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## KANSAS FARMER.

Established in 1863.

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The ravages of the canker-worm have brought out numerous inquiries as to methods of fighting the pests. The orthodox treatment is to poison them by spraying with Paris green or London purple. Directions for spraying were given in the KANSAS FARMER of April 17. The spraying mixture should be made strong enough to kill the worms. When they are very young they are believed to be more sensitive to poison than when older. By using lime in the mixture the foliage is enabled to bear strong poisons without burning.

### IT COSTS TO MAKE BEEF.

The high record price for beef cattle at Kansas City, \$7.40 in 1882, was again reached last Monday, when H. H. Arthur of Neodesha sold a bunch of 30 steers at the record price. The account sales showed 30 steers average 1,636 pounds@ \$7.40=\$121.06 per animal. Mr. Arthur bought the feeders at Kansas City last November, when they weighed 1,160 pounds, at \$4.16, or \$48.14 per head. They gained 476 pounds in six months and five days and \$3.25 in price. From the consumer's point of view these prices are high enough—too high. But, these steers probably consumed an average of half a bushel of corn per day. This at prevailing prices cost 30 cents. The hay and other roughage must have cost not less than 10 cents a day. Thus without counting cost of transportation or labor the feed for these steers cost 40 cents a day, or \$74 per steer for the 185 days. Now the cost per steer, \$48.14+cost of feed, \$74

= \$122.14. The steers brought \$121.06 and entailed a net loss of \$1.08. No, beef cattle are not selling too high.

### CAN BEEVES BE DRESSED FOR THE HIDE AND TALLOW?

One of the remarkable facts about the agitation as to the "meat trust" is that it is primarily and chiefly a newspaper agitation. Another fact equally remarkable is that farm papers and the farmer correspondents of these farm papers, while not on the trust's side of the controversy, are almost a unit in showing that the much-complained-of rise in the prices of beef are inevitable results of natural causes and must have taken place regardless of the formation of the alleged trust.

The service which the great packers have rendered to the consumer of meats has been little recognized by buyers of their meat supplies. When the older men of this generation were boys it was not uncommon for the local butcher to dress the farmer's beef, receiving the hide and tallow as his compensation. The hoofs and horns and several other parts now valuable were generally thrown away. After the discovery of kerosene the price of tallow—formerly used for making candles—declined to such an extent that the butcher was scarcely able to do his work for the hide and tallow.

Let us see whether the big packing-houses are taking more or less than the butchers, i. e., the hide and tallow. Everything is now reduced to dollars and cents, so that our examination will necessarily be on a dollars and cents basis. Experience shows that average 1,300-pound butcher's stock yields 57 per cent of dressed meat. The figures at hand as presented by Murray's Price Current are for cattle on the hoof in Chicago, and for dressed meat in New York, so that the packers' portion must cover not only compensation for his part of the work, but also cost of transportation to New York. For the year 1892 the average paid for the 1,300-pound steer at Chicago was \$55.90, and the average paid for his meat by the New York dealer was \$56.46, leaving the killer a few cents besides the "off-fall" for his services, profits, and freight to New York. In 1895 the 1,300-pound steer cost on foot in Chicago, \$61.10, and his meat brought in New York \$58.68. In 1898 the 1,300-pound steer cost in Chicago \$62.40, and his meat brought in New York \$57.37. In 1901 the 1,300-pound steer cost in Chicago \$70.85 and his meat brought in New York \$58.32. It would take several hides and the tallow from several steers to make up the difference of \$12.53 and pay the freight.

This article is not intended for a defense of the meat trust or of any other trust, but the case is plain that the consumers have no cause of complaint against the killers.

As has been remarked heretofore in these columns, the packers are able to pay the latter-day prices and to sell at the latter-day figures because that in the economies of their large operations they save and sell many valuable products of the animal which the country killer could not care for.

The farmer is not a party to the con-

troversy and might feel but little interest in it but for the fact that boycotts on meats are threatened by consumers as means of getting at the packers who are believed to be the oppressors. It is not likely that such boycotts will have any considerable permanent effect on the demand for meats, so that the discussion is rather a matter of passing interest than of personal concern to the farmer. The farmer is, of course, always interested in seeing "fair play," but he has no lack of confidence in the packers' ability to secure an impartial hearing and their just rights.

Since the above was written last Saturday's Chicago quotations for fair to good steers have shown that the 1,300-pound animal cost \$91 to \$100, the quotation being 7c to 7½c. The wholesale price of the best dressed beef at Chicago was on last Saturday advanced to 10½ cents a pound. At this price the dressed carcass of the 1,300-pound steer brought \$77.80.

While considering this trust question it may be as well to give the devil his due by noticing that the packer is finding the hide and tallow, the horns, hoofs and the etceteras worth not only the cost of killing, but \$13 to \$22 besides.

### PLANT-BREEDING IN KANSAS.

The KANSAS FARMER takes great pride in presenting this week the report of Director J. T. Willard on the corn-breeding experiments at the Kansas Experiment Station. The complete bulletin presents the records of the crosses which were afterwards discarded. These records are of great value to the student of plant-breeding but they occupy so much space that the editor was reluctantly constrained to omit them here. Every reader who desires to see the full record is advised to write to Professor Willard for the bulletin.

The fact that so large a number of improved varieties of corn resulted from the work of the station is ample justification for the strenuous insistence of the KANSAS FARMER, extending over a period of eleven years, that the work of plant-breeding is the most important line of experimentation in which our station can engage.

The work was directed especially to the improvement of the nitrogen, or protein, content of the corn. The success attained along this line is ample assurance that success can be attained along every other line. It is not too much to say that corn can be so improved in composition as to add immensely to the money value of the crop, even if no other improvement were made. But corn can be improved in productiveness, in ability to withstand drouth—in any desired direction—by persistent application of the principles of breeding.

What is true of corn is equally true of wheat, of oats, of barley, of alfalfa, of clover, of timothy, of blue-grass, of orchard-grass, of the native grasses of the prairie, of Kafir-corn, of cane, of potatoes. Every crop that grows in Kansas can be so bred as to adapt it to Kansas conditions. Yields can be increased, qualities can be improved, values can be enhanced.

Work? Kansas can well afford to pay

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for the work. Kansas young men are sought the country over for their efficiency. The work is almost the only expense about plant-breeding. If this work shall be prosecuted as it ought, the KANSAS FARMER needs not to be a prophet to announce that ten years can double the value of the crops of Kansas.

The editor is glad to present, in this connection, the letter of Professor Cottrell, giving a most interesting account of the breeding operations on a great corn farm in Illinois.

When Kansas gets fully awake to the possibilities, we may expect to see the corn belt extended to the Colorado line. The acquisition of the great experimental grounds at Hays and placing it under the energetic and capable management of Professor Haney will be recorded as marking an epoch in western Kansas husbandry if the movement shall be wisely directed and liberally supported. There is money for all Kansas in supporting liberally, pushing energetically, and managing broadly the plant-breeding work.

### 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.



## Agricultural Matters.

### Analyses of Corn, with Reference to Its Improvement.\*

BULLETIN NO. 107—CHEMICAL DEPARTMENT KANSAS STATE AGRICULTURAL COLLEGE, J. T. WILLARD, M. S., CHEMIST; R. W. CLOTHIER, M. S., ASSISTANT CHEMIST; F. C. WEBER, B. S., ASSISTANT CHEMIST.

Corn, from any point of view, is interesting. Its sturdy plants, with flowing rippling leaves, shining silk, and nodding tassels, possess individually and collectively a beauty, grace, and symmetry that have won the admiration of artists. For its priceless worth it was held in the highest esteem by the Indians, its development being eagerly watched, and its arrival at a stage suitable for food celebrated by religious ceremonies. Its foliage is appetizing and nourishing to beast, and its grain a delicacy as well as an aliment to both man and beast. It surpasses the biblical superlative, and yields not only a hundredfold, but five hundred and even a thousandfold, and more. Its plant is easily cared for, its ear large, handled with a minimum of trouble, and readily stored. Subjected to the disintegrating, analytical, and transforming power of modern chemistry and mechanics, it yields a variety of special foods for man—starch for dozens of purposes, sugar for the school-girl's confectionery, syrup for the breakfast table, mucilage alcohol, oil for paint, a rubber substitute, and a variety of feeds for stock. It is worthy of the brush of the painter and the pen of the poet, the voice of the orator, and the thought of the philosopher; it is a royal plant indeed.

The corn of to-day is very different from that of the aborigines. Its plasticity is great, no other crop so readily showing transformation under climatic influences. Even where climate has apparently ceased to effect changes, a variety exhibits inner differences of great magnitude among its millions of individuals. Differences among individuals constitute the means of progress in all things. Homogeneity is an index of changelessness and of mediocrity. In its variability we have in corn the means for its improvement both in yield and in composition; for, kingly as corn is, it is not perfect. The principle nutritive substances of feeds are included in the three groups: crude protein, carbohydrates, and fats. The last two contain the elements of carbon, hydrogen, and oxygen only. Crude protein includes a number of

classes of compounds which agree in containing nitrogen in addition to the three elements named, but which differ among themselves materially in other respects. The most important class of substances in the crude protein is the proteids. The proteids constitute nearly all of the nitrogenous portion of grains, but in the growing parts of plants other nitrogenous substances are present, sometimes to an even greater extent than the proteids. The proteids are the most valuable of all the food principles; not that others are not necessary, but the others occur more abundantly in most feeds; and hence our attention must be more especially directed toward the proteids, in order to secure them in the amount which the animal body requires.

The study of feeding standards does not come within the scope of this bulletin, and it must suffice to say that, as the result of much observation and experiment, it has been learned that in animal nutrition, whether the object be power, growth, milk, or mere maintenance, a fairly definite proportion of the energy of the food must be furnished by proteids in order that the object may be accomplished with the least amount of feed, and that the proportion of proteids required varies with the object of the feeding. Carbohydrates and fats, consisting of the same elements, can replace each other to a great extent in a ration, but as they do not contain nitrogen they can not replace proteids. Fats, it must be noted, while containing the same elements as carbohydrates, contain them in quite a different proportion, the percentage of oxygen being much less in fats. Fats have been found to yield rather more than two and one-fourth times as much energy as carbohydrates; so that, within reasonable limits, the larger the percentage of fat in feed the more valuable it is. To increase, then, the percentage of proteids and of fats in a feed at the expense of the carbohydrates is to increase the value per pound.

