$1.00 pays for two years and entitles you to three counts and makes you eligible for the grand \$150 Special Prizes.

TWO ELEGANT \$350.00 SCHILLER PIANOS FREE. These are fine prizes and in order to give ladies and gentlemen each an equal opportunity, one will go to a lady and one to a gentleman. Mark your subscription blank below stating whether you wish to enter "ladies' contest" or "gentleman's contest." Two different members of a family may compete, one in the ladies' and the other in the gentleman's contest, if they wish. Fifty cents pays for one year's subscription to Successful Farming and entitles you to one count, or \$1.00 pays for two years and entitles you to three counts, and by taking one on each side of what you think is the correct number you are more likely to win and besides if you win you get the grand special prizes of \$150 each which you do not get if you only have one year paid in advance. See above regard to special prizes.

Please Note—There is no element of chance, of guess work or lottery about this. It is a test of skill pure and simple. If you can count the dots correctly you can win. The number of prizes is so large you are bound to hit it somewhere.

State Treasurer Gilbertson, Mayor Brenton and a Banker, They Will Select, to Award Premiums

To Whom It May Concern: We know the publishers of SUCCESSFUL FARMING and can assure anybody interested that they will pay every premium they promise and treat every contestant fairly, showing no partiality. They have asked us to act as judges to award the prizes, and we will gladly act in that capacity.—G. S. Gilbertson, Treas. State of Iowa, and J. M. Brenton, Mayor of Des Moines.

Nobody connected with our paper is allowed to compete. Surely with such judges all may be assured fair treatment. You are as likely to win as anyone.

Key to Dots—To all who wish it and will write on separate sheet of paper "Send me key to dots," and sign your name and P. O. and enclose 10 cents to cover expenses, we will at close of contest send you a key to the dots showing just how many there are. Every contestant should order one, but it is not necessary unless you wish one. No key will be sent out until close of contest.

Contest closes April 30, 1903, but get your counts in at once, the earlier the better. Contestants having three advance subscription counts entered may enter additional counts at 25 cents each. Address,

SUCCESSFUL FARMING, 57 Manhattan Bldg., DES MOINES, IOWA



She Won a Piano For \$1.00. "You may say to all the world, I received my piano, an elegant Schiller. I never heard of you until I answered your ad, so you have no favorites. I will answer any body sending stamp.—Daisy Keller, Belle Plain, Iowa."



A Check For \$150. "Oh I am so glad. Just received your check for \$150. It proves to me that you deal fairly with all. I paid the \$150 on our place.—Willis Shelton, Merrill, Ia."

First Prize She Ever Won. "I won \$100. all my own. It pays to enter your contests. They are surely conducted fairly.—E. M. Hall, Montrose, Mo."

We will send names and addresses of dozens and dozens who have won bicycles, watches, sewing machines, besides many larger premiums, to any body writing for them.

Publisher SUCCESSFUL FARMING, 57 Manhattan Bldg., Des Moines, Ia.

I enclose \$..... for subscription to SUCCESSFUL FARMING and I wish to enter the..... (write ladies' or gents') Dot Contest. (If \$1.00 is paid send three counts; if more than \$1.00, send one additional count for each 50c over \$1.00; if only 50c is paid send ONLY ONE count. The \$150.00 special prizes go only to those having THREE or more counts entered.)

My Count is: (1)..... (2)..... (3).....

Name..... (Have paper addressed to head of the family)

P. O. State.....

Remarks: My plan of counting is

the reason that this world-renowned binder is always up-to-date, having exclusive features that make it the farmer's favorite machine.

J. B. Armstrong & Sons' Seed Catalogues.

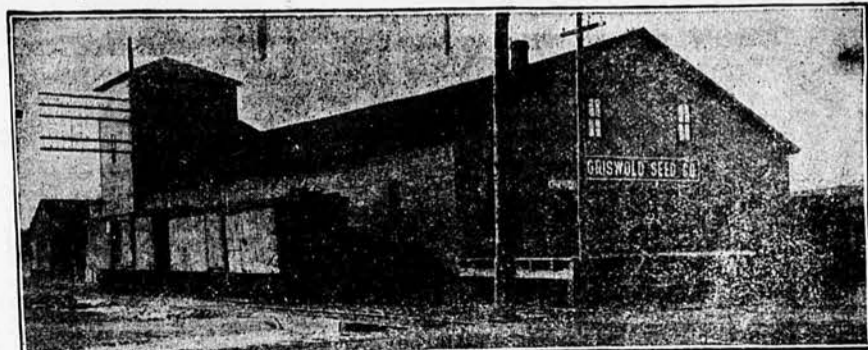
The new advertisement for J. B. Armstrong & Sons' seed-corn business should get the eye of many an interested corn-grower this week. Secure samples of the great varieties of corn mentioned, and be sure you ask for the "Book on Corn-Growing." This is a valuable booklet of forty pages, chock full of new and valuable material, such as the enterprising farmer wants at hand at this time of year. The Armstrongs have also issued a neat general Farm, Field, and Garden Seed Catalogue. This is a very complete affair and should be widely asked for. J. B. Armstrong was the originator of the seed-corn business on a big scale, and it is only fair to say that many of his old customers are among his best customers to-day. Inspection of catalogues mentioned shows every detail as to methods used in transacting their big business. Inquiry is now coming from all sections regarding the securing of corn and other seeds. See advertisement and write early.

Business Opportunities for All.

Locations in Iowa, Illinois, Minnesota, and Missouri on the Chicago Great Western Railway; the very best agricultural section of the United States where farmers are prosperous and business men successful. We have a demand for em-

patent men with the necessary capital for all branches of business. Some special opportunities for creamerymen and millers. Good locations for general merchandise, hardware, harness, hotels,

banks, and stock-buyers. Correspondence solicited. Write for maps and Maple leaflets. W. J. Reed, Industrial Agent, 604 Endicott Building, St. Paul, Minn.



As indicating something of the scale on which the Griswold Seed Company, of Lincoln, Neb., is doing business, we instance the fact that they have shipped upwards of fifty car-loads of seed-corn alone to the State of Texas this year. The building above shown has been but recently completed and had become an imperative necessity to properly handle their heavy seed trade. Their recent growth has been almost phenomenal. But great as their success has been, they have well merited it in seeing to it that plant-

ers are supplied with nothing but the best in their line. There has been no other charm about the growth of their business than selling seeds that must give satisfaction. The idea of safeguarding the crop in the purchased of seeds is consistently in all their advertisements is consistently lived up to by them. They are situated in the heart of the seed country where the best seeds are produced, and avail themselves of their privileges. It is a safe place to buy. Advertisement in another column.

Agricultural Matters.

Selecting Seed-corn.

PROF. G. P. HOLDEN, IOWA AGRICULTURAL COLLEGE.

Replying to the many inquiries which are being received at the college daily regarding seed-corn, will say that in my opinion the following points are among the most important to be considered:

(1) That it is very important that we should depend on home-grown seed for the main part of the crop and not upon imported seed.

(2) That we should select ears of corn for seed which have kernels of as nearly uniform size and shape as possible, otherwise it will be impossible to secure an even stand with any planter.

(3) Do not fail to test the planter thoroughly with the seed you intend to use, and stay with it until it drops regularly the required number of kernels in each hill.

(4) Test the vitality or germinating power of all corn intended for seed. This is especially important this year.

(5) In case any seed-corn is purchased from seedsmen insist on having it shipped to you in the ear, either in crates or in barrels.

(6) All of this work, that is, the testing of the vitality, the sorting, shelling and the testing of the planter, should be done now and the sooner the better. If put off until the hurry of spring work is upon us there is danger that it will not be done.

No farmer can afford to depend upon imported seed-corn for the main part of his crop. Seed-corn imported from a distance and especially from different latitude seldom gives satisfactory results the first two or three years, even though the seed may be the very best, which oftentimes is not the case.

It is well known that most of the seed-corn put on the market by seedsmen is bought of farmers in crib lots, shelled, screened and sacked ready for sale, little or no attention being paid to the selection, in fact it is generally handled with the scoop shovel and is known as the "scoop shovel method of selection."

The chances are that the farmer has in his own crib better corn than that which he purchases from seedsmen at four or five times the market price. And then he runs the additional risk that it will not mature in his locality.

If it were simply a matter of losing the price of the bushel of imported seed-corn it would not be serious; but when we consider that a bushel of seed ought to produce 400 bushels of corn worth from \$130 to \$160, the serious nature of the question is very apparent.

If, for any reason, my own corn is not satisfactory for seed I would certainly not send away for seed-corn, but purchase of some one in the vicinity whose corn has given good results during the past three or four years.

It would be an excellent plan, however, for two or more persons in a neighborhood to secure a small amount of some of the standard varieties of this and of other States, and give them a good trial. In this way it is probable that varieties will be found which, after they have become acclimated, will prove of considerable value to the community.

I would recommend the purchasing of seed-corn only in the ear. This enables the purchaser to see exactly what he is getting and if it is not satisfactory he can return it. It also enables him to throw out any undesirable ears. The seedsmen can not improve the corn by shelling it, so there is no good excuse for him to refuse to ship it to you in the ear.

CAREFUL SELECTION OF SEED.

In order to secure a good stand it is necessary to exercise great care in selecting and sorting the seed. All ears with very large or very small kernels should be thrown out no matter how perfect they are in other respects. The same is true of all ears with very thick or very thin kernels, or with very short or long narrow grains and the irregular butt and tip kernels should be shelled off. In other words, no planter will give an even stand unless the kernels are of uniform size and shape.

I know of no one thing that would do more to increase the yield of corn on every farm than the careful selecting and sorting of the seed-corn both in the ear and after it is shelled, and then stay with it until the planter will drop the desired number of kernels at least ninety-three to ninety-six times out of one hundred tests. It may be necessary to have the plates of the

planter drilled or get new ones, or take more care in sorting out the large, small and irregular kernels. The main thing is to stay with it until the work is satisfactory. The preparation of the seed-corn and the testing of the planter should be done during the latter part of February and fore part of March. If this important work is put off until April or May it is very likely to be neglected, as is too often the case. This is simply a matter of good business management and no one can afford to neglect it, for there is so much of our success depending on every bushel of the seed-corn we plant.

It is a good plan to make a preliminary test of the vitality of the seed before the sorting it done to determine whether it is fit for seed purposes or not. This can best be done by selecting from the pile say fifty or one hundred ears and removing two or three kernels from each ear and testing them. If the germination test shows 94 per cent or above, the seed will certainly be in good condition.

It is important that each ear of corn be shelled by itself so that it can be examined more closely before it goes in with the rest of the corn. If the kernels are shrunken at the tips, too pointed, discolored, or the germ is small, indicating low feeding value, the whole ear should be discarded. If, on the other hand, the ears of corn are all shelled together it will be impossible to select out all the weak kernels.

After the corn has been sorted, shelled and thoroughly tested in the planter it should be put in sacks (about a bushel in each sack) and hung up in a dry place in the loft or where there is thorough circulation of air, and where it will be free from mice, but do not hang it over a stable.

A GERMINATION TEST.

About April 20, a thorough germination test should be made. There are many methods of doing this and any of them will be satisfactory. The important thing is to not fail to make the test. About one hundred kernels should be taken for each sack by running the hand down into the corn so as to get a fair average sample.

One of the simplest methods of testing seed-corn, and one which requires little attention is to fold up twenty-five or fifty kernels of the corn to be tested in a piece of wet paper and put in a box. There is nothing better than a cigar box for this purpose. The paper should be thoroughly wet and several thicknesses used so that it will not dry out. It will be well to place some moistened pieces of paper in the bottom of the box and again on top of the samples to hold the moisture.

In order to make a thorough test it will be well to prepare at least five or six samples like the one described above. They should all be put into the same box and a string tied around it to hold the cover down to prevent the samples of corn from drying out. At the end of three days it will be well to examine the corn and if the papers are getting dry they can be moistened. At the end of five days the final examination should be made.

I know of no better way to sort and prepare the seed-corn than to place 50 or 100 ears on some boards or tables with all the tips pointing one way. Select an ear that most nearly represents the type you prefer. With this ear in your left hand go over all the ears on the board, and with the right and push out those ears which show too great variation from the type in size, length, shape, roughness, color, size and shape of kernel, etc. Now gather the few remaining ears together and with a knife remove three or four kernels from each ear and place in front of each ear with the germ or chit side up. Now go over these kernels carefully for here is where we have failed most in the past. We have studied the ears, but paid little attention to the kernels. First discard those ears which have kernels unusually broad, thick or long, also which are very narrow, thick or short. This is absolutely necessary before we can expect any planter to drop a uniform number of kernels per hill. Discard all ears with kernels which are shriveled, or are too pointed, indicating low vitality and poor feeding value. The butts and tips should now be shelled off and the ears shelled as described above. But this is not all. This corn is not ready for the planter until it has been picked over by hand, removing the broken, rotten, discolored, irregular, weak and chaffy grains. This seems like a great deal of expense but no farmer can afford to do less than this.

When we remember that it is possible for a bushel of seed-corn to return us 700 bushels next harvest, we can



The New Way of Smoking Meat

No fire, fuel, or smoke-house. Apply WRIGHT'S CONDENSED SMOKE with a brush, giving meat two coats a week apart. Will smoke Hams, Bacon, Dried Beef, Sausage, or Fish, with no shrink, or loss by fire or thieves. A liquid made from hickory wood. Penetrates meat thoroughly, smokes it perfectly, gives it fine flavor, and protects it from insects. Can be used in kitchen or garret. No expense. Sold for 6 years all over U. S. and Canada. FREE SAMPLE. Send names of 5 who cure meat and we will mail you sample. A 75c bottle smokes a barrel of meat cheaper, better, and quicker than the old way. Get the genuine. Fully guaranteed. Sold only in square quart bottles with metal cap. Never in bulk. At druggists 75c. Post prepaid \$1.00 or for 50c if you pay express. Write for FREE BOOK on curing meats. Be sure to get WRIGHT'S CONDENSED SMOKE. Made only by E. H. WRIGHT & CO., 915 K. Mulberry St. Kansas City, Mo.

readily see the folly of neglecting this work. What is a day or even two days spent on this bushel of seed-corn and especially at this season of the year?

Some Interesting Results in the Germination of Corn.

EDITOR KANSAS FARMER:—Some time ago there appeared in one of our agricultural journals a statement to the effect that it made little or no difference whether the tip, middle or butt kernels were used in planting corn, and that the discarding of the tip and butt kernels was a waste of seed. In order that some of these statements might be proved or disproved, the writer and a few members of the senior class in farm crops undertook several tests along the lines mentioned.

Farmers in general make a practice of discarding the tip and butt kernels when planting, claiming that they do not give good results. Several trials were made with the Deere planter, using plate No. 3, small. Tip, middle and butt kernels were used separately, the following tables shows the results of the planter test. One hundred drops were made with each set of kernels.

PLANTER TEST OF TIP, MIDDLE, AND BUTT KERNELS.

No. Kernels dropped at one time.	Tip.	Middle.	Butt.
1.....	0	2	5
2.....	2	2	30
3.....	23	95	62
4.....	39	1	2
5.....	22	0	1
6.....	11	0	0
7.....	4	0	0

The above shows the importance of having uniform kernels if an even stand is to be secured.

To the writer, fully as interesting results were obtained by the germination test. Two students, Messrs. Wilson and Jones, assisted in preparing 1,500 kernels for this test. Five hundred kernels each of tips, middles and butts were selected from about 100 good, average ears. These were divided into sets of fifty kernels each, placed between layers of damp blotting paper, put in cigar boxes then placed in a warm room to germinate. The table following shows what happened:

TABLE SHOWING THE GERMINATION TEST.

No. hours after moistening when counted.	Tip.		Middle.		Butt.	
	No. germ. in 500.	Per cent. in 500.	No. germ. in 500.	Per cent. in 500.	No. germ. in 500.	Per cent. in 500.
72.....	186	37.2	403	80.6	153	30.6
96.....	289	57.8	437	87.4	299	59.8
120.....	364	72.8	464	92.8	373	74.6
144.....	419	83.8	470	94.	419	83.8

This evidently shows that there is not so great a vitality in the tip and butt kernels. This with their great variation in planting would give a very uneven stand of corn and this is something every good farmer tries to avoid, and rightly, too. Another fact we noticed was that the tip kernels were subject to considerable mould which would very likely cause a wider variation in the stand. Tip, middle and butt kernels planted in "flats" and allowed to grow for several weeks, substantiated the germination test and also showed considerable difference in growth in favor of the middle kernels, with the butt kernels second.

J. A. CONOVER.
Iowa Agricultural College.

CANCER ON THE ARM CURED BY THE COMBINATION OILS.

Emporia, Kans., October 18, 1901.
Dr. D. M. Bye Company, Indianapolis, Ind.

Dear Doctors:—Believing you would be glad to know of the recovery of your patients, I am pleased to tell you the cancer on my arm is well. It is wonderful, this rapid recovery. I do not believe things happen, but that the Lord rules in all things, and that He led me to try your wonderful cure. May the dear Father bless you in your work of healing is the earnest prayer of your grateful patient,

Mrs. A. J. Wooster.
The Combination Oil Cure was originated and perfected by Dr. D. M. Bye. He has cured many very bad cases without pain or disfigurement. Those who would like to know more about it, or who desire free books and papers,

should write to the HOME OFFICE of the Originator, Dr. D. M. Bye Company, Drawer 505, Indianapolis, Ind.

WITH NATURE'S WONDERS.

The Tourist Finds Much of Interest Among the Caves and Natural Bridges of California.

California has numerous natural bridges, caves, etc., of no little interest. The mammoth cave of Calaveras was discovered by miners in 1850. It contains, among other striking features, a rock shaped like a boat, and various apartments whose peculiar conformation or apertures have caused them to receive such names as Odd Fellows' Hall, Music Hall, Bridal Chamber, Cataract, etc.

In Placer County, eight miles from the Central Pacific tract, is the Alabaster Cave, containing large rooms, crystalline waters, and innumerable stalagmites, stalactites, etc.

In Tuolumne County is the Crystal Palace Cave, discovered in 1879. It has a number of attractive subterranean apartments, such as the Bridal Chamber, the Crystal Palace home, and a curious apartment called the Music Hall, where the deposits of aqueous origin not only have taken the form of organ pipes, sounding boards, etc., but they also emit, when struck, sounds or vibrations distinctly musical in quality.

Near this cave are two natural bridges, which the tourist can visit and return to the railway within half an hour. They are respectively 180 and 240 feet long, and the upper and larger is very curious.

On the beach near Santa Cruz is a natural bridge of imposing proportions and picturesque formation into which the sea washes.

The direct and most comfortable route to California is over the Union Pacific. Literature giving full information can be obtained by addressing J. C. Fulton, depot agent, telephone 34, or F. A. Lewis, city ticket agent, 525 Kansas avenue, telephone 53.

160 ACRE FARMS IN WESTERN CANADA FREE

Western Canada

Land of the Sunshine,
Grain Growing,
Mixed Farming.

The Reason Why

more wheat is grown in Western Canada in a few short months, is because vegetation grows in proportion to the sunlight.

Area Under Crop in Western Canada 1902—1,987,330 Acres.
Yield 1902—117,922,754 Bu.

Abundance of water and fuel. Building material cheap. Good grass for pasture and hay. A fertile soil. A sufficient rainfall and a climate giving an assured and adequate season of growth. All these conditions are found in Western Canada.

160 ACRE HOMESTEADS FREE

The only charge being \$10 for entry. Send to the following for an Atlas and other literature, showing location of lands in Western Canada, and also for certificate giving you reduced freight and passenger rates, etc. The Superintendent of Immigration, Ottawa, Canada; or to the authorized agent of the Canadian government—

J. S. CRAWFORD,
214 West Ninth Street, Kansas City, Mo.

FARMERS

Who wish to better their conditions are advised to write for a descriptive pamphlet and map of Maryland, which is being sent out free of charge by

THE STATE BUREAU OF IMMIGRATION OF MARYLAND.

Address

Mr. H. Badenhop, Secretary,
Merchants Nat'l Bank Bldg., Baltimore, Md.

S. G. CARTER

GENERAL AGENT

REAL ESTATE AND LIVE STOCK

Miami, Texas.

If you want to buy feeders or any kind of cattle or a farm or ranch in Texas, see or write to me. No trouble to answer questions. References: Emporia National Bank, Emporia, Kas.; First National Bank Amarillo, Texas; Lee & Co., Bankers, Miami, Texas

WANTED!

A bright man, with light team, in every county. Steady work and good wages to the right man. Reference required.

For particulars address, KOCH V. T. CO., Winona, Minn.

Grange Department.

"For the good of our order, our country, and mankind."

Conducted by Ed. Blair, Cadmus, to whom all correspondence for this department should be addressed. Papers from Kansas Granges are especially solicited.

NATIONAL GRANGE.

Master..... Aaron Jones, South Bend, Ind.
Lecturer..... N. J. Bacheider, Concord, N. H.
Secretary, John Trimble, 514 F St., Washington, D. C.

KANSAS STATE GRANGE.

Master..... E. W. Westgate, Manhattan
Overseer..... J. C. Lovett, Elyria
Lecturer..... Ole Hibner, Olathe
Steward..... E. C. Post, Spring Hill
Assistant Steward..... W. H. Coultis, Richland
Chaplain..... Mrs. M. J. Ramage, Arkansas City
Treasurer..... Wm. Henry, Olathe
Secretary..... Geo. Black, Olathe
Gate Keeper..... G. F. Kyner, Lone Elm
Ceres..... Mrs. M. J. Allison, Lyndon
Pomona..... Mrs. Ida E. Flier, Madison
Flora..... Mrs. L. J. Lovett, Larned
L. A. S..... Mrs. Lola Radcliff, Overbrook

EXECUTIVE COMMITTEE.

Henry Rhoades..... Gardner
J. T. Lincoln..... Olpe
A. P. Reardon..... McLouth

"We Can't Do Anything in Our Community."

I heard a man say that once, and he was in dead earnest, too. He really believed that the community in which he lived was just about the poorest place in the world in which to keep up a grange, or any other kind of society. What is the reason? I asked him. "Well," said he, "they won't come out and take an interest as they ought to." What was the trouble? Were these people different from those in other communities? No. This grange had simply finished its mushroom growth and was resting. Every grange has the same experience, but persistent effort on the part of a few will pull it through. Grange work in every community depends largely upon the tact of a few earnest members. Difficulties and prejudices must be overcome. Every new grange will have a few in it that think their community is a poor place for a grange. They imagine the successful granges just grew, and grew, because every one put his shoulder to the wheel and pushed. They may, perhaps, have been to a big grange picnic or grange fair where the banners waved and the orators sang the praises of the enterprise and push of the grange in that particular locality, and then, when they saw how few took an interest in the new grange in some isolated corner, felt like giving up.

Brother granger, if you have started in to build up a grange in your community, do not stop and look back. Go right on; the grange will pay you morally, socially, and financially, for every minute of time and every dollar of money you spend with it. Do not get the idea, either, that your community has more "poor timber" to make good members of than the average. Every community has men in it who will not let a nickel slip from their left hand until they think they have a "cinch" on a 10-cent piece with the right. Every community has individuals, too, who are nonprogressive and are hard to interest in anything that requires a few years to build it up. But do not get discouraged. If better schools, better roads, better ways of farming, and brighter boys and girls in your community are worth anything, just go right on with your grange. You can not build up a good grange without getting all of them.

Direct Legislation.

At the last session of the Washington State Grange the following resolution was adopted:

"Be it resolved, That our Worthy Master of the Washington State Grange, be requested to appoint a Grange committee in each county where there is an organized grange. The duties of said committee shall be to use their best efforts, if elected to the Legislature, to secure the passage of a bill to amend the State Constitution providing for direct legislation, which shall be submitted to the people, as required by the State Constitution."

The movement is now spreading rapidly. Five State Granges, Minnesota, Illinois, Wisconsin, Pennsylvania, and Rhode Island, have indorsed it since last November. Throughout the country Pomona and subordinate granges are taking it up. They will bring it before other State Granges, and, in due time, before the National Grange.

Hillsdale, Mich.

W. KIRBY.

The subordinate granges of Hillsdale County are in a flourishing condition. Some of them are large and still growing quite rapidly. There are

twenty in the county, averaging over one for each township. Pomona is not large numerically, but is composed of the best workers and is doing effective work. The Grange in the State has a membership of about 35,000, having made a gain of 10,000 members and nearly 100 new granges during the year. The influence of the Grange in the State in the interest of agriculture and the agriculturist can hardly be estimated. Its importance and necessity are being realized more and more. As it pushes out into the business, financial, educational, and legislative fields it comes in touch with nearly all institutions and is a force that is respected. Yes, the farmer is moving to the front.

Grange halls continually going up, granges being incorporated, and patrons' fire insurance companies being organized, fix it as a permanent institution with unlimited room for growth and unmeasured greatness.

Thirty counties in the State have patrons' fire insurance companies, with policies covering \$10,000,000. The average assessment for losses during the year was \$1 per thousand. Hillsdale Patrons' Fire Insurance Company has now entered upon its fourth year, with policies covering over half a million. There has been but one assessment during that time, with much lower rate than, above, time considered.

At our August picnic, National Master Aaron Jones was with us. His clear and forcible way of putting this was taking and left a permanent influence for the good of the Grange. The lawyers were out in force from the city to hear him.

The Grange again made an exhibit at our last county fair. It was remarkable not only for its agricultural worth, but also for its artistic skill and decoration. It was beautiful and attractive. Apparently it has become a permanent feature of the fair.

Do Not Forget Them.

Do not forget the members of your grange who twenty to twenty-five years ago were its faithful workers, and whose age and infirmities now compel them to stay at home. In the older granges of Kansas there are many of these who soon must pass to the other shore. Do not forget them. Call on them ere they leave us, and have them recite the early history of the Grange. Let them know that the work they did for our order a quarter of a century ago is beginning to bear fruit, and that we appreciate them for the sacrifice they made. Have an old-folks' meeting and make them your honored guests. What a pleasure it is to every one to have friends tell them that they are appreciated, to the aged it is especially so. Better a kind word now while they are still with us than a two-column obituary after they are gone. Do not forget them.

Cadmus grange appointed a library committee at its last meeting. This committee will interview the members and see how many will give books. Prospects are good for 100 to 150 volumes at the start.

I. D. Hibner, the secretary of the Patrons' Fire and Tornado Association, has changed his address from Gardner, Kans., to Olathe, Kans. Agents of the company for the different granges please note.

The legislative committee of the National grange at Washington is ever on the alert and nothing affecting the farmers' interests comes up in either branch of Congress without the farmers' views being ably presented to the committees having bills in charge. If there was one good grange in every township of the United States to back up the demands of this legislative committee, few congressmen would go astray after being elected by farmers' votes. As it is at the present time, this committee has a wonderful influence for good, and many congressmen seek its advice before casting a vote for laws directly affecting the agricultural interests.

Grange Notes.

The Grange is thirty-five years old—and still growing.

The National Grange exacts only 5 cents per year from each member but to-day has over \$65,000 in its treasury.

Maine has doubled and Michigan trebled Grange membership in ten years.

There are fifty thousand more Patrons in the United States than there were ten years ago.

Twenty new granges have been organized in Michigan since December 1, 1902.

T. C. Laylin, the new member of the



Home Duties

The real heroines of every day are in our homes. Frequently, however, it is a mistaken and useless heroism.

Women seem to listen to every call of duty except the supreme one that tells them to guard their health. How much harder the daily tasks become when some derangement of the female organs makes every movement painful and keeps the nervous system unstrung? Irritability takes the place of happiness and amiability; and weakness and suffering takes the place of health and strength. As long as they can drag themselves around, women continue to work and perform their household duties. They have been led to believe that suffering is necessary because they are women. What a mistake!

The use of Lydia E. Pinkham's Vegetable Compound will banish pain and restore happiness. Don't resort to strong stimulants or narcotics when this great strengthening, healing remedy for women is always within reach.

FREE MEDICAL ADVICE TO WOMEN.

If there is anything in your case about which you would like special advice, write freely to Mrs. Pinkham. No man will see your letter. She can surely help you, for no person in America has such a wide experience in treating female ills as she has had. She has helped hundreds of thousands of women back to health. Her address is Lynn, Mass., and her advice is free. You are very foolish if you do not accept her kind invitation.