TABLE SHOWING THE PERCENTAGE OF NITROGEN IN THE DRY MATTER OF CERTAIN VARIETIES OF CORN.

No.	Color.	Varieties of corn.	Nitrogen.	Grower.
3	White.	Shull's White.	1.56	C. W. Shull, Manhattan.
33	White.	Clothier's White.	1.58	N. S. Clothier, Vera.
9	White.	Champion White Pearl.	1.63	J. W. Babbitt, Hiawatha.
16	Yellow.	Gold Standard.	1.63	J. W. Babbitt, Hiawatha.
32	White.	Haney's White.	1.74	E. D. Haney, Courtland.
2	White.	Kansas King.	1.79	D. W. Matsler, Chanute.
27	Mixed.	Buehler's Calico.	1.80	Fred. Buehler, Hiawatha.
5	White.	Large and Early.	1.80	A. J. Achenbach, Washington.
4	White.	White Pearl.	1.83	A. A. Cottrell, Wabauunsee.
23	Yellow.	Leaming.	1.86	Sam'l Detwiler, Hiawatha.
11	White.	Early White Dent.	1.88	J. D. Ziller, Hiawatha.
31	White.	Warner's White.	1.88	John Warner, Manhattan.
14	White.	Cooper's White.	1.90	J. D. Cooper, Delphos.
30	White.	Zimmerman's White.	1.91	Zimmerman Bros., Moray.
7	White.	St. Charles (smooth kernels).	1.92	Sam'l Detwiler, Hiawatha.
24	Mixed.	Chester County Mammoth.	1.92	A. J. Achenbach, Washington.
11	White.	Boone County White.	1.93	A. J. Achenbach, Washington.
12	White.	Nomandy Giant.	1.96	J. D. Ziller, Hiawatha.
21	Yellow.	Mammoth Yellow Dent, Ziller.	1.96	J. D. Ziller, Hiawatha.
15	Yellow.	Cooper's Yellow.	1.98	J. D. Cooper, Delphos.
8	White.	Babbitt's White.	1.99	J. W. Babbitt, Hiawatha.
19	Yellow.	Babbitt's Mammoth.	1.99	J. W. Babbitt, Hiawatha.
25	Mixed.	Shull's Mixed (8 and 22 crossed).	2.03	C. W. Shull, Manhattan.
6	White.	St. Charles (rough kernels).	2.06	Sam'l Detwiler, Hiawatha.
18	Yellow.	Missouri Dent.	2.06	J. W. Babbitt, Hiawatha.
20	Yellow.	Babbitt's Sweetstake.	2.07	J. W. Babbitt, Hiawatha.
22	Yellow.	Shull's Yellow.	2.13	C. W. Shull, Manhattan.
26	Yellow.	Gardner.	2.14	A. A. Cottrell, Wabauunsee.
13	White.	Early White Dent.	2.18	J. D. Ziller, Hiawatha.
17	Yellow.	Ziller's Yellow.	2.21	J. D. Ziller, Hiawatha.
28	Red.	Red.	2.22	J. W. Babbitt, Hiawatha.
29	Yellow.	Haney's Yellow.	2.23	E. D. Haney, Courtland.
10	White.	Buehler's White.	2.26	Fred. Buehler, Hiawatha.

\*A blend of four varieties raised in the vicinity of Chanute for ten or twelve years.  
†Raised for thirty years on the same farm without admixture.  
‡Obtained by mixing a number of other varieties.  
§Raised from seed obtained from James Riley, Thornton, Ind.

#### ORIGIN OF THE EXPERIMENTS.

In the fall of 1897, the chemist of the Experiment Station, at a joint meeting of the faculty and the board of regents, proposed, as a part of the work of the chemical department of the station, the analysis of varieties of corn, with a view to ascertaining which are highest in nutritive value, and a cooperation between the chemical, the farm and the botanical departments in efforts to improve this cereal. This met the approval of the board, and the next spring this work was begun, the three departments named cooperating. In the spring of 1899 the agriculturist of the station asked to be relieved from further connection of the work, and since then it has been entirely in charge of the botanist and chemist and their assistants.

#### ANALYSES OF VARIETIES.

The first year varieties were analyzed as to percentage of nitrogen. Most of these were show samples which were secured at a corn exhibit in connection with a farmers' institute at Hiawatha. The preceding table shows the percentages of nitrogen in the several varieties, and the name and color of the corn. The varieties are arranged in the order of their nitrogen content. We had but small samples of most of the varieties, so that the figures given may not fairly represent the relative value of them, but they bring out in striking contrast the very great variations in composition exhibited by corn and suggest wonderful possibilities in the way of selection and improvement.

with the following results, the figures being percentages of nitrogen in the dry grain:

Ear.	Per cent nitrogen.
a.	1.53
b.	1.55
d.	1.69
h.	1.77
c.	1.98
b.	2.00
e.	2.05
g.	2.09
i.	2.24

These results show that there are as great differences in the nitrogen content of different ears of the same variety as were found between the different varieties, and this in a variety that would seem to have had every opportunity to become uniform. Here, again, we see in even more striking form the possibilities of improvement by proper seed selection.

A mixed corn, the result of a cross between a white and a yellow variety made by Mr. C. W. Shull, was analyzed in a similar manner, to observe the variations in a corn that might be supposed to have no fixity of type as yet. The result of these analyses follows:

Ear.	Per cent nitrogen.
h.	1.35
i.	1.47
g.	1.57
d.	1.75
b.	1.83
c.	1.85
a.	1.88
l.	2.05
f.	2.22

Here we see even greater differences, the ear with the least amount of protein having but 8.44 per cent, while the best contained 13.87 per cent, or 64.5

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#### ANALYSES OF SINGLE EARS.

We did not stop with ascertaining that there were great differences among varieties, but analyzed individual ears of two or more varieties. One of these was Zimmerman's White, a variety that has been grown by the Zimmerman family for over thirty years without the introduction of other seed. It would seem that if uniformity of type could be secured by mere continuity of cultivation this variety should have acquired it. Ten ears were analyzed,

per cent more when calculated on the protein itself.

#### ANALYSES OF SINGLE KERNELS.

Having found these large variations in individual ears of these varieties, the question arose, Are there differences in the individual kernels from the same ear? Analyses of seventeen separate kernels from ear "1" of Zimmerman's White, the ear found to be richest in nitrogen, were made, with the following results: 1.72, 1.95, 1.97, 1.98, 2.01, 2.02, 2.02, 2.04, 2.06, 2.10, 2.10, 2.11, 2.11, 2.14, 2.16, and 2.30 per cent, respectively.

Many other analyses of single kernels were made later, in studying the relation of specific gravity to nitrogen content. The results show that, while the variation is much less than that exhibited by different ears of the same variety, the differences are by no means insignificant. This observation seems to be contrary to the published opinion of some other experimenters in this line.

#### RELATION OF SIZE OF GERM TO NITROGEN CONTENT.

It is thus evident that much better seed could be selected, if in any way ears of high nitrogen content could be chosen, and that it would be still better if the best kernels could be taken from such ears. Analyses of the several parts of the corn kernel made at the New Jersey station having shown that the germ of the grain is much richer in fat and in protein than the other parts of the kernel; the thought was but natural, that, by selecting corn with a large germ for seed, the quality of the seed must necessarily be improved. Examination of the different ears analyzed in the studies previously made showed that the differences in the sizes of the germs were very readily observed, and that there was not the slightest difficulty in distinguishing between those high in nitrogen and those low in nitrogen by making sections of a number of kernels from each ear.

The importance of the facts in respect to composition of corn, the ease with which corn high in nitrogen may be selected by means of the germ and the financial advantage that would accrue by such selection were set forth in Press Bulletin No. 20, issued December 27, 1898, and largely copied by the agricultural press. This press bulletin was included in Bulletin No. 86. Similar considerations were presented in a mimeograph bulletin sent to the agricultural papers February 20, 1900, and from which the following is extracted:

"There is no reasonable doubt that, by intelligent and persistent seed selection, a considerable increase in the proteids of existing varieties may be made, but how is this selection to be guided? Chemical analysis can not be applied by every farmer, yet every farmer must be able to join in the work if it is to be effective. Chemical analysis of the several parts of the corn kernel has shown that the germ is the richest in proteids. Therefore, choosing a corn in which the germ is in larger proportion is all that is necessary to insure getting that which is rich in proteids.

"Selecting corn with a large germ is not as difficult as might be supposed. Take a few grains from the ear, neglecting the butt and tip, where they are more or less distorted in form. With a sharp pocket-knife, begin at the tip

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of the kernel, where it was attached to the cob, and make several cross-sections from one thirty-second to one-sixteenth of an inch in thickness, and observe the relative proportion of germ that the section shows. Repeat this on a number of kernels, and make longitudinal sections of other kernels also. These sections can be made in less time than it takes to tell how to make them, and by means of them a very useful judgment can be passed upon the corn. The relatively small amount of seed required for corn-planting makes it feasible to give special attention to the selection of the seed, and if the method indicated above be persisted in there can be no serious doubt that improvement would result. At the same time attention should be given to the various factors that combine to produce a large yield. A variety satisfactory in these respects should be chosen as the basis upon which to develop an improvement in the percentage of protoids."

To ascertain more fully the bearing of the size of the germ upon the composition of corn, as to its amount of nitrogen, a number of analyses were made in which the germs were separated from the kernels, and the germs and the remainders analyzed separately. The results given below show that in every case the germs are much richer in nitrogen than the remainder of the kernels from which they were taken and that selecting corn with large germs can not fail to secure corn richer in nitrogen than corn of the same variety with smaller germs, other things being equal.