For proof read the symptoms, suffering and cure recited in the following letters:

"DEAR MRS. PINKHAM:—I wish to express to you the great benefit I have derived from your advice and the use of Lydia E. Pinkham's Vegetable Compound. My trouble was female weakness in its worst form and I was in a very bad condition. I could not perform my household duties, my back ached, I was extremely nervous, and I could not eat or sleep, and the bearing-down pains were terrible. My husband spent hundreds of dollars to get me well, and all the medicine that the doctors prescribed failed to do me any good; I resorted to an operation which the physician said was necessary to restore me to health, but I suffered more after it than I did before; I had hemorrhages of the womb that nothing could seem to stop.

"I noticed one of your advertisements and wrote you for advice, I received your reply and carefully followed all instructions. I immediately began to get stronger, and in two weeks was about the house. I took eight bottles of Lydia E. Pinkham's Vegetable Compound and continued following your advice, and to-day I am a well woman. Your remedies and help are a Godsend to suffering women, and I cannot find words to thank you for what you have done for me."—Mrs. LOTTIE V. NAYLOR, 1328 N. J. Ave., N.W., Washington, D. C.

"DEAR MRS. PINKHAM:—I write to tell you what Lydia E. Pinkham's Vegetable Compound has done for me.

"I was suffering with falling of the womb and could hardly drag about, but after taking five bottles of Lydia E. Pinkham's Vegetable Compound I was completely cured. I am now a well woman and able to do all my work.

"I think your medicine one of the best remedies in the world."—Mrs. J. M. LEE, 141 Lyndal St., Newcastle, Pa.

"DEAR MRS. PINKHAM:—Lydia E. Pinkham's Vegetable Compound has done a great deal for me. I suffered so much from falling of the womb and all the troubles connected with it. I doctored for years with doctors' and other remedies but received only temporary relief.

"I began taking your medicine, and had not taken it long before I was feeling better. My husband said that I should keep right on taking it as long as it gave me relief from my suffering, as I could not expect to be cured by one or two bottles. I did so and am now able to be on my feet and work hard all day, and go to bed and rest at night. Thanks to your Vegetable Compound I am certainly grateful for the relief it gave me. It is the mother's great friend. I would not be without it in my house, for when I feel tired or out of sorts I take a few doses and feel all right.

"I would recommend your medicine to all tired mothers, and especially to those suffering as I was."—Mrs. E. F. CHAMBERS, Bennet, Neb.

\$5000 FORFEIT if we cannot forthwith produce the original letters and signatures of above testimonials, which will prove their absolute genuineness. Lydia E. Pinkham Medicine Co., Lynn, Mass.

executive committee of the Ohio State Grange, is a brother of Secretary of State L. C. Laylin.

The Grange possesses the essential characteristics of the other great fraternal organizations and outranks them by being able to adapt its functions to the every-day work of its members in a direct helpful way.

Worthy Master Horton, of the Michigan State Grange has defined the Grange as a fraternal association that will give: "A permanent social gathering for old and young; a parliamentary school and literary society; a school for general discussions of im-

portant questions; a convenience for legislative influence; a benefit through trade contract; a saving through Grange fire insurance; a fixed plan for libraries; a financial assistant to the active farmer; a practical school of opportunities for the young." Yet most of us have not realized that the Grange provides for all this. Is it not time we were studying the plans of our own organization?

The address of Worthy Master E. W. Westgate, before the Kansas State Board of Agriculture, was published in full in the American Grange Bulletin of February 26.

Horticulture.

FUNGICIDES, INSECTICIDES, AND SPRAYING CALENDAR.

GEORGE E. STONE, HENRY T. FERNALD, SAMUEL T. MAYNARD, HATCH EXPERIMENT STATION, AMHERST, MASSACHUSETTS.

Many of the mixtures given herewith can be obtained already prepared from reliable dealers, which saves much time and trouble in mixing them. The following precautions should be taken into consideration:

1. Care should be taken to keep all substances employed in spraying where they can not be gotten at and used by mistake. All substances should be correctly labeled.
2. Solutions and mixtures containing copper sulfate, corrosive sublimate, and arsenate of lead should be made in wood, glass, or earthen vessels.
3. Arsenical solutions should not be applied to fruits, etc., within two weeks of the time when they are to be used as food.
4. Trees should not be sprayed when they are in bloom, as the bees which are necessary to fertilize the flowers, may be destroyed.

Fungicides.

1. BORDEAUX MIXTURE.
4 pounds copper sulfate (blue vitrol).
4 pounds lime (unslaked).
25-50 gallons water.
Dissolve the copper in hot or cold water using a wood or earthen vessel. Slake the lime in a tub, adding the water cautiously and only in sufficient amount to insure thorough slaking. After thoroughly slaking, more water can be added and stirred in until it has the consistency of thick cream. When both are cold pour the lime into the diluted copper solution of required strength, straining it through a fine-mesh sieve or a gunny cloth and thoroughly mix. The standard mixtures are:
(a). 25 gallons (full strength solution, or 4-4-25 formula).
(b). 50 gallons (half strength mixture, or 4-4-50 formula).
It is then ready for use. Considerable trouble has frequently been experienced in preparing the Bordeaux mixture. Care should be taken that the lime is of good quality and well burned and has not been air slaked. Where small amounts of lime

are slaked it is advisable to use hot water. The lime should not be allowed to become dry in slaking, neither should it become entirely submerged in water. Lime slakes best when supplied with just enough water to develop a large amount of heat which renders the process active. If the amount of lime is insufficient, there is danger of burning tender foliage. In order to obviate this the mixture can be tested with a knife blade or with ferrocyanide of potassium (one ounce to five or six ounces of water). If the amount of lime is insufficient, copper will be deposited on the knife blade, while a deep brownish-red color will be imparted to the mixture when ferrocyanide of potassium is added. Lime should be added until neither reaction occurs. A slight excess of lime, however, is desirable.
The Bordeaux mixture is best when first prepared. Stock solutions of lime and copper can be made, and mixed when required.

2.
The following, known as the 6-4-50 formula, is in very general use:
6 pounds copper sulfate.
4 pounds lime.
50 gallons water.

3. BORDEAUX MIXTURE FOR PEACH MIXTURE.

The Bordeaux mixture as ordinary used frequently injures to some extent the foliage of the peach, etc., causing a shot-hole effect on the leaves. This injurious effect has been shown to be largely obviated by the use of the following:
3 pounds copper sulfate.
6 pounds lime.
50 gallons water.

This is known as the 3-6-50 formula. Some experimenters have also recommended the following for peach foliage:
(a) 2-2-50 formula.
(b) 2-3-50 formula.

*The latter contains three times as much lime as copper sulfate.

4. BORDEAUX RESIN MIXTURE.

5 pounds resin.
1 pound potash lime.
1 pint fish oil.
5 gallons water.
To make resin solution place resin and oil in a kettle and heat until resin is dissolved. Cool slightly and then add lye slowly and stir. Again place the kettle over the fire, add the required amount of water and allow the whole to boil until it will mix with cold water forming an amber-colored solution. Take 2 gallons of the resin solution and add to it 10 gallons of water. Mix this with 40 gallons of Bordeaux mixture. Recommended for asparagus rust on account of its adhesive properties.

5. SACCHARATE OF COPPER.

4 pounds copper sulfate.
4 pounds lime.

BURPEE'S Largest Mail-Order Seed House in the World. In buying BURPEE'S SEEDS direct by mail you get your money's worth in the Best Seeds that Grow—and you have your choice of Rare Novelties for 1903, which cannot be had elsewhere. Write to-day (a postal card will do) for our complete catalogue —FREE to all who intend to purchase seeds. W. ATLEE BURPEE & CO., Philadelphia.

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OUR SPRING CATALOGUE is ready to mail to those who WANT Berry Plants. It tells the whole story about soil, varieties, planting, tillage, and the great "Kenoyer" Blackberry. Sixty varieties—old and new sorts. B. F. SMITH, Post Office Drawer C, LAWRENCE, KANSAS.

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Our Garden Seeds are clean, fertile and select. They grow. They yield big and true to type. We have a personal interest in sending out the best, and we are mighty careful you get the best of what you want.
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is free from frost, hand-picked, dry and well matured. We have the corn this year and the Sure To Grow kind. Write for our quotations. Get our big free catalog. Write now. Griswold Seed Company, Box A Lincoln, Nebraska.



Oregon Farms. If you are going west, write for my list of wheat, grazing, dairy, fruit, and timber lands. Fertile, mild climate, good schools, pure water, low prices. N. T. CONKLIN, Pendleton, Oregon.

SPRAYING CALENDAR.

PLANT.	FIRST APPLICATION.	SECOND APPLICATION.	THIRD APPLICATION.	FOURTH APPLICATION.	FIFTH APPLICATION.
APPLE..... (Scab, codling-moth, bud-moth, tent-caterpillar, canker-worm, plum-curculio, San Jose scale.)	Before buds swell, No. 10. When buds are swelling, No. 1, b, or scale, No. 23, 25 per cent before leaves unfold.	For canker-worm and plum-curculio, just before blossoms open, No. 30 or 31.	When blossoms have fallen repeat second.	Eight to twelve days later, No. 1, b, 30 or 31. For scale, No. 23, 15 per cent every two weeks, up to October 15.	Ten to fourteen days later, No. 1, b. Use dilute No. 11 solution in September for scab if season is wet.
ASPARAGUS..... (Rust.)	Use No. 4 on all young beds at intervals of two to four weeks from May to September, according to weather.	After cutting use No. 1, b, or No. 4.			
BEAN..... (Anthracnose, left-blight.)	When third leaf expands, No. 1, b.	Ten days later, No. 1, b.	Fourteen days later, No. 1, b.	Fourteen days later, No. 1, b. Spraying with No. 1, b, after the pods are one-half grown will injure them for market.	
CABBAGE..... (Worms, club-root.)	No. 29, dry for worms. Lime 25 bushels per acre for club root.	Seven to ten days later, repeat No. 29 dry.	Seven to ten days later, repeat second.	Repeat in ten to fourteen days, if necessary, second.	
CARNATION..... (Rust and other fungous diseases.)	No. 1, b, in fields at intervals of from one to two weeks according to weather.	Dip plants in No. 1, b, before planting.	Use No. 1, b, until banking begins, every two weeks.		Freedom from disease depends largely upon good cultivation and an abundance of plant food in the soil.
CELERY..... (Rust and blight.)	Spray in seed-bed with No. 1, b, every two weeks.				
CHERRY*..... (Rot, aphid-slug, plum-curculio, black-knot.)	As buds are breaking, No. 1, b, when aphides appear, No. 23.	When fruit has set, No. 31 and if slugs appear, dust leaves with air-slaked lime or hellebore.	Ten to fourteen days if rot appears, No. 31, for plum-curculio.	Ten to fourteen days later, No. 11. For scale treat as for apple.	Repeat after every rain when fruit begins to color.
CURRENT..... (Worms, leaf-blight, mildew.)	Spray bushes with No. 1, b, before leaves start. At first appearance of worms, No. 23.	Ten days later, No. 1 and 28, or mildew, No. 12.	If worms persist, No. 23.	Two to four weeks later, if any disease appears.	After fruit is gathered, No. 1, b.
ELM..... (Leaf-beetle.)	As soon as leaves are formed use No. 20.		Repeat a month later.	Two seasons needed to extinguish this pest.	
Grape..... (Fungous diseases, rose-bug, etc., leaf-hopper.)	In spring when buds swell, No. 1 and 14.	Just before flowers unfold, No. 30.	When fruit has set, No. 30. For leaf-hopper, No. 22, 15 per cent.	Two to four weeks later, No. 11.	No. 11, as fruit is coloring.
NURSERY STOCK..... (Fungous diseases.)	When first leaves appear, No. 1, b, and No. 30 or 31.	Ten to fourteen days, repeat, or scale treat as for apple.	Ten to fourteen days, repeat.	Ten to fourteen days later, repeat. For scale treat as for apple.	Five to seven days later, repeat.
PEACH, APRICOT } NECTARINE } (Rot, mildew, scab, leaf-curl, curculio.)	As the buds swell, for plum-curculio, No. 3 and 20.	When fruit has set, No. 3 and 31 for curculio.	When fruit is one-half grown, No. 3, a or b.	Five to seven days later, No. 12. For scale treat as for apple.	Ten to fourteen days later, No. 11.
PEAR..... (Leaf-blight, scab, psylla, codling-moth, blister-mite, slug.)	As buds are swelling, No. 1, b.	Just before blossoms open, No. 30, when leaves open for psylla, No. 23.	After blossoms have fallen, if necessary, No. 23.	Eight to twelve days later, repeat third. For scale treat as for apple.	Ten to twenty days later, No. 11.
PLUM*..... (Curculio, black-knot, leaf-blight, brown-rot, San Jose scale.)	When buds are swelling, No. 1, b. Before buds swell, No. 23 or 21 for scale.	When blossoms have fallen, No. 31.	Ten to fourteen days later, No. 31.	Ten to twenty days later, No. 1, b.	Ten to twenty days later, as fruit is ripening.
QUINCE..... (Leaf- and fruit-spot.)	When blossom buds appear, No. 1 and No. 30.	When fruit has set, No. 30.	Ten to twenty days later, No. 1, b.	Ten to twenty days later, No. 1, b.	Ten to twenty days later, repeat.
RASPBERRY } BLACKBERRY } DEWBERRY } (Rust, anthracnose, leaf-blight.)	Before buds break, No. 1, b.	Just before the blossoms open No. 30.	(Orange or red rust is treated best by destroying the plants attacked in its early stages.)	Spray after fruit is gathered with No. 1.	
ROSE..... (Rose-mildew, red-spider.)	No. 33, whenever these pests appear.				
STRAWBERRY..... (Rust, Black Paria, etc.)	As soon as growth begins, with No. 1, b. Dip plants in No. 1 before setting.	When first blossoms open spray both young and old plantation, No. 30.	Spray new plantation, No. 1, b.	Repeat third if weather is moist.	
TOMATO..... (Rot, blight, flea-beetle.)	Soon after planting use No. 1, b.	Repeat as soon as fruit is formed. Fruit can be wiped if disfigured by No. 1, b.	Repeat first when necessary.	Try weak solution of copper sulfate as fruit begins to ripen.	
POTATO..... (Flea-beetle, Colorado beetle, blight and rot, scab.)	Spray with No. 30, when about one-half grown. For scab, No. 15 or 16.	Repeat before insects become too numerous.	Repeat for blight, rot, and insects as potatoes approach maturity.		
VIOLET..... (Spot, red-spider.)	Use No. 33, on first appearance of spot or insects.				