Serial number.	Variety.	No. of kernels.	Per cent of nitrogen in
K 542 B..Red crossed with Chester County Mammoth.....		6	3.89
K 557 B..Haney's Yellow crossed with Shull's Yellow.....		5	3.13
30..Zimmerman's White.....		5	2.91
K 519 B..Shull's Mixed crossed with Zimmerman's White.....		4	3.98

To make a practical test of examination of corn with reference to the size of the germs, selections were made from two lots grown by farmers near Manhattan. One of these was a white dent corn grown by Mr. Chas. Thompson; the other was a yellow dent grown by Mr. Wm. Deibler.

In the case of the white corn, thirteen ears were chosen as having larger germs than the average, and fourteen as having smaller. The former were found to contain 1.94 per cent of nitrogen in the dry corn, the latter to have but 1.76 per cent, making a very appreciable difference in their feeding value.

Of the yellow corn, twelve ears were selected with the larger germs, and thirteen with the smaller. The former contained 1.81 per cent of nitrogen; the latter, 1.68 per cent—not as great a difference as in the other case.

There are undoubtedly great differences in the nitrogen content of the part of the kernel exclusive of the germs, and it is conceivable, and not improbable, that a large germ, though in itself tending to produce high nitrogen content, might be overcome by the low nitrogen of the remainder of the kernel. Nevertheless, the selection of seed-corn with large germs is the most practical means available for securing an increase in the protein. It is worthy of note, too, that the germs are very rich in oil; in fact, contain most of the oil of the grain. By increasing the germ we increase the percentage of fat, a constituent worth about two and one-fourth times as much as starch for feeding, and a very valuable principle in corn sent to the glucose factories, where the oil is extracted on a large scale.

#### CAN SEED-CORN RICH IN NITROGEN BE SELECTED BY MEANS OF THE SPECIFIC GRAVITY OF THE GRAIN?

The possibility of a separation of kernels of corn richer in nitrogen from those less rich by means of differences in specific gravity suggested itself at an early date. Some preliminary analyses were made of individual kernels taken from the richest ear of Zimmerman's White, in which the relative specific gravity of the several kernels was determined, but not the specific

gravity itself, apparatus for that purpose not being at hand then. The percentages of nitrogen obtained follow, and are given in the order of increasing specific gravity. They are: 2.06, 2.11, 2.04, 2.30, 2.11, 2.16, 2.10, 2.02, 1.72, 1.97. It will be noticed that there is not a corresponding direct variation in the nitrogen content.

At a later date determinations of nitrogen were made in kernels from the same ear, in which their exact specific gravity was ascertained by means of the Westphal balance and a solution of calcium chloride. A solution of common salt can not be used, since it can not be made of sufficient density to suit all cases. The results were as follows, being arranged in the order of the specific gravity of the grain:

Percentage of nitrogen.	Specific gravity.
1.96	1.278
2.01	1.285
2.10	1.2885
1.98	1.294
2.10	1.294
2.14	1.296
2.02	1.296

Here, again, we have no regular connection between the specific gravity and the nitrogen content.

These results did not lend much encouragement to the hope that selection of seed-corn could be made by means of specific gravity, but further study of the question was delayed until the spring of 1901, when a much greater number of analyses were made. A large number of single kernels were examined in a somewhat comprehensive manner. The specific gravity was taken, and in many cases that of the germ and of the remainder of the kernel were separately ascertained; also, in many cases, the weights of the germ and the remainder of the kernel. Seven different varieties of corn were used in this work. The results of these studies in their various aspects follow. In considering these, it must be borne in mind that a single kernel of corn affords a smaller amount of material than is usually taken for an analysis, and none for a duplicate determination. Analyses ordinarily are made in duplicate, and the average taken as true, if the two agree well enough. In these analyses of single kernels we have but the one:

Serial number.	Variety.	No. of kernels.	Per cent of nitrogen in
K 542 B..Red crossed with Chester County Mammoth.....		6	3.89
K 557 B..Haney's Yellow crossed with Shull's Yellow.....		5	3.13
30..Zimmerman's White.....		5	2.91
K 519 B..Shull's Mixed crossed with Zimmerman's White.....		4	3.98

determination, which is necessarily subject to more or less error, and it is too much to expect to exhibit perfectly the application of a general principle, under such conditions, without making a great number of analyses. We think the results are fully sufficient for some deductions to be made, however.

#### ANALYSES OF INDIVIDUAL KERNELS OF CORN TO SHOW RELATION BETWEEN SPECIFIC GRAVITY AND PERCENTAGE OF NITROGEN.

Serial number.	Variety.	No. of kernel.	Weight of kernel. Grams.	Specific gravity of kernel.	Nitrogen in kernel. Per cent.
K 542 B..Red crossed with Chester County Mammoth.....		2	1.784	Not taken.	2.99
		3	1.850		2.77
		4	1.728	1.1960	2.93
		5	1.984	1.1960	2.82
		6	1.760	1.2180	2.76
		7	1.374	1.2160	3.15
K 557 B..Haney's Yellow crossed with Shull's Yellow.....		7	1.730	1.1765	1.286
		8	1.624	1.1797	1.27
		9	2.690	1.2414	1.37
		10	2.896	1.2523	1.49
		11	2.596	1.2640	1.50
		12	2.698	1.2900	1.564
30..Zimmerman's White, ear (1).....		13	2.698	1.2960	1.564
		14	4.154	1.2730	2.18
		15	4.224	1.2810	2.12
		16	3.986	1.2850	2.02
		17	3.886	1.2870	2.14
		18	3.880	1.2870	2.24
		19	4.080	1.2880	2.17
		20	3.952	1.2890	2.16
		21	3.674	1.2895	2.26
		22	3.654	1.2940	2.16
		23	3.724	1.2960	2.204
		24	3.942	1.2963	2.24
K 519 B..Shull's Mixed crossed with Zimmerman's White.....		25	4.166	1.2980	2.15
		26	3.940	1.2990	2.07
		27	3.458	1.3047	2.28
		28	4.006	1.3047	2.01
		29	2.744	1.2020	2.53
		30	2.996	1.2020	2.29
K 447 Cy..Mammoth Dent crossed with Babbitt's Sweepstakes.....		31	2.970	1.2044	2.41
		32	2.974	1.2044	2.58
		33	3.150	1.2193	2.34
		34	2.904	1.2390	2.466
		35	2.858	1.1800	2.18
		36	3.046	1.2050	2.03
K 92 A..Normandy Giant crossed with Gardner.....		37	2.934	1.2070	2.00
		38	2.716	1.2080	2.16
		39	3.430	1.2150	2.21
		40	2.600	1.2230	2.17
		41	2.740	1.2280	2.06
		42	2.890	1.2340	2.03

In the table the analyses are arranged by varieties, and in the order of increasing specific gravities within the

varieties. If there were any general law connecting specific gravities with percentages of nitrogen, it would appear in the column showing the latter; but no such connection appears.

Owing to the difficulty of operating on the somewhat small weight of single kernels, a trial was made in which samples consisting of several kernels each were analyzed. The specific gravity of a number of kernels of a given variety having been taken, they were divided into two lots, one including those of the higher specific gravity, and the other those of the lower specific gravity. The results as exhibited below show the same lack of uniformity of relation between specific gravity and percentage of nitrogen. In fact, almost identical results were obtained with those of lower specific gravity and those of higher.

Serial number.	Name of variety or cross.	No. of kernels.	Average specific gravity.	Per cent of nitrogen.
30..Zimmerman's White.....		9	1.2843	2.25
30..Zimmerman's White.....		9	1.2888	2.30
K 92 A..Normandy Giant crossed with Gardner.....		5	1.1200	2.385
K 92 A..Normandy Giant crossed with Gardner.....		5	1.1736	2.425
K 417 Ax..Gold Standard crossed with Mammoth Yellow Dent.....		14	1.2162	1.900
K 417 Ax..Gold Standard crossed with Mammoth Yellow Dent.....		12	1.2403	1.882

From all of the foregoing, the conclusion seems inevitable that, however unfortunate the fact may be, we can not use the specific gravity of the kernels of maize as a means of separating those of low nitrogen content from those of high nitrogen content.

In connection with the study of the

#### TABLE COMPARING SPECIFIC GRAVITIES OF WHOLE KERNELS, GERMS, AND KERNELS MINUS GERMS.

Serial number.	Variety.	No. of kernel.	Specific gravity of whole kernels.	Specific gravity of germs, minus germs.	Specific gravity of kernels minus germs.
K 542 B..Red crossed with Chester County Mammoth.....		1	Not taken.	1.0855	1.2550
		2	1.2050	1.0855	1.2474
		3	1.1496	Lost.	1.2294
		4	1.2160	1.0900	1.2550
		5	1.1960	1.1090	1.2780
K 557 B..Haney's Yellow crossed with Shull's Yellow.....		1	1.2523	1.1085	1.3113
		2	1.2640	1.0860	1.3129
		3	1.2960	1.0830	1.3400
		4	1.2900	1.0885	1.3344
		5	1.2870	1.1630	1.3480
30..Zimmerman's White, ear (1).....		6	1.2810	Lost.	1.3410
		7	1.2990	1.1290	1.3405
		8	1.2880	1.1060	1.3413
		9	1.2963	1.1145	1.3480
		10	1.2963	1.1145	1.3480
		11	1.2730	1.1097	1.3310
		12	1.3047	1.1496	1.3550
		13	1.2895	1.1235	1.3400
		14	1.2960	1.1180	1.3400
		15	1.2850	1.1220	1.3480
		16	1.2940	1.1150	1.3500
K 519 B..Shull's Mixed crossed with Zimmerman's White.....		1	1.2044	1.0744	1.2865
		2	1.2390	Lost.	1.3110

#### ANALYSES OF CROSSED VARIETIES.

Of the thirty-three varieties analyzed at the beginning of the work in breeding, twenty-one were selected for use, and were planted by the botanical department. The details of the work of that department will be left to its officers for description, sufficient being given here to make the analytical figures intelligible. The season of 1898 these varieties were systematically cross-fertilized, but analyses of the crosses obtained were not made, as this was not regarded as worth while until the type had become at least slightly fixed. This fixing of type in the many crosses obtained the first year has been going on since by preventing all mixture of a given cross with others. Each cross is fertilized artificially by pollen of its own kind, but, as a rule, from a different stalk from that bearing the ear. The product of the first year of close fertilization, 1899, was analyzed in respect to its content of nitrogen—558 samples in all. Of these, only those showing 2 per cent of nitrogen, or very nearly so, were reserved for further propagation. The crop of 1900 was analyzed, in many cases two ears being taken, marked x and y in the table. The crop obtained from these in 1901 was analyzed, in many cases a large, a small, and a medium-

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sized ear being taken. These are indicated by l, s, and m in the table.