*Paris green can not be used on foliage of cherry, peach, Papanese Plum, apricot, and nectarines without injury.
†Black-knots on plums or cherries should be cut out and burned as soon as discovered.
‡If a painful of lime wash, well strained, be added to each barrel full of copper solution—4 ounces to 50 gallons—delicate foliage like that of the peach, etc., will not be injured.

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4 pints molasses. 25 gallons water. Slake 4 pounds of lime and dilute the same with water. Dissolve 4 pints of molasses in a gallon of water and mix with the lime. Stir thoroughly and let it stand for a few hours. Dissolve 4 pounds of copper in 10 gallons of water and pour into it the lime-molasses solution while stirring briskly. Allow the mixture to settle. Draw off the clear greenish solution for use. Recommended in France as a substitute for the Bordeaux mixture.

AMMONIACAL COPPER CARBONATE. 5 ounces copper carbonate. 3 pints ammonia (28 degrees Beaume). 50 gallons water. Dissolve the copper carbonate in ammonia. This may be kept any length of time in a glass stoppered bottle and can be diluted to the required strength. The solution loses strength on standing.

EAU CELESTE. (Blue Water.) 2 pounds copper sulfate. 1 quart ammonia. 50 gallons water. Dissolve the copper sulfate in 6 or 8 gallons of water, then add the ammonia and dilute to 50 or 60 gallons of water.

COPPER CARBONATE MIXTURE. 1 pound copper carbonate. 40 gallons water. Mix the copper carbonate with a small quantity of water to make a paste; then dilute with the required amount of water. For fruit-rot of the peach, etc.

COPPER ACETATE. 6 ounces copper acetate (Dibasic acetate) 50 gallons water. First make a paste of the copper acetate by adding water to it, then dilute to the required strength. Use finely powdered acetate of copper, not the crystalline form. For the same purpose and of the same value as the preceding formula.

COPPER SULFATE SOLUTION. (Strong Solution.) 1 pound copper sulfate. 25 gallons water. Applied only on trees without foliage.

COPPER SULFATE SOLUTION. (Weak Solution.) 2-4 ounces copper sulfate. 50 gallons water. For trees in foliage.

POTASSIUM SULPHID. 3 ounces potassium sulphid. 10 gallons water. Valuable for gooseberry mildews, etc.

POTASSIUM PERMANGANATE. 1 part potassium permanganate. 2 parts soap. 100 parts water. Recommended in France for black-rot and mildew of the grape, etc.

IRON SULFATE AND SULPHURIC ACID. Water (hot), 100 parts. Iron sulfate, as much as will dissolve. Sulphuric acid, 1 part. Prepare solution just before using. Add the acid to the crystals and then pour on the water. Valuable for treatment of dormant grapevines affected with Anthracnose, application being made with sponge or brush.

CORROSIVE SUBLIMATE. (For Potato Scab.) 2 ounces corrosive sublimate. 15 gallons water. Dissolve the corrosive sublimate in 2 gallons of hot water, then dilute to 15 gallons, allowing the same to stand five or six hours, during which time thoroughly agitate the solution several times. Place the seed potatoes in a sack and immerse in the solution for one and one-half hours. Corrosive sublimate is very poisonous, consequently care should be taken in handling it, nor should the treated potatoes be eaten by stock. The solution should not be made in metallic vessels.

FORMALIN. (For Potato Scab.) 8 ounces formalin (40 per cent solution). 15 gallons water. Used for the same purpose as corrosive sublimate, but not poisonous. Immerse the seed potatoes for two hours.

Insecticides. 17. **PARIS GREEN.—DRY.** 1 pound Paris Green. 20-50 pounds flour. Mix thoroughly and apply evenly; preferably when due is on the plants.

PARIS GREEN.—WET. 1 pound Paris green. 1-2 pounds quick lime. 200 gallons water. Slake the lime in part of the water, sprinkling in the Paris green gradually, then and the rest of the water. For the peach and other tender-leaved plants use 300 gallons of water. Keep well stirred while spraying.

ARSENATE OF LIME. 1 pound white arsenic. 2 pounds fresh-burned lime. 1 gallon water. Boil together for forty-five minutes and keep in a tight vessel. Add one quart of this to a barrel (50 gallons) of water for use. This insecticide has been recommended by a number of experiment stations, but has not as yet been sufficiently tested at the Massachusetts Experiment Station to receive an endorsement.

(Continued on page 302.)

GRAPE VINES

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3.50	25.00	4.50
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F. BARTELDES & CO., Lawrence, Kansas.

The Poultry Yard.

Poultry-Raising.

READ AT MARYSVILLE FARMERS' INSTITUTE, BY MRS. BLANCH B. KIRKWOOD.

The raising of poultry is a business that has not yet received from the public the attention that it deserves. Nearly every branch of trade is overstocked with workmen. Book-keeping, clerking, and the other higher industries are paying small salaries, and even if there was room for all to follow these occupations, how many are able to save anything over actual expenses? The business of poultry-raising opens a promising field for all who possess industry, ambition, and a little capital with which to commence. The cost of raising all kinds of poultry is very little compared with the high prices they always command; also taking into consideration the ready sale of eggs.

In poultry-raising, the first thing needed is an abundance of common sense; second, as before stated, a small capital; and third, a large amount of patience.

Then comes the home for the poultry, or better named "the poultry-house." It should, of course, be built apart from the other outbuildings, have plenty of light, be warm and well ventilated. The roosts should be at the back, the nests in front, and all should be removable. Have the first roosts low so the hens will not bruise their feet and bodies in flying or jumping on them. Then gradually raise the roosts until about three feet from the ceiling. A good floor is also necessary. It may be of boards, cement, or packed clay. If cement, great care must be taken to keep the dampness off, by sprinkling with earth, straw, hay, sand, or other suitable materials. But let this suffice for the home, as any good poultry paper will give you many suggestions that time will not permit here. Send to United States Department of Agriculture for Farmers' Bulletin No. 141 on 'Poultry-Raising on the Farm.'

Every one should take a good poultry paper, as "Commercial Poultry," Chicago. There are many others which space forbids mention of here.

DIFFERENT STANDARD BREEDS.

One of the oldest is the Dorking, coming from England, and is an excellent table fowl. The Barred Plymouth Rock is a very recent breed and may be called a general-purpose fowl. The Black Javas are our oldest chickens of the American class. They are fine birds, and there seems to be no reason why they are so neglected. The Wyandotte is a general-purpose fowl, almost equal to the Plymouth Rock. The Brahmas are large and fair layers but no rovers. Cochins are large and well feathered, which protect them from the cold. The Leghorn is "the egg-layer" of the fowl family, a great rustler, good size, and a good table fowl, and is beautiful as well. The Minorcas are another of the standard breeds, great in laying qualities and poor in sitting. The Houdan is a handsome fowl and a good layer. There are several breeds of game chickens that are standard and are most excellent table fowls.

Choose any breed, and, if well cared for, you will find it profitable. The matter of profit depends on the keeper. There are two mottoes equal to the good luck of any horse-shoe, that should be inscribed over your poultry-house door, namely:

"Cleanliness is next to Godliness," and "Despise not the day of small things."

Could your horses and cattle thrive under the conditions under which most of you expect your poultry to thrive? Do you not realize the great importance of the poultry business? "A little practice is worth a world of theory." Begin moderately and acquire your own experience. Study the wants of your respective flocks and make them pay for the improvements. Get the best stock you can afford and keep improving it. Give them the care you give your horses, hogs and cows, and then note the profit.

FEEDING.

Never give your hens all they will eat or you will have a "hen tramp." Make them scratch for some of their food; it will make them healthy and vigorous. Give them a variety of grain, and in winter one warm meal a day. Give them plenty of fresh, pure drinking water, either milk, or meat scraps and plenty of grit. By so doing you will prevent many diseases. "An ounce of prevention is worth a pound of cure."

Do not attempt to raise poultry this

year as you did last unless you are sure you are right. If so, go ahead.

Do not keep mongrels any longer than it will require to get better ones.

A great deal of money is lost by ordinary poultry raisers in feeding cull stock. If you have only mongrel chickens and have never been interested in thoroughbreds, why not invest in a setting of good eggs this year?

Remember there is a great deal of difference between a broiler that weighs from three to five pounds, produced from high-grade stock, and mongrel cockerels that have been kept from April till December or January, and then offered as a late summer or autumn chick. Settle on one breed and do not keep a mixed lot.

It may be noticed that in most cases the poultry business is a feminine enterprise. If the women have this part of the work to attend to, why should they not do as they please in the matter, and take the earnings at least until a nice flock of well-bred and well-cared-for poultry is secured?

If the husband is busy with other farm work, get a cheap mechanic to build henhouses, coops, etc. They need not be elaborate in their fittings or very expensive.

"A practical man can adopt a systematic way of doing things, that will be labor saving, but little details must be considered prominent factors (insignificant though they be) in poultry culture.

BE KIND TO YOUR POULTRY.

There is no excuse for the cruelty practiced by some people to break hens of sitting. Simply shut her in a coop, feed and water her for three days, and not one in a hundred will go back to sitting. Be sure to turn her out without her breakfast, so that she will go right to work. But if you want to set her, do it when she is ready, don't put it off. Many will heartily agree with the pen-picture given by Holman Day, when he tells us—

"When a hen is bound to set,
Seems as tho' 'taint etiket,
Dowsin' her in water till
She's connected with a chill.
Seems as tho' 'twas scarcely right,
Givin' her a dreadful fright,
Tvin' rags around her tail,
Poundin' on an old tin pail,
Chasin' her around the yard.
Seems as tho' it was kind of hard,
Bein' kicked and slammed and shoo'ed,
'Cause she wants to raise a brood.
I sh'd say it's gettin' pay
Just 'cause natur' wants its way.
While ago, my neighbor, Penn,
Started bustin' up a hen;
Went to yank her off the nest,
Hen tho', made a "peck" and jest
Grabbed his thumb-nail good and stout.
(Like to yank the old thing out).
Penn he twitched away and then
Tried again to grab that hen;
But, the biddy—she had spunk,
'Cause she took and bit a chunk
Big's bean right out his palm,
Swallowed it, and cool and calm
Histed up and yelled, "Cah-cah!"
Sounded like she said "Hoo-rah!"
Well, sir, when that hen did that,
Penn he bowed, took off his hat,
Spunk just suits him, you can bet,
'Set,' says he, 'do go and set!'"

Now let us rest from many worded topics and mention a few pointed paragraphs.

A FEW POINTERS.

The money in fowls is generally in the eggs, and remember, the best layers are the poorest sitters.

Salt is an essential part of the poultry ration and should be given daily in small quantities.

Building air castles is light work but it doesn't make hens lay.

Don't let a dirty egg go to market.

Feed Formula.—Feed a little of every thing; feed a little, and feed regularly.

For Lice, Mites, and as a Disinfectant.—Wash your perches in a weak solution of crude carbolic acid and coal-oil.

Give asafetida water as a preventive for many chicken diseases.

A lazy person makes a poor poultry raiser.

The best way to cure sickness is to prevent it.

Do you know that ducks are chicken-cholera proof, rouse proof, gape proof? But they may die of spinal-meningitis and paralysis.

The people that do not have success hatching eggs with hens will do no better with an incubator. They are either too careless and neglectful, or too fussy, usually the former.

If one lives up to the instructions accompanying a good, reliable incubator, he will get good hatches. Do not blame the incubator if you fail; nine cases out of ten it is your own carelessness, laziness or neglect.

INCUBATORS.

As the time is at hand for the purchase of incubators and brooders for the coming season, a few words on this subject will not come amiss. Do not throw your money away on a poor-cased machine. There are several



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kinds of cases, namely, single case, double case with dead air space between, double case with one inch packing of mineral wool, or other material, and the three- and five-wall cases, composed of two solid walls, the packing between being of felt and other suitable material. These will vary in price.

As to the heater, some prefer the hot-air, some the hot-water heater. If you purchase a hot-air machine, see that the joints are soldered, not merely crimped. If it be a hot-water, insist on a copper tank, as a hot-water machine without a copper tank will not last as long as a hot-air with galvanized-iron tank. Accept no galvanized-iron tank with a hot-water machine. The lamp should be of sufficient size to require filling once every twenty-four hours, and should have a safe and durable burner. So much depends on the regulator that it should be automatic. The thermometer should be of the best. (You might test it under the old hen before you trust a hatch to it.) One hundred, and four seems to be the most used temperature. The egg tray should be substantial and either square or round in shape, so it can be turned. There should be a nursery beneath for the chicks, and they should be left in this until they dry off. Be sure that your machine has plenty of ventilation. This is very essential.

In operating the machine, select a place as free from draught as possible. Put the thermometer on the empty tray and run it that way for a day, till you become accustomed to it. Then put in the eggs and in the proper time the heat will be up. Turn the eggs twice a day, air them well but do not chill

POULTRY BREEDERS' DIRECTORY

EGGS FOR HATCHING—From my "Superior Strain" of Barred Plymouth Rocks, noted for size and quality. Fourteen years carful exclusive breeding. 15 eggs \$1. 40 eggs \$1.50. E. J. Evans, Box 21, Fort Scott, Kans.

HIGH-CLASS POULTRY—Silver Wyandottes, White Wyandottes, and White Plymouth Rocks. Eggs for hatching, 13 for \$1. R. F. Meek, Hutchinson Kans.

FOR SALE—Fine Barred Plymouth Rock eggs. \$1. for 15, \$1.75 for 30, \$5 for 100 Mrs Geo. Manville, Agency, Mo.

WHITE Plymouth Rock eggs for hatching, from prize-winners. Second prize cock Kans. State show '02 at head of this year's breeding pen. Eggs, \$1 per sitting of 12. W. L. Bates, 1829 Park Ave., Topeka, Kans.

FOUR young litters high bred, pedigreed, Scotch Collie pups for sale. Book your orders quick Walnut Grove Farm, Emporia, Kans.