It will be seen that we now have in many cases six ears analyzed of the crop of 1901 that trace back to the original cross made in 1898, and first analyzed in 1899. While this system of lettering enables one to trace the ancestry of the various ears readily, it is obvious that it does not admit of indefinite extension in time. It is possible that in future we will be obliged to content ourselves with the original numerical designation, which is prefixed by the letter K, to show its Kansas origin.

In the table of analyses of crosses, each analysis is of a sample from a single ear, and shows the percentage of nitrogen in the dry substance. The female parent—that is, the one upon which the ear grew—is named first. The sign X signifies "crossed by," and the name following is that of the male or pollinating parent. The mean for three years is shown for all crosses that are still being grown. This is obtained by averaging the results for all of the ears of a given cross analyzed during the three years, excepting those ears which are not represented by descendants in the crop of 1901. For the convenience of such as prefer to compare protein rather than nitrogen, a table is introduced for the conversion of percentage of nitrogen into percentage of protein. The figures as given are exact equivalents, protein being assumed to contain 16 per cent of nitrogen.

TABLE FOR CONVERTING PERCENTAGE OF NITROGEN INTO PERCENTAGE OF PROTEIN.

Nitrogen.	Protein.	Nitrogen.	Protein.
1.920	12.0	2.528	15.8
1.936	12.1	2.544	15.9
1.952	12.2	2.560	16.0
1.968	12.3	2.576	16.1
1.984	12.4	2.592	16.2
2.000	12.5	2.608	16.3
2.016	12.6	2.624	16.4
2.032	12.7	2.640	16.5
2.048	12.8	2.656	16.6
2.064	12.9	2.672	16.7
2.080	13.0	2.688	16.8
2.096	13.1	2.704	16.9
2.112	13.2	2.720	17.0
2.128	13.3	2.736	17.1
2.144	13.4	2.752	17.2
2.160	13.5	2.768	17.3
2.176	13.6	2.784	17.4
2.192	13.7	2.800	17.5
2.208	13.8	2.816	17.6
2.224	13.9	2.832	17.7
2.240	14.0	2.848	17.8
2.256	14.1	2.864	17.9
2.272	14.2	2.880	18.0
2.288	14.3	2.896	18.1
2.304	14.4	2.912	18.2
2.320	14.5	2.928	18.3
2.336	14.6	2.944	18.4
2.352	14.7	2.960	18.5
2.368	14.8	2.976	18.6
2.384	14.9	2.992	18.7
2.400	15.0	3.008	18.8
2.416	15.1	3.024	18.9
2.432	15.2	3.040	19.0
2.448	15.3	3.056	19.1
2.464	15.4	3.072	19.2
2.480	15.5	3.088	19.3
2.496	15.6	3.104	19.4
2.512	15.7	3.120	19.5

TABLE OF ANALYSES OF CROSSES, SHOWING PERCENTAGES OF NITROGEN IN DRY SUBSTANCE.

K 10—Boone County White×Red.				
1899.	1900.	1901.	Mean.	
2.12	x 2.23	xl 2.22	2.19	
		xs 2.05		
		xm 2.27		
	y 2.33	yl 2.08		
		ys 2.22		
K 13—Shull's White×Boone County White.				
B 2.04	Bx 1.87	Bxl 2.26	2.08	
		Bxs 1.76		
	By 2.26	Byl 2.22		
		Byx 2.17		
K 16—Shull's White×Cooper's Yellow.				
2.02	x 2.30	xs 2.56	2.24	
		xl 1.90		
	y 2.08	yl 2.23		
		ys 2.46		
		ym 2.38		
K 26—St. Charles (rough)×Ziller's Yellow.				
B 2.03		Bl 2.74	2.23	
		Bs 2.22		
	Bx 1.99	Bxl 1.84		
		Bxs 2.50		
	By 2.17	Bxm 2.38		
		Byl 1.96		
		Bys 2.12		
		Bym 2.34		
K 39—St. Charles (smooth)×Babbitt's White.				
A 2.06		Al 2.09	2.00	
		As 2.53		
	Ax 2.04	Axl 1.47		
		Axs 2.43		
	Ay 1.73	Ayl 1.96		
		Ays 2.26		
		Aym 2.54		
B 2.02		Bl 1.73		
		Bs 1.65		
	Bx 2.02	Bxl 2.15		
	By 2.16			
K 76—Buehler's White×Gardner.				
A 2.06	Ax 2.37	Axl 2.38	2.39	
		Axs 2.43		
	Ay 2.28	Ayl 2.56		
		Ays 2.69		
		Aym 2.93		
B 2.19	B 2.71	Bl 1.93		
		Bs 2.61		
		Bm 2.44		
C 1.80	Discarded.			

K 77—Buehler's White×Red.				
A 2.05	A 1.91	Al 2.18	2.09	
		As 2.36		
		Am 1.96		
K 92—Normandy's Giant×Gardner.				
A 2.02	A 2.52	Al 1.85	2.25	
		As 2.07		
		Am 2.53		
B 2.13	Bx 2.11	Bxl 2.44		
		Bxs 2.69		
		Bx3 2.23		
		Bx4 2.75		
	By 1.93	Byl 2.18		
		Bys 2.36		
		Bym 1.92		
K 106—Cooper's Yellow×Mammoth Yellow Dent.				
2.03	x 2.13	xl 2.35	2.29	
		xs 2.08		
	y 2.40	yl 2.24		
		ys 2.75		
		ym 2.35		
K 116—Gold Standard×Buehler's White.				
A 2.03	A 2.43	Al 2.00	2.29	
		As 2.53		
		Am 2.44		
K 138—Ziller's Yellow×Missouri Dent.				
B 2.11	Bx 2.41	Bxl 1.88	2.42	
		Bxs 2.60		
		Bxm 2.36		
	By 2.34	Byl 2.31		
		By2 2.59		
		By3 2.64		
		By4 2.44		
		By5 2.47		
K 140—Ziller's Yellow×Shull's Yellow.				
A 2.07	A 2.31	Al 1.89	2.10	
		As 2.37		
		Am 2.16		
K 141—Ziller's Yellow×Chester County Mammoth.				
B 2.11	Bx 2.32	Bxl 2.24	2.33	
		Bxs 2.19		
	By 2.35	Byl 2.71		
		Bys 2.36		
K 143—Ziller's Yellow×Red.				
B 2.03	Bx 2.52	Bxl 2.32	2.34	
		Bxs 2.20		
		Bxm 2.73		
	By 2.24	Byl 2.18		
		Bys 2.46		
K 151—Missouri Dent×Haney's Yellow.				
B 2.12	Bx 2.21	Bxl 1.72	2.20	
		Bxs 2.52		
		Bxm 2.35		
	By 2.09	Byl 2.34		
		Bys 2.38		
		Bym 2.10		
K 171—Babbitt's Sweepstakes×Gold Standard.				
2.24	x 2.43	xl 1.88	2.33	
		xs 2.66		
	y 2.24	yl 2.42		
		ys 2.52		
		ym 2.23		
K 199—Shull's Yellow×Boone County White.				
A 2.07	Ax 2.06	Axl 2.10	2.05	
		Axs 2.26		
		Axm 2.37		
	Ay 1.97	Ayl 1.53		
		Ays 2.29		
		Aym 1.76		
K 209—Shull's Yellow×Chester Co. Mammoth.				
A 2.28	Ax 2.15	Axl 2.03	2.18	
		Axs 2.44		
	Ay 1.83	Ayl 1.86		
		Ays 2.63		
		Aym 2.18		
K 218—Chester County Standard×Mammoth×Gold.				
A 2.37	Ax 1.93	Axl 2.00	2.14	
B 2.00		Axs 2.80		
		Axm 2.08		
	Ayl 1.80	Ayl 2.29		
		Ay2 1.86		
		Ay3 2.24		
		Ay4 2.23		
		Ay5 1.86		
K 222—Chester County Mammoth×Shull's Mixed.				
2.01	x 1.86	xl 2.27	2.11	
	y 1.95	ys 2.19		
K 223—Shull's Mixed×Shull's White.				
2.03	x 2.29	xl 2.30	2.28	
		xs 2.94		
	y 2.24	yl 2.07		
		ys 2.41		
		ym 1.95		
K 314—Boone County White×Mammoth Yellow Dent.				
2.39	1.92	1.63	2.31	
		s 2.29		
K 322—St. Charles (rough)×Shull's White.				
A (d) 2.22	A (d) 2.34	adl 2.67	2.43	
		ads 2.44		
		adm 2.49		
K 352—St. Charles (smooth)×Haney's Yellow.				
A 2.33	A 2.16	Al 2.38	2.26	
		A2 2.36		
		A3 2.33		
		A4 2.02		
K 374—Buehler's White×Babbitt's Sweepstakes.				
B (d) 2.26	Bdx 2.03	Bdx 2.23	2.31	
	Bdy 2.06	Discarded.		
C (d) 2.22	Cd 2.27	Cd 2.87		
K 396—Cooper's Yellow×Normandy Giant.				
2.24	2.46	1.29	2.36	
		s 2.45		
K 398—Cooper's Yellow×Missouri Dent.				
A 2.14	Discarded.			
B not rec.	Unsuccessful.			
K 399—Cooper's Yellow×Babbitt's Sweepstakes.				
2.20	Discarded (acc.)			
K 400—Cooper's Yellow×Mammoth Yellow Dent.				