POULTRY FARM—Breeders of Light Brahmas, Plymouth Rocks and Partridge Cochins, took first second, and third on Light Brahmas; first, second, and third on Partridge Cochins at Fort Scott show. A few good cockerels for sale. Eggs in season, \$1.50 per 15. G. W. Shuman, Fort Scott, Kans. Rural Route No. 1.

MRS. E. F. NEY—Breeder of WHITE WYANDOTTES. Bonner Springs, Kansas. Eggs for hatching, \$1 per setting.

COCKERELS—Indian Games and Black Langshans, farm-raised, price \$1 each, if taken soon. H. Baughman, Wymore, Neb.

FOR SALE—S. L. Wyandotte cockerels. Eggs in season. V. E. Howey, R. R. 5, Topeka, Kans.

FOR SALE, CHEAP—Twenty-five White Plymouth Rock cockers and 40 pullets, sired by the first prize cock of the Nebraska State Poultry Show, 1902. Achenbach Bros., Washington, Kans.

SILVER LACED WYANDOTTES—Exclusively the American Beauties. Choice birds. Sixteen years a breeder. Eggs \$1.50 per 15. D. Tennyson, Frankfort, Kans.

B. P. ROCK EGGS—15, \$1.50; 100, \$4. Mrs. J. W. Holsinger, Cottonwood Falls, Kans.

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them. Do not feed the chicks till the second day. Give them plenty of milk, but very little soft, sloppy food. Give them a variety, such as cheese from sour milk, corn-meal, cracked wheat, ground oats and corn, and Kafir-corn. Feed regularly. A small feed given often is better than a large feed two or three times a day. Be sure of water-proof and rat-proof coops.

POULTRY-RAISING EASY AND PROFITABLE.
As we have said before, poultry-raising is profitable, especially on the farm. The food for them is raised on the farm. They can pick part of their own living from things that would otherwise go to waste.

Another great thing in favor of poultry-raising is the comparative ease with which it can be done. To be sure there is a time of year when closest attention is needed to make a success of raising poultry of any kind. But when that time is over, the marketing of poultry or the gathering of eggs is very easily done and requires no great amount of time. There must be some way of stopping the little leaks in the family pocket-book if farming be made successful. Poultry and eggs to take to town are just the thing for that purpose. If the egg- and chicken-money pay all the living expenses, money from the sale of other produce can be used somewhere else.

Poultry-raising is also profitable because it helps the farmer's wife in preparing the meals. Nothing is more valuable as food than eggs. Nothing more appetizing than fried chicken. The farmer can not always obtain fresh meat, and the chicken supplies the want.

Be a practical, up-to-date poultry raiser and remember, "A farmer is judged by his hens and dogs."

As to profit in poultry-raising—
"I am here to say that I ain't seen—I don't know when—Anything that comes nigh an ordinary hen,
You may talk about corn and call it king,
But it's plainly seen
The Kansas hen is the Kansas queen."

Promoting Country Schools.

READ BEFORE THE FARMERS' INSTITUTE, MARYSVILLE, KANS., FEBRUARY 26, 1903, BY COUNTY SUPERINTENDENT GEO. K. THOMPSON.

We are in the second month of a new year. The progressive individual of every profession, business, or trade is formulating plans for another year's work. He is endeavoring to find out how to better existing conditions so as to make this year yield him a larger measure of good than any previous year. I take it that the purpose of this meeting is to bring together those having a common interest, that they may share each other's experience, to the end that each and all may be benefited.

During the last dozen years, great changes have been wrought, remarkable advancement has been made in every channel of human activity. Labor has been lifted to a higher plane. Increased wealth has, on the whole, bettered the conditions of everybody, and placed the means for securing an education within the reach of all who desire it. Progress is still the watchword. We are living to-day a larger life, getting more out of life and getting it in less time than ever before in the history of man. It is indeed a strenuous life we live. Our ancestors were 3,000 years in perfecting the alphabet we now use. It has taken about 450 years to perfect the printing press, while but 60 of the more recent years have been required to mature telegraphy and photography, and less than a half-dozen of our own years have brought into practical use the X-Ray, the automobile, and the telephone. We congratulate ourselves upon this phenomenal growth. We boast of our educational system and the work being done by our schools. We are proud of the fact that over 99 per cent of the boys and girls of Kansas, between the ages of 10 and 14, can read and write—less than 1 per cent can not. These results are surely gratifying. Then, why the question, "How promote our better our schools?" Is this question raised only by the disgruntled patron found in every school district? Or is it true that the average one-teacher country school is not accomplishing all that is desired? Has not kept pace with our industrial and commercial growth?

Granting that there are good grounds for raising this question, I can offer no panacea as a general remedy for existing conditions. The advocate of strong union or graded schools says "Consolidate." No one thing could be done that would bring about a higher standard of work and better results, but such sweeping reforms come slowly. Shall we wait till all are converted to this proposed change, or shall we

face the facts as we find them and seek specific remedies?

Listen to some of the complaints of the work now done in the schools. The banker complains because his son, soon to graduate from school, can not add and multiply, can not compute interest and discount with sufficient accuracy and rapidity to be of help to him in his business. The grain-dealer finds that his son can not solve the grain, lumber, and live-stock problems with which he has to deal. The farmer will not trust his son to cast up the interest on a note, or accept his estimate the cost of laying the foundation for a new barn. The mother complains of the boy's grammar. Grammatical principles are violated with impunity. The principles, if learned, have not improved the child's speech. Parents are surprised and become angry because their daughter does not secure a teacher's certificate. The question naturally arises, What's the matter?

I have heard these complaints, my friends. I have studied the conditions with all of the earnestness and ability I possess, and I have about come to the conclusion that all are to blame for the present condition of school affairs—teacher, patron, and superintendent.

SUPERFICIAL WORK.

In a number of the schools of this county, "superficial" correctly describes the quality of work that is being done. The so-called "enrichment" of the course of study, the attempt to do some high-school work in the one-teacher country school, has left little or no time for a thorough study of the common branches. A smattering of many subjects and proficiency in none of them is the logical result. I have been inspecting some of the examination questions, and answers to the same given by the teachers to their pupils, and many of these answers clearly indicate to me that the pupil has not only wasted the time spent upon some of the subjects studied, but has gotten such imperfect notions of them as to be positively detrimental. In answer to the question, "How does the food pass from the mouth into the tissues of the body?" a boy doing eighth grade work answers as follows: "The food is taken into the mouth and chewed and mixed with a kind of juice; it then empties into a duct on the left side of the neck, passes through the auditory canal, through the duodenum into the stomach." This same boy, though a poor speller and a poor writer, had dropped them to take up algebra and book-keeping. Again: A graduate of one of our district schools, afterwards a student for two terms at college, was a candidate for a teacher's third-grade certificate. In answer to the question: "Construct a complex sentence containing two adjective and three adverbial phrases," writes as follows: "A car with forty bushels of wheat was ready to leave with the next train near the elevator on the track." These answers are not unlike scores of answers that I have found which plainly show a great lack of thoughtfulness and accuracy of scholarship. Who is to blame for this? The teacher? Patrons? School officers? Superintendent? I say no, none of them in particular, and yet all of them in general.

In nearly every district there is some patron who measures the worth of the teacher by the rapid promotions given the children. The teacher is not slow in finding this out. She wants to please. She wants the good-will of the patrons, and so gallops the child through the book. High grades are also pleasing, so these are given. The child has not only been pushed too rapidly, but his stock has been watered as well. His grade card shows it. The pupil and parent are satisfied for the present only.

In another district the teacher, the patrons, or both, have fostered the idea that unless some of the advanced studies are pursued the school is not keeping abreast of the times. The older boys and girls are allowed to drop many of the common branches, and take in their stead some of the "onomies" and "ologies." Not infrequently, I find in this school that the number of courses of study offered is not even restricted to the number of pupils doing advanced work. Some have elected to make a specialty of mathematics, and have no use for language or history. Others want to be book-keepers. Others have heard that it was a good thing to know something about scientific agriculture, botany and allied sciences, and want to study these subjects. Still others are preparing to be teachers. In this school, complaint will come from parents whose children are in the lower grades,

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where the work is neglected for lack of time. Why this condition? Sometimes the teacher encourages the study of these advanced subjects. She wants advanced classes, classes in algebra, physics, and bookkeeping. She takes this means to prepare herself for an examination in these branches. What, a teacher do such a thing? Why, bless you, they are human, as much so as preachers, lawyers, farmers, or doctors, and are not less susceptible in yielding to the first law of nature. Again, patrons are largely responsible for this elective system. John has an inherited dislike for English grammar. His father sympathizes with him. The subject is dropped and algebra or bookkeeping taken instead. His sister wants to study literature or Latin, more to her liking than dry United States history. And so it goes. The county superintendent prepares a course of study, outlines the work to be done in the common school branches required by law to be taught, but without the cooperation of school officers his admonitions and suggestions to teachers avail little. In some instances he could exercise his authority under the law and "compel," but he does not. Patrons, if you want your children well grounded in a knowledge of the primary subjects, in the vernacular of the street, I would say "cut out" these frills and flummery, and insist upon thorough instruction in the common branches. It is not the mission of the one-teacher district school to prepare for the university more than to lay well the foundation, and this is of first importance because it affects all the work that is to follow.

Then again, we should have better teachers; broad-minded, liberal, winning teachers, capable of controlling pupils, and capable of imparting knowledge and heart culture in such

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a manner as will produce a class of citizens unrivaled in all that is ennobling, patriotic and progressive. The fact that we have so few teachers of this type, makes all of our difficult educational problems still more difficult. Aside from raising the standard of our teachers, there are other things that must be done if we would improve our schools.

BETTER FACILITIES.

We must have better school facilities and better school tools. By school tools I mean blackboards, and workable teaching apparatus. It is not fair for the school patron (tax payer) to contrast school environment of to-day with the school facilities of his boyhood, and thus excuse himself. Why? The child of to-day is reared under almost entirely different conditions. A world of change has been made during the last generation. Many things, once considered luxuries, are now deemed necessities. Our wants and desires have multiplied a hundredfold. The child of to-day expects more, gets more than did his father at the same age.

He will not be satisfied with less. It has come to pass that in many localities the schoolhouse and its surroundings can no longer be taken as indicating the enterprise, push, and thrift of the community in which it is located. It may, however, be a very good thermometer of the educational sentiment of the community.

How does it come that a few years ago we could travel through the county and see on almost every hand old, unpainted stables, with straw-covered roofs, surrounded by raw-boned, brindle cows, and razor-backed hogs, hungrily masticating a rotten cornstalk, and long-necked horses, eating straw from the stable roof. Like a snow-storm that has come in the night, the scene has changed. We now see large red barns filled to the ridge-pole with hay; contented-looking Herefords and Shorthorns in the feed-lots; Poland-China or Jersey Red hogs grunting in the shade of well-filled granaries; while the long-necked skinflint horse has been supplanted by one of high breeding. Why this change? Because the farmer has found out by experience that it does not pay to raise scrubs, and has invested his money in a new barn, and has improved the breed of his stock. The daily paper and the rural telephone have been added to keep him posted on the markets and to keep him in touch with the outside world. Thus it is the farmer is fast coming to be the most independent of men. But in his scramble for independence he has, in too many instances, entirely forgotten the little schoolhouse a mile and a half away, wherein his children are expected to receive that training and culture that in great measure is to prepare them for inherited responsibilities. In too many districts the schoolhouse and its surroundings still smack of the old life. There is no longer anything homelike or inviting about it. It is as dingy looking and as uncomfortable in its appointments as ever. The sanitary and hygienic conditions have remained unchanged. It has the same underpaid teacher, underpaid if she is a real teacher, and overpaid if she is one of those "cheap," or "charity teachers." Does it not seem rather unexplainable that nearly everything that could be done to improve the grade of stock, or that which would facilitate the planting or harvesting of crops, or that adds to the comfort of house or barn, is eagerly sought, while that which would promote the educational interests of the school is frowned upon by some patron because it would add a trifle to the tax?

The time is coming when as much attention will be given to the betterment of the conditions surrounding school-life, as is now given by the farmer to the improvement of his stock, or is given by the merchant to the improvement of his wares.

PLEA FOR THE CHILDREN.

In conclusion, I plead for that defenseless majority of our population—the school children. On their behalf I ask the cooperation of patrons to assist by legislative enactment, and otherwise, in securing more efficient teachers. The cooperation of school officers and patrons is needed to see that all of the common branches are taught and completed. Then let us insist, too, that school officers should stop the practice of letting the school to the lowest bidder. The matter of engaging a teacher should be one of business rather than of charity. Charity teachers are hard to manage. They make trouble for the board and the superintendent. Obligated to cater to the whim and caprice of some patron, they soon cause hard feeling in the district and bring failure to the school. The grade of certificate can not always be taken as a test of a good teacher. If she has proven her worth, has given general satisfaction, keep her, by all means keep her. Raise her salary a dollar or so per month each year. No stronger incentive can be offered for better service and at the same time enable the teacher to better equip herself for her work. On the other hand, if the teacher proves to be a misfit, if there are unmistakable indications that she is going to make a failure of the school, dismiss her, and do it quickly, before she and her friends have time to work up a factional fight in the district.

I plead, also, for better school buildings with home-like appointments; for large, strong school districts financially able to provide for such facilities, and pay for a first-class teacher. When these things are done, the district school will come nearer fulfilling its purpose, that of furnishing the youth with that knowledge and drill of the fundamental branches, that will enable him to appreciate and appro-

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prate those immediate things about him which make for contented, prosperous citizenship.

The Public Schools Are Good.

EDITOR KANSAS FARMER:—In your issue of February 26, I notice "A Criticism of Our Public Schools," by J. B. Mosher, of Cloud County. It does not seem possible that such conditions as Mr. Mosher mentions can exist, certainly not "under our laws," as they provide that the morals of those who receive certificate to teach shall be above reproach. As to "suitable education and other qualifications to teach," the school boards of Kansas can not "under our laws," employ any person who has not the education and ability to teach. The standard is higher in Kansas than in many of the older States; I know this for a fact, for, during the thirteen years I have been on a school board, it has happened several times that a teacher from the East has been engaged, but failed, upon examination, to secure a certificate to teach. This, too, when they held good high-grade certificates from the older State. Mr. Mosher is respectfully invited to come to Allen County and secure teachers who have the necessary moral strength and educational ability to earn their salaries. I hazard the assertion that 50 per cent of the children that come under their supervision will meet morals superior to their own. As to their not having sufficient education to teach, it is impossible to get such if "our present laws" are complied with. That there are a good many grades of teachers I will admit. But if the board is willing to pay for a good teacher, there is no valid reason why they should not get a good one. You can not buy a \$200 horse for \$100 when there are plenty of buyers willing to pay full value for him. Nor can you hire a really good teacher for the price of a kitchen girl. It costs time and money to prepare for educational work; and if the good places are not worth more than the poor ones, we can not expect really competent persons will qualify for the good places. I believe that in nine out of ten poorly taught schools the board has hunted for cheap teachers. In other words, the board has let the salary of teacher cut more of a figure than qualification and reputation.