— K 400×K 398.				
2.13	—	2.83	2.48	
K 401—Cooper's Yellow×Shull's Yellow.				
A 2.16	A 2.59	Al 2.23 As 2.50 Am 2.32	2.36	
K 403—Cooper's Yellow×Shull's Mixed.				
A 2.36	A 2.01	Al 2.26 As 2.53 Am 2.31	2.29	
K 405—Cooper's Yellow×Haney's Yellow.				
2.24	1.59	l 2.17 s 2.30 m 2.46 (99) 2.87	2.28	
K 415—Gold Standard×Mammoth Dent.				
B 2.16	B 2.41	Bl 2.23 Bs 2.20 (B '99) 2.25	2.25	
K 417—Gold Standard×Mammoth Yellow Dent.				
B 2.30	B 2.58	Bl 2.57 Bs 2.41 Bm 2.16	2.35	
C 2.16	C 2.53	C 2.06 C ('99) 2.38		
K 427—Ziller's Yellow×Gold Standard.				
C 2.25	C 2.19	C 2.66	2.36	
K 428—Ziller's Yellow×Missouri Dent.				
A 2.29	A 2.05	Al 2.22 As 2.23		
K 430—Ziller's Yellow×Babbitt's Sweepstakes.				
2.64	2.26	2.26		
K 434—Ziller's Yellow×Red.				
B 2.36	B 2.34	Bl 2.62 Bs 2.20 Bm 1.78	2.26	
K 435—Ziller's Yellow×Haney's Yellow.				
2.15	2.11	2.35	2.20	
K 447—Mammoth Dent×Babbitt's Sweepstakes.				
A 2.23	Unsuccessful.	Al 2.36 As 2.41	2.10	
B 2.23	Unsuccessful.			
C 1.68	Cx 1.74	Cxl 2.26 Cxs 2.01 Cyl 2.38 Cys 2.41		
	Cy 2.19			
K 460—Babbitt's Sweepstakes×Shull's Mixed.				
B 2.27	B 2.61			
K 466—Mammoth Yellow Dent×Buehler's White.				
A 2.24	Ax 1.73? Ay 2.05	Ax 1.86 Ayl 1.99 Ays 2.20	2.01	
K 467—Mammoth Yellow Dent×Normandy Giant.				
C 2.17	Not rec.	Cl 2.52 Cs 2.53	2.41	
K 476—Mammoth Yellow Dent×Shull's Mixed.				
2.23	2.44	L 2.46 S 2.13	2.32	
K 479—Mammoth Yellow Dent×Haney's Yellow.				
2.03	x 2.01	xl 1.98 xs 2.47 xm 2.54 yl 1.87 ys 2.48	2.22	
	y 2.34			
K 485—Shull's Yellow×Normandy Giant.				
2.32	x 2.31	xl 1.84 xs 2.39 yl 2.49 ys 2.36 (99) 2.52	2.35	
	y 2.52			
K 487—Shull's Yellow×Gold Standard.				
A 2.18	Ax 2.11	Axl 2.33 Axs 2.43 Axm 2.06 Ayl 2.07 Ay2 2.06 Ay3 2.23 Ay4 2.38	2.19	
B 2.24	Unsuccessful.	A '991 2.22 A '99s 2.24		
K 488—Shull's Yellow×Ziller's Yellow.				
2.42	2.08	2.46 (99) 2.48	2.36	
K 491—Shull's Yellow×Chester Co. Mammoth.				
B 2.45	B 1.92	B1 2.28 B2 2.26 B3 2.02 B4 2.30	2.21	
K 493—Shull's Yellow×Gardner.				
A 2.45	Ax 2.16 Ay 2.11	Ax 2.50 Ay1 2.64 Ay2 2.40 Ay3 2.52 Ay4 2.49	2.35	
B 2.46	B 2.14	Bl 2.37 Bs 2.17 Bm 2.13		
K 512—Shull's Mixed×Babbitt's Sweeps. Yellow.				
2.26 A 2.19 B 2.15	Lost. Lost. B 1.99	Bl 2.37 Bs 2.44	2.27	
	B dup.) 2.30	B (dup.) 2.36		
K 513—Shull's Mixed×Mammoth Yellow Dent.				
2.17	2.73	l 2.51 s 2.44	2.46	
K 514—Shull's Mixed×Shull's Yellow.				
2.18	2.34	2.28	2.26	



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If he who causes two blades of grass to grow where but one grew before is a public benefactor, how much more of a benefactor is he who is instrumental in the establishment of an industry which restores to profitable cultivation the abandoned farms of the South and East, and converts brush, briars, and weeds into the most beautiful and durable fibre known to manufacturers. This is what the Angora goat industry is destined to do. A knowledge of the usefulness of this animal, which has so long been confined to the West and Southwest, has become noised abroad until his bleating may now be heard in every State of the Union and inquiries as to his merits are coming even from our insular possessions. The interest in this little animal, while great is not a craze; it is a good thing of rapid development. The Angora goat industry is being established upon a permanent basis, and I trust that a more extensive use of the mohair and the meat will make it as profitable and common upon all farms as are sheep.

#### THE GOOD POINTS.

The assets of this industry in a general way are threefold: First—As brush destroyers. In this respect they are superior to any other means known for clearing land of brush, briars, and weeds. The value of the land thus cleared marks the value of the goats to one who owns the land. Second—Their flesh and skins. The prejudice against goat meat is waning in the presence of toothsome Angora mutton, and the day is not far distant when all prejudice will disappear. The home market for the skins is even now far greater than the home supply and we annually import thousands of them. Third—Their mohair. It is this subject which I propose to discuss at this time.

It may be profitable to raise goats for the sole purpose of clearing up land, but if we add to this profit the profit of the meat which is thus formed without cost we have a double source of revenue. Add to both of these the Angora's ability to raise a valuable fleece at the same time without expense to his appetite or his flesh and we have a third value.

So far as the goat's ability to destroy brush, briars, and weeds is concerned he needs no assistance from the breeders; he can do that sort of work perfectly now. The flesh is already excellent, rivaling the sweetest of South-down in the opinion of many. So these two features need no consideration at this time. With the third feature—the mohair—there is room for improvement. It is the one feature of the business which at this time most needs improvement, and one, too, which is most difficult of improvement.

There are several objectionable features of our domestic mohair, chief among which is the kemp. It is not necessary to describe kemp to an audience of goat-raisers, all of whom know it to their injury. It is a very rare thing to find a goat which does not have it. Such animals should be treasured as real jewels. Some authorities believe that there is somewhere a pure-bred Angora and that when found it will not have any sign of the undercoat of kemp, but in the absence of pure-bred stock and in the absence of any hope of ever finding him we must seek means of eradicating it. This means lies in the breeders' skill, which must be applied patiently and intelligently if the desired end is ever to be obtained.

It is a custom quite generally followed of designating as Angoras any cross from the first up to thoroughbreds, and as the first cross is the issue of an Angora buck upon a doe of common stock we find in it a greater preponderance of kemp. As the crosses become higher the kemp gradually disappears, but it can not be stated with accuracy that a stage has ever yet been reached when its presence can not be detected.

Whatever mohair there is upon an animal of first cross is as good as that upon any other Angora of any grade,

but it is so vitiated by the presence of kemp as to render it almost valueless, barely worth the clipping usually. The second cross gives more mohair and less kemp and consequently brings a better price, and so on with third, fourth, and other higher crosses.

We learn from manufacturers of mohair goods that their machinery which removes kemp also removes at the same time all mohair fibres of equal length with the kemp. The product thus removed, called nollage, is fabricated into goods of lesser value, such, for instance, as low grade plushes and horse blankets. It behooves the breeder therefore to strive for a goat that will show as little kemp as possible.

The reason kemp is so objectionable in mohair is known to most of us in a general way, but few of us can realize how objectionable it is until we see it through the eyes of the manufacturer. Seen thus we will at once recognize the causes of the low prices for mohair which contains it. The dyes, which are used for mohair, have no effect upon kemp except to give it a very slight discoloration. When kempy mohair is used in plushes the difference existing in color between the mohair and the kemp in color between the mohair and the kemp is much more pronounced than when upon the back of the animal.

There can be no objection to kemp in mohair on the score of durability, for it has lasting qualities, but its coarseness and, most important of all, its inability to take mohair dyes, make it everlastingly undesirable.

#### A FINER FIBRE.

There is a demand for other improvements in the matter of mohair. The manufacturer demands a finer fibre than that which is now placed upon the market. This feature is not a difficult one to obtain with the breeder and he must obtain it if he expects to come anywhere near competing with the Turkish product. The proper selection of breeding stock will give the desired result in time.

With a few exceptions our breeders have not given much careful thought to the quality of fibre. They have striven for a large animal with strong endurance for the main purpose of clearing up the brush while the fleece has been made a matter of secondary consideration. The result is a strong goat with a coarse fleece which is thickly interspersed with long kemp.

Another desirable quality of mohair is length. This is important to the manufacturer and exceedingly important to the producer. Not only will a long fibre bring a better price than the shorter staple, but it weighs more and necessarily leaves behind a very small percentage as nollage. Because of the demand for long fibre the Southern sections of our country where it is necessary to shear goats twice a year are at that much of a disadvantage. While the total annual product of goats thus sheared is probably a little greater than the fleece of a full year's growth the price is so much lower that the difference is not nearly compensated for.

In those parts where shearing is done annually the matter of securing length is not a difficult one. It is a feature easily within the breeder's control and whenever he becomes convinced that there's money in it the long staple will be produced.

The shrinkage of mohair fleeces in

washing and scouring is nowhere nearly so great as with Merino wool, but that mohair can carry much dirt can not be denied. Dirt in mohair fleece is more detrimental than the same amount in a fleece of wool for the reason that the value per pound of the mohair is so much greater than the value per pound of the wool. In mohair there is not the outward grease that is so prominent in wool and for this reason dirt does not adhere to it so tenaciously. And, too, the character of mohair is such that dirt, such as particles of soil and yolk, can work out of it with little difficulty.

It is not a difficult matter, however, to wash soil particles and yolk out of fleeces, but burrs and other vegetable matters are difficult to remove. When ordinary methods of brushing the goat before shearing fails to remove such deleterious substances they should be removed by hand picking. This is best done after the fleece is removed, as then all particles which adhere during the operation of shearing may be removed. Of course shearing should be done where there is as little as is possible to have around. The fleece is spread out upon a clean table where every part of it may be examined and every bit of foreign substance taken out. This may appear at first to be a tedious and useless procedure, but it will pay. It requires a very small amount of such litter to reduce the value of a fleece very materially.