As to high taxation alluded to by Mr. Mosher, I agree with him that it is too high. But neither the teachers nor the school laws are to blame for our excessive tax rate. Get after the tax dodger and make every man bear his proportionate share of taxes, and the burden will be more easily borne. The tax laws are good enough. Enforce them.

It is simply absurd to denounce our public school system. It is the best institution of the best nation on earth. Allen County. J. C. STRONG.

The Country School Question.

EDITOR KANSAS FARMER:—It is with regret that I notice some people condemn our public schools. While they are not perfect, we all admit, should not we endeavor to make them better? We can do much by electing for our county superintendents men or women of good qualifications, which means those who can conduct our institutes properly, grade the papers honestly—not merely to please and be popular—and grant certificates to those who work and deserve them.

Then look closer home. My exper-

ience shows that but few men are willing to assume the responsibilities of the school committee. It is often shifted on some one not greatly interested, or some one who has a favorite to hire. At a school meeting not far from here last year only seven patrons of the district were present and three of them were women, but they were people determined to have a good school. A young man was hired whom they had known from boyhood, a farmer's boy, but old enough to have good judgment, and, as he had spent a few years at Emporia, he had the education.

I will also say it is the duty of parents knowing of any immoral conduct to report it at once to the teacher. And when parents find the children becoming indolent and disobedient in school there is no better tonic than good steady work such as plowing for boys and housework for girls. I believe five months of good steady work in the school each year is all any child needs till he is 16 years old. Now, farmer friends, let us try to have good schools. A. C. B.

The Public School Question.

EDITOR KANSAS FARMER:—In your issue of February 26 there appeared an article from J. B. Mosher, of Cloud County, entitled "A Criticism of Our Public Schools."

It is difficult for the reader to determine what motive prompted Mr. Mosher to write such an article. We will agree with him in saying that the laws governing our public schools need revising and modifying, but farther than that his article is so broad and unqualified as to be an insult to the great body of public school teachers of the State of Kansas.

It would be strange indeed if a lazy fellow did not occasionally drop into the teaching profession, but to use Mr. Mosher's language and denigrate the teachers of our public schools as an army of lazy loafers without either morals, etc., is putting it too strong. It is perhaps conservative to say that 90 per cent of our teachers are from the best families in the State. It is a fact that the majority of them are from the farm, the best of all places to build up manhood and business integrity, and where morals can develop free from the contaminating influences of town or city.

The farmer boy is taught to be frugal and industrious, and from these lessons comes the ambition that impels him to take up school teaching, which he uses as a stepping-stone to something higher.

This subject is too great to write on intelligently in a few paragraphs, but it is the writer's belief that school-teachers, as a body, are far superior in ambition, morality, and integrity to almost any aggregation of workers in our commonwealth; and if they were asked wherein lies the trouble, they would tell you the need of laws that would enable teachers to be more rigid in school government. There used to be a common law belief that a teacher could inflict corporal punishment if he saw fit, but now the youngest pupils seem to know that if a teacher so punishes he can be brought into a court and fined for assault. There is no law whatever to support the teacher in government, and the parents are largely to blame for it. The teacher is at the mercy of the whims of every person in the district, and is compelled if he wants to hold his place for more than one year, to cater to these whims. These conditions tend to make tramps

out of teachers in the sense that each year nearly every one of them is riding over the county trying to get a different school from the one he taught the year before. These are facts that can not be denied.

The whole business is run too loose. The Government of the country should take a more positive hold of it like the German government. Then it would raise the standard of education, decrease the per cent of illiteracy, and dignify the teaching profession.

In these matters we can only generalize and say many pupils are disobedient and disrespectful at home, and by their parents are encouraged in so doing at schools. Others are just the reverse, being all that could be desired at home and at school, and from this latter class come the most of the teachers of our schools. It is easy to find fault and point out the mistakes of teachers; but if some of those wise Sojons would try teaching everybody's children for a few years, and have to undergo some of the trying ordeals of teachers, they could more consistently and intelligently criticize teachers and advise State or National Legislatures. Miami County. W. L. RIGNEY.

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THE MARKETS.

Kansas City Live-Stock and Grain Market.

Kansas City, Mo., March 9, 1903. The five big markets of the country received a lighter supply of cattle last week, the aggregate run approximating 127,000 head. Compared with a year ago, however, this number is an increase of 20 per cent. The supply at Kansas City reached 26,200 head, constituting one of the lightest weeks' runs of the winter. The slight let-up in receipts had a most beneficial effect upon prices, steers advancing 10c to 20c and cows and heifers selling 25c to 40c higher and quitting at the best point of the entire winter. There were comparatively few choice 1,600-pound export steers received and such cattle sold well, bringing \$5.25 to \$5.40. The top for the week was \$5.40, realized by Robert Mattie, of Cottonwood Falls, Kans., and S. R. Clifford, of Eldorado, Kans. O'Bryan Bros., of Welch, I. T., topped the quarantine division with a drove of good cattle that brought \$4.90.

The long depression in the cattle market was relieved greatly by the improvement in prices last week, and the impression is prevalent that from now on the market will become still better. Plain heaves are now worth \$4.50 to \$4.75; heifers \$3.75 to \$4.75; cows \$3 to \$4.25; stockers \$4 to \$4.75; and feeders \$4 to \$4.85.

Hogs continued their upward flight last week, the advance ranging from 15c to 25c. Tops sold for \$7.42 1/2, two Kansans, A. W. Dusenbury, of Mankato, and Frank Johnson, of Dwight, securing this amount for their swine. The price is the highest that has been paid here since last October, and in only two Februarys, 1883 and 1893, has the market been exceeded. List receipts and bullies provision markets were the factors that influenced the hog trade. The supply at Kansas City was right at 25,000 head, and the five markets got only 234,000 head, about one-third less than the supply the same week last year. The market may react during the present seven days but the ultimate trend of values seems to be upward instead of down, for were there no shortage in swine throughout the country the present big prices would result in heavier runs.

Sheep and lambs followed the example set by the other classes of live stock and sold higher, the advance ranging 15c to 25c. Muttons were the best sellers, but lambs were also in high favor. Wethers brought \$5.55 for tops. Western ewes \$4.90, yearlings \$6.25 and lambs \$6.75. These are the highest prices of the winter and are fully equal to the drouth-time values current this time a year ago. Traders count on a continuation of high prices for sheep for another month or two, possibly longer. Advices from the South say the Texas movement will be of no moment until towards the first of May, and until some grass sheep arrive good prices must continue.

The horse market was moderately supplied, the run aggregating only 1,100 head, about half the supply the corresponding period a year ago. On Monday trade opened dull to \$5 to \$10 lower, but the market reacted Tuesday and the loss was about regained. Southern horses declined a little at the close, however. Best drafts are quoted at \$150 to \$175; chunks \$100 to \$130; farm mares \$90 to \$140; mules opened dull but took on life as the week progressed, closing firm. Prices show no change, the decline quoted the previous week still being in vogue.

The egg market firmed up a little during the week. Bad country roads kept stock away from the city and the curtailed supply helped sellers to no slight extent. Poultry showed no appreciable change during the week. Eggs are now worth 13 1/2c to 14 1/2c; hens 9c; springs 12c; roosters 20c to 25c; turkey hens 13 1/2c; gobblers 12 1/2c; geese 8c; ducks 12 1/2c. Wheat slumped off during the week, declining 2 1/2c to 3 1/2c per bushel. The impression prevails everywhere that the reserve stock of wheat still in farmers' hands is too large to justify prices that have been in vogue of late. Accordingly the big Chicago speculators began to let loose of their holdings last week and the market dropped. Corn showed no change for the worse but oats eased off about half a cent. Cash wheat at Kansas City is now worth: No. 2, 68 1/2c; No. 4, 54 1/2c; No. 2 corn 39 1/2c; No. 4, 37 1/2c; No. 2 oats 34 1/2c; No. 4, 32 1/2c; rye 44 1/2c; bran 75 1/2c; tame hay \$7 to \$12.50; prairie \$4 to \$8.50; alfalfa \$8 to \$12. H. A. POWELL.

South St. Joseph Live Stock Markets.

South St. Joseph, Mo., March 10, 1903. Receipts of cattle last week were only fairly good and the demand strong at 10c to 20c higher range of prices. The quality averaged fair to good with choice, well-fatted Missouri heaves topping the market at \$5.35. Cows and heifers continued in light supply and the demand strong at 10c to 25c higher values. Stock cattle were in moderate proportion, and the movement free to the country and the demand strong on local account, under which conditions prices ruled 15c to 25c higher.

The hog market was governed wholly by receipts last week, as under light supplies prices were sharply higher while with liberal receipts there was sharp break in the market. The week closed with higher values than the opening. Prices to-day ranged from \$7.17 1/2 to \$7.45, with the bulk selling at \$7.25 to \$7.40. Pigs continued in small supply and prices ranged from \$5.60 to \$6.60, according to quality.

The bad storms in the West earlier in the week checked supplies of sheep and lambs from that part of the country, especially Colorado, while Kansas, Nebraska, and Missouri were comparatively liberal patrons of the market. The market was 15c to 25c higher for the good, fat grades but commoner kinds showed no appreciation in value. Native lambs topped the market at \$7; Colorado, \$6.90. Colorado yearlings sold up to \$6.25, natives and Western wethers, \$5.50, and Colorado ewes, \$5.10.

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Lawrence Seed Markets.

Lawrence, Kans., March 2, 1903. We give you to-day's buying prices in our market. Outside prices are for best grade:

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FOR SALE—Bulls at farmers' prices, cows and heifers cheap, to reduce herd. Twelve registered Angus bulls from 10 to 20 months old; also my herd bull—or would exchange. Cows and heifers bred, some with calves by side. These cattle are not overfed, but in good breeding condition. A. L. Wynkoop, Bendena, Kans.

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WHITE WYANDOTTE EGGS—13 for \$1.00. E. Viola Harmon, Liberal, Mo.

JAMES BOTTOM, breeder of Black Langshans. Eggs \$1.00 per setting. Onaga, Kans.

PEN OF SELECTED WINTER LAYERS—R. C. Brown Leghorns exclusively. Eggs \$1.25 per setting of 15. H. M. Johnson, Formosa, Jewell Co., Kans.

FOR SALE—Light Brahma cockerels, \$1.00 each, four for \$3.00. Wanted—White Holland turkeys. Nellie E. Stallard, Sedan, Kans.

FOR SALE—Fine Single Comb White Leghorn cockerels, pure-bred, at 75c and \$1.00 each. Mrs. Albert Ray, Delavan, Kans.

BLACK MINORCAS—World's greatest laying strain, beautiful in shape, color and comb; grand winter layers. Eggs \$1.50 per 15. Address George Kern, 817 Osage St., Leavenworth, Kans. Circular free.

FOR SALE—Light Brahma chickens; the finest in the land; I won three first premiums, one second and two third, against the hottest competition. I offer 10 high-scoring cockerels at \$5 each; ship subject to examination at express office; if not as represented, ship back at my expense, and money will be refunded. Others not so high scoring, for \$1, \$2 and \$3, but not on shipping guarantee. Eggs from prize winning pens \$2 for 15, from second pen \$1 for 15 or \$1.50 for 30. Correspondence solicited. Mrs. J. H. Kenworthy, Cottage Home Poultry Yards, 1102 Waco Ave., Wichita, Kans.

MISCELLANEOUS.

WANTED—Single man on stock and grain farm; permanent position for good man. W. B. VanHorn, Lone Star, Kans.

FOR SALE—A monthly publication for those interested in gas and gasoline engines, to be known as Gas Power, offers a full year's subscription for 20c to those subscribing in advance. Regular price 50c. First issue soon to be out. Try it for a year. Address Gas Power Publishing Co., St. Joseph, Mich.

BOYS AND GIRLS MAKE MONEY—Write for particulars. James M. Ramsey, Bridgeport, Ohio.

WANTED POSITION—An experienced man desires a situation as manager or superintendent of a stock farm. Good references. Address T. B. F., Care of Kansas Farmer Co., Topeka, Kans.

FOR SALE CHEAP—Pedigreed Scotch Collie pups. W. H. Richards, V. S., Emporia, Kans.

The Stray List.

Week Ending February 26.

Harvey County—John L. Caveny, Clerk. PONY—Taken up by J. J. Stewart, in Macon tp., February 5, 1903, one chestnut sorrel pony mare, about 7 years old; valued at \$20.

Week Ending March 5.

Johnson County—J. G. Rudy, Clerk. MARE—Taken up by Wm. Colson, in Gardner tp. (P. O. Gardner), Feb. 9, 1903, one brown mare, 15 1/2 hands high, knot on right knee, about 14 years old; valued at \$25.

Greenwood Co.—C. D. Pritchard, Clerk. CALF—Taken up by B. C. Williams, in Eureka tp. (P. O. Eureka), Feb. 10, 1903, one black steer calf, white face, white streak on top of neck.

Week Ending March 12.

Shawnee County—A. Newman, Clerk. HORSE—Taken up by Mrs. Kate Pearl, in Williamsport tp. (P. O. Wakarusa), one light grey horse, 10 years old, under bit on right ear.

Lyon County—W. F. Eggers, Clerk. MARE—Taken up by B. F. Hughes, in Emporia tp., December 1, 1902, one brown or bay mare.

Summer County—W. A. Lichtenberger, Clerk. STEER—Taken up by Will Johnson, in Falls tp. (P. O. Caldwell), February 14, 1903, one red steer, coming 2 years old in spring, tip off right ear.

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UNION MERCANTILE CO., Box 11, Winona, Minn.

Fungicides, Insecticides, and Spraying Calendar.