It may not be known to goat breeders generally, certainly not to the great number who have gone into the business recently, that the objection to any foreign fibres in mohair is the same that holds against kemp; they will not take the mohair dyes. Therefore, if every particle is not removed before going into the fabric it shows at once in a most prominent and unpleasant manner and necessarily cheapens the price of the product.

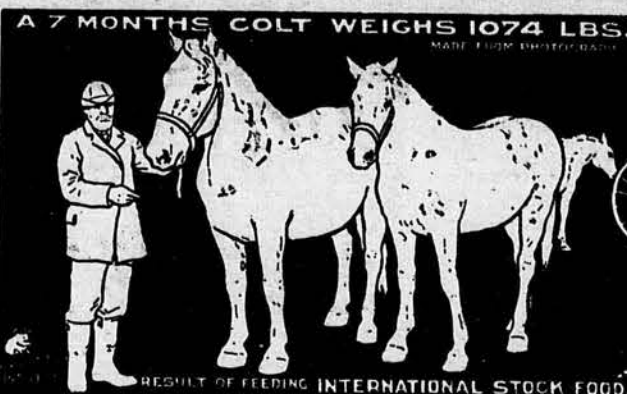
These thoughts lead me to one other objection to common methods of handling mohair on the ranches, namely, tying the fleeces with twine of any sort. When this twine is removed at the mills it is almost certain that some of it will adhere to the fleece and must be removed by the most painstaking care, for the reason as stated above that it will not take dyes and so vitiate the goods. Mohair from Turkey and Cape Colony is not tied in any manner and that is the condition that the mills desire to receive it. The fleeces should simply be rolled up, inside out, and packed in the sack.

#### MANUFACTURER OF MOHAIR.

Now a few remarks as to the manufactures of mohair. I believe I am accurate in the statement that there is no other fibre which is of practical use that is more beautiful than mohair. I will not except silk. There is a lustre in the mohair upon the goat's back which is never absent, whatever form it takes or however long it may be used. This lustre, added to the peculiarly brilliant colors which the dyes contribute, makes an exceedingly beautiful piece of goods.

Samples which are here on exhibition speak much more emphatically than mere words. It requires the skill of an art critic to do justice to such color and for that reason I shall not make an attempt.

You will find here the sofa pillow covers in every conceivable colors and design and also the couch cover. These



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SIRS:—Enclosed find photograph of my pure-bred Percheron colt, Brilliant, Jr., 27982. The dam of this colt was fed "International Stock Food" every day while carrying the colt, and he has had it regularly in his feed twice per day. Brilliant was foaled May 13, 1901, and his actual weight December 21, 1901, is 1074 pounds. I think that "International Stock Food" is the best on earth for all kinds of stock.

Yours truly, L. E. MOYER,  
Breeder of Percheron Horses and Poland-China Hogs.

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are made from a couch cover of mohair. The carriage robes are beautiful and heavy. Some of them are double, having the high pile on both sides, while others may have the high pile simply on one side with a flannel lining.

Another article of exquisite beauty is the rug. The lustre of the raw fleece is still prominent and imparts various colors in the changing lights upon it. While much kemp may be worked into this kind of goods it does not show to disadvantage and does not impair the durability of the rug.

The most important product of mohair at this time is the plushes. They are made up plain in various colors and also into many frieze designs with the admixture of silk for the figure. The plain goods are used for car upholstery. The cheaper grades, such as contain a considerable amount of kemp, are used for street cars, while the higher grades are found especially in sleeping cars, drawing room cars and chair cars. The frieze grades find use in the manufacture of furniture, a use which is certain to extend as the people become familiar with the durability of the goods.

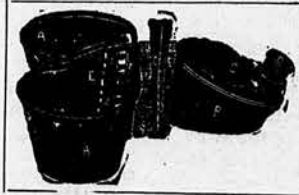
Let us not overlook the use of mohair in dress goods. This kind of goods requires the best quality of fibre. Dame Fashion is so fickle that these goods are not always in style and this is one of the "off years." The paradox is true, however, that because this is an off year mohair goods are more in evidence every day than heretofore, but the reason is that they were purchased last year for use on special occasions, while now they are being worn for office and store. As they can not be worn out, they are often seen. This latter fact ought to recommend this kind of goods for every day use on the score of economy.

One of the best features of mohair goods is their durability. They have no equal in this respect in the fibre world. In some forms mohair seems to be indestructible by ordinary usage. Dr. Davis, the first importer of Angora goats, states that he had worn socks made of mohair six years and yet were perfectly sound. He is also authority for the statement that mohair articles of dress in Turkey wear so well that they descend from father to son and sometimes to the third generation. I have recently seen a chair covered with crushed plush which has been in constant use about seven years and yet there is no evidence of wear upon it.

Mohair crepons do wear out sometimes quite readily, but it is due not to the mohair, but to the cheap base upon which the mohair is woven. This base is sometimes made of cotton; this

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gives way and allows the mohair to fall to pieces. The durability of these goods ought to cause their more extended use. This feature renders them economical. They might be made up in solid colors which do not go out of style and thus be free from the whims of fashion. Mohair has the quality, and quality is never out of style.

#### GOVERNMENT INTERESTED.

Finally, permit me to say that the Government's interest in the Angora industry is in all its phases, among which is the exploitation of the usefulness of mohair products. We want the country to know what these products are, believing that such a knowledge will result in a wider use; and their wider use makes a greater demand for the fleeces which you are producing. It would also give a desirable solidity to the business.

As the Angora goat industry grows into larger magnitude it would be gratifying to know that there is always a ready market for the fleece. I do not mean to convey the idea that the market is now overstocked, for we are importing a million pounds annually and paying a duty of 12 cents a pound. We shall be wise if we do what can be done to create a market while we are producing a supply.

#### Black-Leg Vaccine.

PRESS BULLETIN OKLAHOMA EXPERIMENT STATION.

A further reference to the use of vaccine is made necessary on account of some complaints that have been made

## Miscellany.

### Practical Farmers Breed Corn.

EDITOR KANSAS FARMER:—I have had recently the opportunity of spending a day on the farms of Funk Bros., at Bloomington, Ill., and saw there some things which I think will interest Kansas farmers.

Funk Bros. own a tract of land near Bloomington, Ill., that is seven miles long and six miles wide. The land is among the richest in the State and is well improved, and for years has been under thorough cultivation, the Funks being unusually good farmers.

One of the Funk brothers took the short course in corn judging at the Illinois Agricultural College and was so convinced of the value of the methods of selecting seed-corn taught there that when he got home he tested these methods on what he called a small scale—2,200 acres. The Funks for three generations have made careful selection of their seed-corn, using the best methods practised by good farmers. They found that land planted to corn selected by the methods taught at the Illinois Agricultural College gave them an average increase in yield of twenty bushels per acre over land planted with good corn selected in the ordinary way, land and cultivation the same in each case. The Funk family plants each year 9,000 acres of corn. An increase of twenty bushels per acre from good seed would give them 180,-



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A pedigree record is being established by the Illinois State Corn Breeders' Association and these 800 ears and such of their progeny as shows improvement over the foundation stock will be recorded in the record, the object being to secure in a few years pure-bred ears of corn with records of sires and dams for several generations back, the record showing the exact composition, form, weight, and yield of shelled corn of each ear in pedigree. To show what a good foundation they have for this work it may be mentioned that average corn contains 10 per cent of protein and 5 per cent of fat. One of the ears selected for these plots contained 14.4 per cent of protein and 6.5 per cent of fat, an increase of more than one-third in feeding value over the average corn.

The special breeding plots occupy less than one hundred acres. The rest of the 9,000 acres was planted with corn from the best ears found in the

special work in selecting the corn, including analyses, will probably be \$20,000. The increase in yield alone on the 9,000 acres will probably amount to 180,000 bushels, worth on the open market at Bloomington \$65,000. The Funks feed their corn and will get an increased value in feeding from the improvement in composition. The 9,000 acres should yield at least 180,000 bushels of the choicest seed-corn to be found in the United States, worth \$2 a bushel, and after this seed-corn has been taken out of the crop the remainder will probably be as much as the total yield under old conditions. It required "nerve" and a strong confidence in experiment station work to spend so much money in new methods but Funk Bros. will be repaid.

This work of corn-breeding will benefit every corn-grower in the corn-belt. Farmers with 200 acres of corn or less can secure from Funk Bros. at an expense of 50 cents an acre, or less, for seed all the profits from each acre that Funk Bros. secure per acre with their large expenditure. The men with large acreages of corn can follow the methods used by Funk Bros. and in a year or two we should have breeders of seed-corn on a large scale in every section of the corn-belt. This will furnish high-bred seed-corn adapted to every variation of soil and climate in the corn-belt.

This work of the Funk brothers will affect other lines of agriculture as nothing has since Dr. Babcock introduced his test. What the Funk brothers are doing for corn can be done with alfalfa, Kafir-corn, sorghum, soy-beans, oats, wheat, the grasses and other farm plants and it is reasonable to think that in a few years improvements will be undertaken on a large scale with these crops. All honor to the Funk brothers for their courage and judgment in starting the work.

Manhattan, Kans. H. M. COTTRELL.

#### Some Insect Pests.

EDITOR KANSAS FARMER:—In a recent issue of the FARMER Peter Blocher says: "With one gallon of crude carbolic acid I got rid of the flies from twenty cows for the whole summer." I can't think he used it full strength. How much should it be diluted?

I want to raise some vines this year. Can you tell me what to use in my sprayer to keep the little speckled bug from cucumber and watermelon vines? Also what for the large black stinking squash bug? If I can head them off I shall be happy. L. F. PARSONS.

Salina, Saline County.