(Continued from page 301.)

20. **ARSENATE OF LEAD.**
4 ounces arsenate of soda 50 per cent strength.
11 ounces acetate of lead.
150 gallons of water.
Put the arsenate or soda in 2 quarts of water in a wooden pail, and the acetate of lead in 4 quarts of water in another wooden pail. When both are dissolved mix with the rest of the water. Warm water in the pails will hasten the process. For the elm-leaf beetle use 25 instead of 150 gallons of water.

For canker-worms it is sometimes necessary to make the poison much stronger than those specified in these formulas. Judge Wellhouse sometimes doubles the strength, taking care to increase the lime in like proportion to the arsenic.

21. **WHALE-OIL SOAP.**
2 pounds potash whale-oil soap.
1 gallon hot water.
For winter use only.

22. **KEROSENE EMULSION.**
½ pound hard soap, shaved fine.
1 gallon water.
2 gallons kerosene.
Dissolve the soap in the water which should be boiling; remove from the fire and pour it into the kerosene while hot. Churn this with a spray pump till it changes to a creamy, then to a soft butter-like mass. Keep this as a stock, using one part in nine of water for soft-bodied insects such as plant lice, or stronger in certain cases.

23. **MECHANICAL EMULSION.**
A substitute for the last. Made entirely by the pump which draws water and kerosene from separate tanks and mixes them in the desired proportion by a mechanical device. Several pumps for this purpose are now on the market.

24. **RESIN LIME MIXTURE.**
5 pounds pulverized resin.
1 pound concentrated lye.
1 pint fish or other animal oil.
5 gallons water.
Place the oil, resin, and 1 gallon of hot water in an iron kettle and heat till the resin softens; then add the lye and stir thoroughly; now add 4 gallons of hot water and boil till a little will mix with cold water and give a clear, amber-colored liquid; add water to make up 5 gallons. Keep this as a stock solution. For use, take

1 gallon stock solution.
16 gallons water.
3 gallons milk of lime.
¼ pound Paris green.
The object of this preparation is to obtain an adhesive material which will cause the poison to adhere to smooth leaves. It has been highly recommended by the New York State (Geneva) Experiment Station.

25. **LIME, SALT, AND SULPHUR.**
(Oregon Formula.)
50 pounds unslacked lime.
50 pounds flowers of sulphur.
50 pounds common salt.
Slake the lime in enough water to do it thoroughly; add the sulphur and boil for an hour at least, adding water if necessary. Then add the salt and boil fifteen minutes more. Add water to make 150 gallons and spray hot through a coarse nozzle.

26. **LIME, SALT, AND SULPHUR.**
(Marlett's Formula, from Smith.)
30 pounds unslacked lime.
30 pounds sulphur.
15 pounds salt.
60 gallons water.
Boil with steam for four hours and apply hot.

27. **CARBOLIC ACID EMULSION.**
1 pound hard soap shaved fine.
1 gallon water.
1 pint crude carbolic acid.
Dissolve the soap in the water, boiling; add the carbolic acid and churn as for kerosene emulsion. Use one part of this with 30 parts of water.

28. **HELLEBORE.**
1 ounce hellebore.
½ gallon water.
Steep the hellebore in a pint of water and gradually add the rest of the water. Hellebore may also be dusted over the plants, either pure or mixed with flour or plaster.

29. **INSECT POWDER. PYRETHRUM.**
Mix with half its bulk of flour and keep in a tight can for twenty-four hours; then dust over the plants. Or,
100 grains insect powder.
2 gallons water.
Mix together and spray.

30. **BORDEAUX MIXTURE AND PARIS GREEN.**
4 ounces Paris green.
50 gallons Bordeaux mixture.

31. **BORDEAUX MIXTURE AND ARSENATE OF LEAD.**
1 gallon arsenate of lead (made by formula No. 20).
50 gallons Bordeaux mixture.

32. **BORDEAUX MIXTURE AND ARSENITE OF LIME.**
1½ quarts arsenite of lime (made by formula No. 19).
50 gallons Bordeaux mixture.

33. **IVORY SOAP.**
1 bar Ivory soap (10-cent size).
15 gallons water.
Apply warm, as it thickens on cooling. Recommended for rose mildew, red spider, plant lice, etc.

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Diseased Grapevines.

EDITOR KANSAS FARMER:—Under separate wrapper I send you some grapevines. They are effected with some disease. The grapes have red spots on them.

The scars on the twigs may be the result of a hailstorm we had last summer, but the disease leaves a scar looking much like this.

What is it and what is the remedy? If you will answer you will much oblige a ten-year subscriber to KANSAS FARMER.

W. R. MACKLIN,
Washington County.

ANSWERED BY PROFESSOR DICKENS.

The specimens received were evidently injured by hail, as the microscope failed to disclose the presence of fungus. The fungus which affects the canes causing an appearance somewhat similar is known by the botanist as Spaceloma Ampelinum, commonly called Anthracnose, or Bird's Eye Rot, the first name referring to the blackened spot on the canes and the latter to the appearance of affected fruit.

This disease has been kept in check by spraying the vines and trellis before the buds start with a solution of copper sulfate, one pound to fifteen gallons of water, and later spraying with Bordeaux mixture. The Bordeaux is applied for mildew and rot, so that the copper sulfate treatment is the only difference from treatment for mildew. A swab or brush is often used instead of spray for the copper sulfate application.

Canes badly affected should be cut away and all affected wood burned.

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Breeders' Directory

DUROC-JERSEY SWINE.

D. TROTT ABILENE, KAS., famous Duroc-Jerseys, Poland-Chinas Registered Stock, DUROC-JERSEYS, contains breeders of the leading strains. N. B. SAWYER, CHERRYVALE, KANSAS.

W. BAILEY, BEATTIE, KANS. For Sale, G. Famous Pedigreed Duroc-Jersey Swine. Registered Scotch Terrier dogs. Fine, young stock 6 months old. Nosegay Foxglove astud. Correspondence solicited.

MAPLE AVENUE HERD J. U. HOWE, Wichita, Kansas Farm 2 miles west of city on Maple Ave. DUROC-JERSEYS.

FAIRVIEW HERD DUROC-JERSEYS Watch for our Brood Sow Sale in February. J. B. DAVIS, FAIRVIEW, BROWN CO., KANSAS.

DUROC-JERSEYS. Duroc-Jerseys For Sale—Choice July, Aug., and Sept. pigs for sale, both sexes. Prices reasonable. Newton Bros., Whiting, Kans.

WALNUT HILL HERD DUROC-JERSEY SWINE. H. A. J. COPPINS, County Clerk, Eldorado, Kans. Stock of both sexes for sale.

DUCK CREEK HERD OF Duroc - Jersey Swine. 200 head to choose from. Write us your wants. Mitchell Bros., Buxton, Wilson Co., Kans.

ROCKDALE HERD OF Duroc-Jersey Swine Everything is sold except a few pigs of September farrow. Am also offering one of my herd boars for sale. J. F. CHANDLER, Frankfort, Kansas.

Imhauser & Co.'s Long and Large Boned Duroc - Jersey Hogs. Have some choice fall pigs for sale. If you are looking for something good, write for prices, etc. Also cultivators of Ginseng—greatest money-making plant grown. J. E. IMHAUSER & CO., R. F. D. No. 4, SEDALIA, MO.

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Swine herd headed by Big Joe 7363 and Ohio Chief. Cattle herd headed by Kansas 8308. All stock reserved for October sale. PETER BLOCHER, Richland, Shawnee Co., Kans.

Golden Red Herd Prize-winning Duroc-Jerseys VAN'S PERFECTION 11571, sweepstakes boar at all State Fairs of 1902, at head. Everything reserved for my great bred sow sale, February 18, 1903. GILBERT VAN PATTEN, Sutton, Neb.

POLAND-CHINA SWINE. Dietrich & Spaulding, Richmond, Kas. For Sale—Choice bred POLAND-CHINA GILTS safe in pig to our great herd boars. Also extra good fall pigs, boars, and gilts.

Kansas Herd of Poland-Chinas Has some extra fine gilts bred, also some fall boars. Will sell Son, I Know, he by Perfect I Know. Address—F. P. MAGUIRE, HUTCHINSON, KANS

Shady Lane Stock Farm HARRY E. LUNT, Proprietor, Burden, Cowley Co., Kans. A few choicely bred Poland-China Boars for sale, some choice open gilts and bred sows

..Oak Grove Herd.. OF PURE-BRED

Poland-Chinas For Sale—A few choice Boars and 50 Gilts, some bred for early spring farrow. Write, or come and see... GUS AARON, R. F. D. 5, Leavenworth, Kans

SHADY BROOK STOCK FARM POLAND-CHINAS. I keep constantly on hand all sizes and ages of high-class Poland-China pigs. Quality high, prices low. Write for description and price to H. W. CHENEY, North Topeka, Kans.

THOROUGHbred Poland-China Hogs I am cleaned up on boars and bred gilts. I have some nice open June gilts and can spare a few yearling bred sows. Orders booked for spring pigs by Keep On 61015, Imperial Chief 3d 2878, Black Perfection 27132, and Corwin Improver 25708. On Missouri Pacific R. R., one mile west of Kickapoo, Kans. JOHN BOLLIN, R. F. D. No. 5, Leavenworth, Kans.

POLAND-CHINA SWINE.

Elmdale Herd of High-Class POLAND-CHINAS

Shawnee Chief 28502 at head of herd. Some choice bred gilts only for sale, bred to a Perfection boar. W. L. REID, Prop., R. R. 1, North Topeka, Kas.

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J. R. Killough & Sons, OTTAWA -:- -:- KANSAS.

PEOAN HERD OF POLAND-CHINAS. Our boars of serviceable age are all sold, but we have a number of good ones of September and October farrow; also a fine lot of bred gilts, sired by Model Tecumseh 64133, J. L.'s Best 70855, and U. S. Wilkes 25821. J. N. WOODS & SON, R. F. D. No. 3, Ottawa, Kansas

CHOICEST STRAINS ...OF... POLAND-CHINA HOGS

400 head in herd. Fashionably bred sows and gilts bred to Broad Gauge Chief 25733, first prize winner International Show, 1900, and Simply O. K. 24290, first prize winner Missouri State Fair 1901. 200 winter and spring pigs in special offer. Bargains in registered Stallions and Mammoth Jacks. Also SHORTHORN and POLLED DURHAM CATTLE. Call on, or write to R. J. SIMONSON, Mgr., CUNNINGHAM, KINGMAN CO., KANS

SNYDER BROS., WINFIELD, KANS

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The Crescent Herd O. I. C. WHITE The World's Best Swine Some choice spring boars ready for service, and Gilts bred, for sale. This stock is O. K. and can not be excelled for the money. Every hog guaranteed. Write for prices and Free Delivery proposition. JOHN W. ROAT & CO., CENTRAL CITY, NEBRASKA.

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Large English Berkshires

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BLUE BLOODED IQ BONED ROAD BACKED BERKSHIRES . . . Young stock of all ages and both sexes, and bred sows for sale. E. W. MELVILLE, EUDORA, KANSAS.

Fall Berkshire Boars

FOR SALE, QUICK, AT A REASONABLE PRICE

We have for sale a few choice yearlings, sired by Baron Duke 30th 50017, he by Baron Lee 4th 33448, and out of Duchess C 35th 33683. The dams of these boars are of the most desirable strains Inspection or correspondence desired. Address ACHENCACH BROS., Washington, Kas. Breeders of Berkshire Swine, Double Standard Polled Durham Cattle, and W. P. Rock Chickens.

EAST LYNN HERD OF LARGE ENGLISH BERKSHIRES

Herd headed by Premier 4th 55577 assisted by Rutgers Judge 2d 61106. ONLY THE BEST. Imp. Lady Elma 4th 44668, the highest priced Berkshire ever sold in Kansas City, is in our herd and there are others like her. Inspection invited six days in the week. WILL H. RHODES, Tampa, Marion Co., Kans.

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ENGLISH RED POLLED CATTLE—Pure-bred Young Stock For Sale. Your orders solicited. Address L. K. HASELTINE, DOHCHESTER, GREEN CO., MO. Mention this paper when writing.

HEREFORDS FOR SALE.—Having sold the most of my herd, I have left for sale five fine yearling bulls. Write me for particulars. I will sell them cheap. E. S. COWE, R. R. 2, BURLINGAME, KANSAS.

MEADOW BROOK SHORTHORNS—Ten fine young bulls for sale—all red. Red Laird, by Laird of Linwood, at head of herd. F. C. KINGSLEY, Dover, Shawnee county, Kansas.

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Shorthorn Bulls For Sale From the Valley Grove Herd. An extra good lot, reds and roans, sired by Lord Mayor 112727 and Knight's Valentine 157068. T. P. BABST & SONS, AUBURN, KANS. (Telegraph Station, Valencia, Kansas.)

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Scotch-topped Young Mary females with 9th Knight of Elmwood 161507 at head. Call on, or write W. J. Smith, Oketo, Kas

Ruby Red Herefords.

15 FINE, YOUNG BULLS FOR SALE. Socrates 75813, a mammoth, dark red sire, smooth, low, of great frame, drooping horns, and descended from Lord Wilton, The Grove 3d, Horace, and Garfield. The dams are choice, and descend from Lord Wilton, Anxiety 3d, Earl of Shadeland 23d, Horace, The Grove 3d, Hesiod. A few grade bulls on hand. Also Poland-China swine. Have just purchased the entire show herd of POLAND-CHINA SWINE of the late F. J. Knappenburger, of Penasco, Kansas. Call on, or write to R. J. SIMONSON, Mgr., CUNNINGHAM, KINGMAN CO., KANS

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For immediate sale, 12 bulls ready for service, and 12 bull calves. Also 20 cows and heifers, 1 to 7 years old. Give me a call, or address, H. R. LITTLE, Hope, Kans.

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A few choice yearling and 2-year-old heifers bred to one of Corrector's best sons for sale very reasonably; also some 4-year-old cows with calves at foot and rebred, and just four bulls under 1 year out of Lord Wilton and Grove 3d cows. Visitors welcome. Correspondence prompt. WM. TIBBLES, Haddam, Washington Co., Kans.

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of the choicest strains and good individuals. Young animals, either sex, for sale. Also breeders of..... Percheron Horses, Improved Chester White Swine, Bronze Turkeys, and Plymouth Rock Chickens. Address G. C. BARTLETT, R. F. D. No. 5, Wellington, Kans.

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Herd headed by the young show bull, Protocol 2d 91715, assisted by Major Beau Real 71621, a nephew of Wild Tom. Females largely the get of Bernadotte 2d 71634. A few choice young bulls for sale. Robt. H. Hazlett, Eldorado, Kansas

Cherry Creek Herd Pure Scotch and Scotch-topped Shorthorns

Imported Scottish Knight 136371 heads the herd. All sale animals reserved for the great South Omaha sale on March 13 1903. H. W. WEI-S, Formerly of Sutherland, Iowa. Westphalia, Kas

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Shorthorn Cattle, Poland-China Swine. Two Scotch bulls in service. Representative stock for sale. Address Andrew Fringie, County, Kansas.

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POLLED DURHAM CATTLE. 20 head of both sexes. Bulls of serviceable age and young cows bred. Eligible to two records. Correspondence solicited. A. E. BURLINGAME, KNOX CITY, KNOX COUNTY, MO.

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Anxiety 4th females with Weston Stamp 9th at head WM. ACKER, VERMILLION, KANSAS.

ESKDALE HERD OF Aberdeen - Angus Cattle. YOUNG STOCK FOR SALE. JAMES FRATER, Fredonia, Wilson Co., Kans.

MODEL BLUE GRASS FARM HEREFORDS. Stock For Sale. OVERTON HARRIS, Harris, Mo

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VICTOR OF WILDWOOD 125054, a pure Crutch-shank-Orange Blossom in service. Females of high quality, pure Scotch and Scotch-topped; choice bulls for sale; also females. C. S. NEVINS, Prop., CHILES, MIAMI COUNTY, KANSAS. 40 miles south of Kansas City, on Missouri Pacific Railroad. Telephone at farm.

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Also German Coach, Saddle, and trotting-bred horses. World's Fair prize Oldenburg Coach stallion Habbo, and the saddle stallion Rosewood, a 16-hand 1,100-pound son of Montrose in service. Visitors always welcome. BLACKBERRY BROS., ELMDALE, CHASE COUNTY, KANSAS.

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Herd Foundation Stock A Specialty. A Few Choice Females and 14 Bulls For Sale. Inspection or Correspondence Invited.

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Herefords headed by Gold Dust 968-8; Shorthorns headed by Daring Knight 170761. Twenty registered Hereford bulls, 9 to 11 months old for sale cheap. Bred Plymouth Rock cockerels, \$2 and \$3; pullets, \$2; 50 of each for sale. LOUIS HOTHAN, Carbondale, Kansas.

THE ..N. MANROSE..

Shorthorns

Rural Route 5, Ottawa, Kans. Giltspur's Knight 171591, at head of herd Young bulls ready for service for sale.

"The Wayside" Herd of Registered HEREFORDS

"ANXIETY WILTONS," with Printer 46684. March On 14th 106878, and Good Sign 140887, as Service Bulls, will be represented at South Omaha, January 22-23—get a Catalogue and Kurn. Some excellent young things among this year's calves for sale—private treaty. Do you want show HERDS that will WIN? Get one by Printer, and one by March On 14th, be on top, and see them take first and second place. W. W. GRAY, Fayette, Missouri.

Walnut Valley Stock Farm

Breeders of Scotch and Scotch-topped SHORTHORNS

The Prize-winning Bull, SCOTT JUNIOR 124222 now for sale. W. J. SNODGRASS, Gordon, Butler Co., Kans.

Elder Lawn Herd

Shorthorns Headed by GALLANT KNIGHT and Imp Tilly Cairn.

Bulls, Cows, and Heifers, for sale at bargain prices. Can supply females in car-load lots if desired. Some show yard material. T. K. TOMSON & SONS, Dover, Shawnee Co., Kans

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ALLEDALE HERD OF Aberdeen - Angus Cattle.

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THE SUNFLOWER HERD PURE-BRED Angus Cattle.

Herd headed by RALE LAD 30645. Herd numbers 250 head, the largest herd bred by owner in America. Stock for sale. Address PARRISH & MILLER, Hudson, Stafford Co., Kans.

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Owing to the death of my brother Mr. R. J. Borgan, I am now offering to close out the entire herd of Double Standard Polled Durham, Shorthorns, and a herd of 150 native cows bred to Double Standard bulls. Parties desiring some first class dual purpose cattle can now buy to advantage by addressing NELLIE BURGAN, FORD, KANSAS

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Great constitution and lung capacity gained in high altitudes. A few select young swine and sheep for sale. ED. GREEN, MORRISON, COLO.

Bill Brook Breeding Farm.

SHORTHORN CATTLE and ANGORA GOATS. Herd Bull, IOWA SCOTCHMAN 2d 136687. Write for what you want. Address H. O. Tudor, Holton, Kas

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Sempstress Valentine 15771 and Mayor 129229 at head of herd. Larkin's Duluth and Kansas King at head of Saddle Horse Herd. J. F. TRUE & SON, Perry, Kansas. Railroad Station, Newman, Kansas.

Registered Herefords.

THOS. EVANS, Breeder, Hartford, Lyon County, Kansas. One car load of bulls, 1 and 2 years old; one car load of heifers, 1 and 2 years old; a few cows with calves by side for sale.

COPELAND'S Shorthorns

Forty head of Scotch-topped Young Marys, Floras, Harriets, Ianthas, and Britanias. Minister 2d 150171 at head of herd. J. M. COPELAND, Glasco, Cloud County, Kansas.

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At Arkansas City, Kans., March 31, 1903. consisting of 13 Bulls and 4 Cows. Sale will be under cover. For Catalogue, address L. F. JOHNSON & SON, R. R. 4, Gauda Springs, Kas COL. LAPE BURGER, Auctioneer.

Mt. Pleasant Herd SHORTHORNS.

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100 Choice Herefords For Sale

I will sell in lots to suit purchasers, 10 choice registered Herefords, which include 12 bulls of serviceable age, cows, heifers, bred and unbred and calves. Will make the price an object to buyers. Will sell anything except herd bull. Come and see me, or address H. B. Clark, Geneseo, Rice Co., Kans

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Having used my herd bull on my small herd of Shorthorn cows as long as practical I offer him for sale or trade. He is out of a pure Duchess cow and by a pure-bred Crulek-hank bull. Guaranteed a breeder and all right. For particulars, address DR. C. M. COE, 915 Walnut St., Kansas City, Mo.

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A BARGAIN IN Shropshires 50 head of registered ewes bred to imported rams; 15 head of high-grade ewes, bred to a good registered ram; 6 head of English imported ewes, bred by Hardie and McIntyre; 45 head of lambs, rams, and ewes from imported sires; 40 head of 1- and 2-year-old rams; 4 head of yearling rams from imported sires and dams; also 3 head of ram lambs from same; 2 head of yearling ewes and 3 head of ewe lambs from imported lines and dams. These sheep must be sold before March 1. Write your wants at once and get bargain prices. The flock will go at a very low figure to a quick buyer. G. C. HAYWARD, E. F. D. No. 3, Tama, Iowa.

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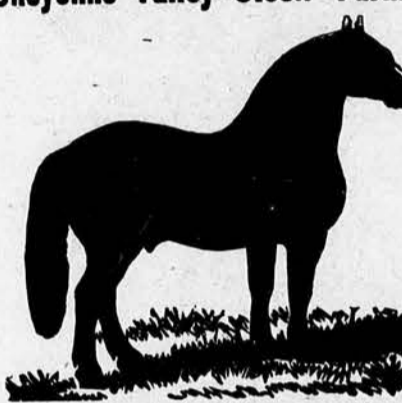
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GARRET HURST, Breeder, ZENIA, SUMNER COUNTY, KANSAS. Young stock for sale, of either sex. All registered.

102 Black Jacks and some bred Jennets, Mammoth and Spanish, 14 to 16 hands. Registered trotting and saddle studs. Everything for sale low now. Come or write for prices on what you want. G. A. FEWELL, Leeton, Johnson Co., Mo.

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Greatest Importing and Breeding Establishment in the World. Famous Prize-Winning Stud of PERCHERONS and FRENCH COACHERS.

On hand upward of 500 HEAD. Four Large Importations in 1902; forming, with our home-breds, The Choicest Collection Ever Assembled, including Four of the Six First-Prize winners at the great annual French Show of the Societe Hippique Percheronne in 1902. At the recent INTERNATIONAL LIVE-STOCK EXPOSITION at Chicago, the Oaklawn Percherons achieved distinguished honors. The Champion Stallion and every First-Prize winner (except one) in the regular stallion classes were imported by Dunham, Fletcher & Coleman.

Notwithstanding the superior quality of our horses our prices are lower than can be obtained elsewhere in America. If a Percheron or French Coach Stallion is needed in your locality, correspond with us, with the view of our sending a salesman to place one, with your assistance. Reliable men who thus demonstrate ability in this line of work have no difficulty in arranging to represent us in the selling of stallions. Catalogue sent on application.

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German and Oidenburg Coach Horses. Our Last Importation Arrived January 3, 1903, making Our Fifth Importation in the Last Nine Months. No other importers buy direct from breeders in the old country. The oldest member of our firm resides in Germany on a 1,000 acre farm on which are kept constantly 50 to 75 stallions of service age. He is active twelve months in a year, buying the choicest blood of the breed, and thus as a resident buyer avoids large expense of interpreter, commissions, etc. He is only ten hours by rail from the DRAFT HORSE districts of Belgium and France. All importers and breeders will save time money, and risks by buying coach and draft horses from us at our Illinois stables, at "old country prices." A full stock of GERMAN COACH, BELGIAN, and PERCHERON STALLIONS constantly for sale. OLTMANN'S BROS., Waukesha, Illinois 77 miles south of Chicago, on C. & E. I., and T. P. & W. Railways

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Are sensations to his buyers, his low prices are "warm propositions" to his competitors. Iams will show you MORE stallions of big size, quality, and finish than ALL IMPORTERS IN NEBASKA, and horses you will wish to pay your fare to see him—you the judge. If you will pay cash or give bankable note, you will sure buy a stallion of IAMS. In October, 1902, he imported 63 black and bay stallions, they can not be duplicated in any importing barn in the United States for the number, for big size, quality, finish, royal breeding and bargain prices. They are all

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Visitors and buyers throng his barn and say: Hello, Bill! I'm from Illinois; I'm Iky from Missouri; Iams has the good ones; he shows us horses better than he advertises. See that 1,900-lb. 2-year-old "a hummer," I bought him at \$1,300. Couldn't duplicate him in Illinois, Ohio, or Iowa at \$2,000. See that 2,150-lb. 3-year-old, "a ripper." Say, Iky! see those six black 2,300-lb. 4-year-olds he is showing to those Ohio men. They are the BEST I EVER SAW. Say, boys! look at this \$1,100-lb. pair of beauties; they are worth going from Maine to California to see (better than the pictures). Say, Iky, you couldn't go wrong here. They are all "crackerjacks." If you open your mouth and your pocketbooks you will do business. Iams sell them. He has on hand imported and home-bred.

117-Black Percherons, Belgians, and Coachers-117

2 to 6 years old, weight 1,600 to 2,500 lbs, all "approved and stamped by the European government, 95 per cent blacks, 50 per cent TON HORSES. Iams speaks French and German, buys direct from the breeders. PAYS NO INTERPRETERS, NO BUYERS, NO SALESMEN, HAS NO TWO TO TEN MEN AS PARTNERS TO SHARE PROFITS WITH; his buyers get middleman's profits. These six facts and his 21 years of successful business at St. Paul makes him sell first class stallion at 50 cents on the dollar, and saves his buyers from \$500 to \$1,000 on each stallion. FARMERS: Form your own stock company, why pay slick salesmen \$2,500 to \$3,000 for third rate stallion when you can buy a better one of Iams at \$1,000 or \$1,200. First class stallion are NEVER PEDDLED to be sold. IT COSTS \$800 TO \$1,000 TO HAVE A COMPANY FORMED BY SALESMEN; Iams pays horses' freight and his buyers' fare. Write for finest horse catalogue in United States, showing 40 illustrations of his horses. It is an eyeopener. References, St. Paul State bank, First State bank and Citizens' National bank. Barns in town.

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Write or write. A. L. Sullivan, Mgr., Lincoln, Neb. Last importation received Oct. 14, 1902



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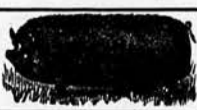
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Riverside Stock Farm,

Two miles west of North Topeka, Kansas, will sell, on

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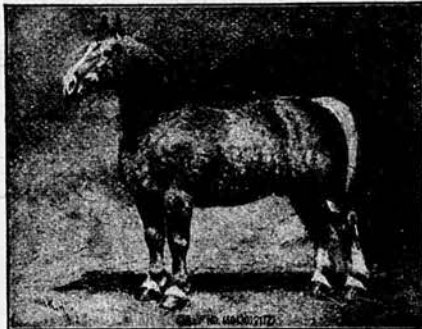
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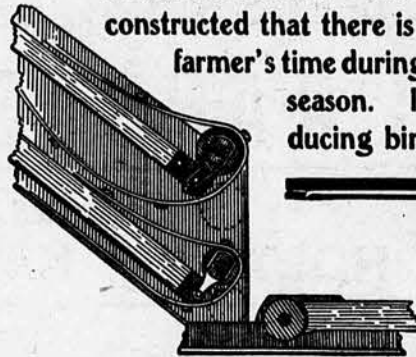
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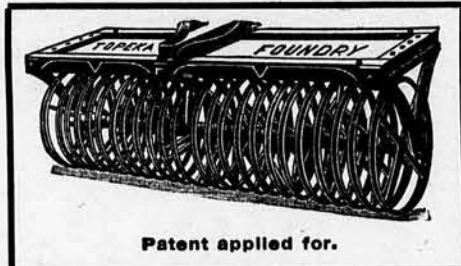
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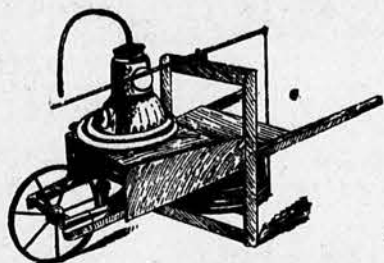
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