In a press bulletin dated March 20, 1900, Prof. P. J. Parrott, then of the Kansas Experiment Station speaking of horn-fly remedies, said: "Of a number of remedies of our own compounding that were tested we have selected one which for cheapness and effectiveness seems deserving of a more extensive trial. It is not as satisfactory as we would like it to be, but it is considerably cheaper, as effective, and often more lasting than fish-oil, which in our opinion is one of the best of the horn-fly remedies. It is made as follows: Pulverized resin, two parts, by measure; soap-shavings, one part; water, one-half part; fish-oil, one part; oil of tar, one part; kerosene, one part; water, three parts. Place the resin, soap-shavings, one-half part of water and fish-oil together in a receptacle and boil till the resin is dissolved. Then add the three parts of water, following with the oil of tar mixed with the kerosene. Stir the mixture well and allow it to boil for fifteen minutes. When cool, the mixture is ready for use, and



One of Nebraska's Thoroughbreds, the property of E. W. Brown, Shelby, Neb., breeder of Chester White swine.

in regard to the effects of vaccination. Too great stress can not be placed on the necessity of cleaning every article used in preparing the vaccine and especially the syringe. This should be thoroughly cleansed after using by placing it in hot water and then drying well before placing it in the case.

The next step requiring special care is filtering the vaccine. Nothing but absorbent cotton should be used and every dose of the vaccine should be filtered through this. The fluid after coming through the cotton should be slightly clouded. Filtering is necessary to remove the coarser particles of the vaccine and it also prevents the injection of material that has no value as vaccine. Another important matter is the size of the dose and the handling of the cattle so as to prevent the possibility of vaccinating the same animal twice. A full dose may be given to cattle over six months old and younger animals should have less depending on the age and size. As the work is ordinarily done there is danger of vaccinating the animal twice, as the vaccinated animals are turned back into the lot with those not vaccinated. In this way it is very easy to make mistakes. If the work is done as carefully as it deserves to be done the results would be more satisfactory to all concerned.

True manhood humbles caste and doffs its hat to no superior. And true manhood accepts no unearned favors. Its hands are too busy with tools of industry to spare time to assume the beggar's suppliant attitude. True manhood is too independent to live off the fruits of others' toil. It finds its truest happiness in the music of the busy and the joyous laughter of those who toil.

000 bushels more corn each year with no extra cost except the time needed to select seed. They learned from the Illinois College that besides an increase in yield a proper selection of seed would make equally as great an improvement in the composition and feeding value of corn.

These men are farming to make money and they saw at once how much profit they could get from breeding corn. They engaged Prof. P. G. Holden, the most expert breeder of corn in the world, to take charge of their work, paying him about the same salary as is received by a United States Senator. Their next move was to secure the best seed-corn that could be obtained. They hunted the corn-belt over and found nine corn-raisers that had been carefully breeding corn for years and who had developed corn of high quality. One strain of corn which they found had been bred up by one family since 1856. Ten thousand bushels were purchased of the best seed-corn which these breeders could furnish.

These 10,000 bushels were carefully gone over, ear by ear, and 2,800 ears found that could be considered models. Each of these ears was sent to a chemist and analyzed for protein, fat, starch, ash, and moisture. Measurements were taken of each ear of length; diameter at tip and butt; rows of kernels on each ear; kernels on row; length, width, and shape of kernel; weight of ear and weight of corn shelled from ear. About 800 ears were found out of the 10,000 bushels of carefully selected seed that satisfied every requirement of composition, form, and weight, and the corn from these ears is planted in special breeding plots where it will be used as foundation stock for advanced breeding.

10,000 bushels of seed-corn after the ears for plots had been taken out. For general planting ears were selected for size, uniformity in shape, well filled tips and butts, deep narrow kernels and heavy weight of shelled corn. Each ear was carefully selected, the butts and tips shelled off and rejected and the rest of the ear shelled. The selected shelled corn was taken out, a handful at a time, and spread over a screen and every kernel that was not of the proper shape and character thrown out. The writer watched the selection of seed for several hours and saw long, well shaped kernels of fine quality thrown out because they had small spots of deeper or lighter color than the surrounding part of the kernel. It was simply amazing to watch the care of the experts in selecting the seed, every kernel having the careful scrutiny that a stockman gives when selecting a pure-bred animal for his herd. This was done for every kernel used in planting 9,000 acres of corn.

The day the writer spent on the farm 700 acres of corn were planted and the condition of the soil was as good as the quality of the seed.

The corn will be given the best cultivation and at time of tasseling experts will go through it and destroy every mis-shapen and every barren stalk in the entire 9,000 acres. This will be done to insure that no undesirable stalk shall send pollen to fertilize an ear growing on a good stalk. This work alone will largely increase the yield of succeeding crops as has been shown by the Illinois Experiment Station.

What will all this work accomplish? In the first place it will make money for the Funk Bros.—more money than they could have made by adopting any other improvement. The extra expense of

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should be stirred frequently while being applied.

The mixture costs about 30 cents a gallon. From one-eighth to one-half pint is sufficient for one application. To apply the mixture, a brush is essential. We find nothing more satisfactory than a large painter's brush. At first it is well to make an application for two or three days in succession. Afterwards an application every other day will suffice. Cows, in standing in water and mud, running through weeds and brush and rubbing against trees, often remove some of the mixture. In this case it is well to retouch the unprotected parts. It is often more economical not to attempt to protect the entire animal, but only those parts not reached by the head or tail. This mixture is very sticky and for this reason is not recommended for horses. It is perfectly safe, and in no case has it appeared detrimental to the health of the animal.

We often receive inquiries for some mixture to protect horses. It must needs be of such a nature as will not mar the appearance of the horse, or prevent his being curried. It seems difficult to obtain a mixture that possesses lasting with safe qualities. The following remedy is the best that we have tried. It is safe and does not gum the hair, and is effective for three or four hours, and even longer. It is made as follows: Fish-oil, two quarts; carbolic acid (crude), one pint; pennyroyal, one ounce; oil of tar, eight ounces; kerosene, one and a half quarts or enough to make one gallon of the mixture. This will cost about 80 cents a gallon, and must be applied with an atomizer, not with a brush. An atomizer costs about \$1.50, and can be obtained at any hardware or drugstore. It is very economical in the use of the mixture and enables one to make a very quick application.

As the cucumber beetle has biting mouth parts and devours its food, it may be poisoned by spraying the plants with any of the well-known poisons such as Paris green, London purple, and other arsenates. These give better results if applied in solution than when applied in the dry state. The plants should be sprayed until the water runs down the stem. This covers the entire plant with the poison. Air-slacked lime is sometimes used, but is not considered as good as the London purple.

The squash bug sucks its food and can not be fought in the same way as the cucumber beetle. Picking of these with the hand is the surest method. Spraying the nymphs with kerosene emulsion in the evening is also a good plan. Boards laid on the ground make a good hiding place for the bugs where they may be easily found and sprayed with a stronger solution of kerosene emulsion or they may be gathered in the early morning and thrown in pure kerosene as you would potato beetles. Squash vines are sometimes planted among watermelons where the seed is not required for the next season's crop. The bugs congregate on these and may be sprayed with the kerosene emulsion. Hand picking of the old bugs and the eggs is the surest method of fighting. The eggs may be seen in clusters on the leaf which may be gathered and burned. Clean culture in the summer and the removal of all trash from the ground in the winter will be a material aid in the fight.

O. G. GREENE.  
Kansas Experiment Station.

#### The Farm Paper.

EDITOR KANSAS FARMER:—Plenty of rain has fallen lately, but too late to assure more than 50 per cent of a wheat crop. Corn looks well and is growing finely. Also oats are making a wonderful growth. In fact all crops are doing phenomenally well except wheat.

I think the KANSAS FARMER is doing a splendid work that is bearing good fruit and future generations will be blessed by it. One of the many things the farmer needs is an exchange of ideas so that each one's experience may be known and benefits derived from it. One of the dearest teachers is experience and sometimes we might profit by another's experience, although to gain knowledge some one must experiment. Now, if farmers would take good farm papers and read them, then contribute articles about their personal experience, these articles would be read by a great number of farmers, who would be benefited. In this way we can reach a great many with our experience that ordinarily we never see.

The great medium of thought is the press, and a people are intellectual only when newspapers and magazines are in the homes, and every nation which is not a reading one is invariably an ignorant one. As farmers constitute

three-fourths of our population, and as "the farmer feeds them all," it is evident if the farmers occupy a low intellectual place eventually we shall deteriorate instead of progressing. A nation can progress only as her farmers advance in intelligence, which also brings better methods of agriculture in turn to enrich the nation.

Farmers read too little, and take too few farm papers for their own good. Occasionally may be found a man who can not read, who has made a success of farming, but as a rule the most prosperous farmers are those who take a local paper, a State paper, and at least one good farm paper. Reading farm papers broadens the mind by teaching easier ways and better methods of doing our labor, shows us how to increase our production on the same acreage, how to get the best results from our forage and grain, how to intelligently understand conditions and to meet them successfully, and how to get joys from life by a greater exchange of thought. The farm paper is a mine of information leading to our improvement and should have a place very near the farmer's heart. Every farmer who places farm papers before his boys and girls is laying the foundation for their success. Such papers are cheap and should be in every home. They save dollars every year, and are doing more good for the people than any other thing.

The farm paper is the result of untiring energy and perseverance, together with ceaseless research and experiment, and gives the most for the least money. The farm paper exists for the improvement of agriculture and advancement of the farmer. By all means take a farm paper. It will lighten your labor, promote your financial condition, and bring peace and contentment to the heart.

L. A. WELD.  
Medford, Grant County, Okla.

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## A PINK BOOKLET

### And What Came from One Woman's Reading It.

A woman in Rome, N. Y., Mrs. W. T. Clark, was cured of stomach trouble and nervousness by a certain medicine and gave the manufacturers permission to use her statement recommending the preparation. This was published in a booklet and thrown around at the doors. Now Mrs. William Metot, also of Rome, was ailing, and, happening to read the book, came across the description of Mrs. Clark's case. In some respects their symptoms were similar, so she went to Mrs. Clark's home at No. 318 West Thomas Street, and asked her about it. Mrs. Metot tells the story as follows:

"I had been miserable for a long time, suffering with the troubles which come with the turn of life. It made me sick to my stomach, I had smothering spells every once in a while and, if I walked any distance, my limbs felt like sticks. My head felt just as if I was going to be crazy and with it all I was afflicted with nervousness and heart trouble. I felt so bad that I did not see anything to live for.

"I went to a doctor but he didn't do me much good and so I was pretty well discouraged. Then I saw in a booklet that was thrown around, how Mrs. Clark was cured. I went to see her and upon her recommendation I went that very day and got some of Dr. Williams' Pink Pills for Pale People.

"I felt better before the first box was all taken and continued using them until I was well. My husband is sick and is going to take them and so is my sister. I have recommended Dr. Williams' Pink Pills for Pale People to many people and will continue to do so for I know what they will do from my own experience."

Mrs. Metot lives at No. 426 W. Bloomfield Street, Rome, N. Y. Her statement is another proof of the well-deserved popularity of Dr. Williams' Pink Pills for Pale People. Among the many diseases they have cured are locomotor ataxia, partial paralysis, St. Vitus dance, sciatica, neuralgia, rheumatism, 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. Dr. Williams' Pink Pills for Pale People are sold by all dealers or will be sent postpaid on receipt of price, fifty cents a box; or six boxes for two dollars and a half, by addressing Dr. Williams Medicine Co., Schenectady, N. Y.



**LIGHTNING HAY PRESSES**  
HORSE AND STEAM POWER CATALOGS  
KANSAS CITY HAY PRESS CO  
129 MILL ST KANSAS CITY MO

#### Big Ohio Shorthorn Sales.

Three famous sales of Shorthorns were held in the State of Ohio last week. They were the best held in Ohio for over a half century and seemed to revive again the enterprising spirit, which prevailed at the time of the world famous sales made by members of the Ohio Importing Company in 1836 and the 40's. The attendance and interest was great. The sales were held at the home farms.

The first sale of the series was held on May 20, at Whitehall Farm, owned by E. S. Kelley, Yellow Springs, Ohio. It was his first annual sale and included a number of imported and Scotch bred Shorthorns, a very creditable offering which realized very satisfactory prices for the first public offering.

Thirty-six head sold for \$21,255, a general average of \$590.42. Twenty-eight cows and heifers sold for \$19,180, an average of \$685, and eight bulls sold for \$2,075, an average of \$259.37.

The bulls sold low in comparison to the females, but Mr. Kelley was very well pleased with the result of his first sale and proposes to hold annual sales regularly hereafter. He sold eight females at a price exceeding \$1,000. The top price of his sale was \$1,625 for the imported cow, Missie 158th, sold to W. I. Wood, Williamsport, Ohio. The principal buyers at Mr. Kelley's sale were T. J. Ryan & Son, Irwin, Iowa; W. I. Wood, W. D. Platt, Hamilton, Ont.; Frank W. Cotton, Manila, Ind.; J. G. Robbins & Sons, Horace, Ind.; Oscar Hadley, Plainville, Ind.; W. B. Marvin, Urbana, Ohio; C. L. Gerlaugh, Osborn, Ohio; Brown & Randolph, Irwin, Iowa; J. A. Gerlaugh, Harshman, Ohio; J. W. Williams & Son, Briant, Ind.; Dr. W. W. Crane, Tippecanoe City, Iowa; Geo. Harding & Son, Waukesha, Wis.; C. C. Bigler & Son, Hartwick, Iowa; F. T. Hills, Delaware, Ohio; J. H. Hawkins, Zenice, Ohio; and Hubbard & Son, Flint, Mich.

The second event was the fourth annual sale of imported and Scotch Shorthorns by C. L. Gerlaugh, Osborn, Ohio, held on May 21, 1902, at his Woodberry Farm. His offering was an ideal one and was the best sale he had ever held. His offering of bulls was probably the best all-round lot offered at auction this year in America. The first ten head sold average \$1,091, and the first twenty averaged \$800 even. The offering was not large but very select and in splendid condition. He sold thirty-three head for the neat sum of \$20,130, an average of \$610.

Twenty-five cows and heifers sold for \$15,375, an average of \$615, and eight bulls sold for \$4,755, an average of \$594.37. The top price on females was \$1,525 for Imp. Missie 162d, sold to E. S. Kelley of Yellow Springs, Ohio.

The top price of the sale was \$1,705 for the yearling bull, Master of the Ring 171376, sold to T. J. Ryan & Son, Irwin, Iowa.

The principal buyers of the Gerlaugh offering were A. Alexander, Morning Sun, Iowa; W. F. Christian & Son, Indianapolis, Ind.; Mormont & Miller, Winchester, Ind.; E. S. Kelley, Yellow Springs, Ohio; W. D. Platt, Hamilton, Ont.; J. H. March, Greenville, Ohio; G. T. Barnes, Mt. Gilead, Ohio; W. B. Marvin, Urbana, Ohio; T. J. Ryan & Son, Irwin, Iowa; C. F. Creek & Son, Liberty, Ind.; Mrs. Virginia C. Meredith, Cambridge City, Ind.; and John W. Williams & Son, Briant, Ind.

The third sale of the series was that of W. I. Wood, Williamsport, Ohio, of fifty head of Canadian and home-bred Scotch, Bates, and Scotch-topped cattle, but as the Kansas Farmer representative was not present at this sale the details were not available at the time of mailing this report.

The unqualified success attending these sales has given a new impetus to the Shorthorn interest in the Ohio Valley.

#### Gossip About Stock.

Farmers who are interested in Polled Durhams, will have a chance to buy some fine animals at Omaha, on June 24, 1902. F. F. Failor of Newton, Iowa, and A. E. Burleigh of Knox City, Mo., advertise to sell forty-five head of double standard Polled Durhams at that time and place. Write them for catalogues after June 1. These gentlemen have been giving many years of attention to their herds, and prospective buyers will have opportunity of getting the very best breeding they can find anywhere, to improve their own herds.

Rose Hill Herd of Duroc-Jersey swine, owned by S. Y. Thornton, Blackwater, Mo., has now for sale 30 choice gilts, some of which are bred for August and September farrow, and others will be sold either bred or open, as may best suit purchasers. Mr. Thornton also has eight boars ready for service, and 130 spring pigs for sale; he writes that his finest sow had just farrowed 12 strong pigs, and that his early March pigs are ready for shipment. He has concluded to offer for sale one of his famous herd-boars, Ohio King 12179. Write him for catalogue.

The International Stock Food Company, of Minneapolis, Minn., in writing Kansas Farmer gives the following information: "We have just been compelled to add factory No. 3. This gives us another building containing four floors 50 to 100 feet each. In our three buildings we now occupy 62,000 feet of space, which will give you some idea of the magnitude of our business. Our business increased at an extraordinary rate in 1901, and the increase so far this year has exceeded the increase of last year. When we told you that it requires 107 people to attend to our office work

alone you can imagine that we are doing a very large business. At the present rate of increase we will be compelled to build an immense factory next year and we are now planning for this important event in our history. We will have to build at least twice as large as the three buildings we now occupy. Of course, we are gratified in being able to make such a report, as it is absolute proof of the superior merits of our goods. Our largest growth is in States where farmers and stockmen have been using our goods for the longest time. People will not continue to use anything year after year unless it gives satisfaction." Notice their advertisement on page 519.

A notable event in the Shorthorn world, at least that portion of it adjacent to Kansas City, will be the combination sale of Shorthorns to be held on June 17, at the Union Stock Yards, Kansas City. The animals to be offered are drawn from such famous herds as those of N. H. Gentry and the Gentry Bros., of Sedalia, Mo.; June K. King, Marshall, Mo.; A. A. Wallace, Bunceton, Mo.; S. W. Roberts, Pleasant Green, Mo.; Gallagher & Meyer, Highland Station, Kans. The animals offered will be all of pure Scotch or Bates blood or else of other good families topped with the best Scotch or Bates blood. Mr. N. H. Gentry whose name has been synonymous for many years with all that is best in the Shorthorn breed, will place a small draft from his herd of young cattle that are sons and daughters of Victorious 121469. Two of these will be of the Sidington Kirklevingtons, one a Moss Rose heifer, one a Serephus bull by Victorious, another a Scotch Butterfly bull by Victorious. The Gentry Bros., whose herd is made up of the get of the straight Bates bull, Grand Duke of Hazelhurst 125404 to a considerable extent, and who have Waterloo Duke of Cedarvale 133065, by Victorious, out of Waterloo Duchess 5th as their present herd-bull, will offer a Butterfly heifer and an Iantha heifer, both bred to Waterloo Duke of Cedarvale; a Rose Bud heifer with cow calf by Grand Duke of Hazelhurst and a Bright Eyes Young Phyllis and a Perl heifer as their contribution to the sale. Full information in regard to the breeding of the other animals offered will be given later. Sale catalogues may be had by addressing June K. King, Marshall, Mo.

#### Gavitt's \$550 Prize Offer.

An interesting contest is at hand. Our readers will not fail to notice the display announcement on page 558 of the W. W. Gavitt Medical Company, Topeka, Kans., who offer \$550 in prizes for a list of words formed by using letters occurring in "Gavitt's System Regulator is Guaranteed."

The W. W. Gavitt Medical Company is a firm of manufacturing chemists of Topeka, and have built up a tremendous business during recent years. No firm in Topeka receives a larger daily mail than this house. Their business has grown to such an extent that they occupy three buildings, each of which is taxed to its fullest capacity. Every reader of the Kansas Farmer should feel a special interest in this Kansas institution and enter the contest at once.

## PILES

Fistula, Fissure, all Rectal Diseases radically and permanently cured in a few weeks without the knife, cutting, ligature, or caustics, and without pain or detention from business. Particulars of our treatment and sample mailed free.

Mr. M. McCoy, Goganao, Kans., Captain Company A, Fifteenth Indiana Infantry, writes: "Hermit Remedy Company, Dear Sirs:—I have doctored for piles since the Civil War—thirty-six years—and am now glad to report that after using your treatment for a few weeks I am completely cured. I believe you can cure any one, for a man could not be in a much worse condition than I was and live, and I am duly grateful to you. Respectfully, "M. MCCOY."

We have hundreds of similar testimonials of cures in desperate cases from grateful patients who had tried many cure-alls, doctors' treatment, and different methods of operation without relief.

Ninety per cent of the people we treat come to us from one telling the other. You can have a trial sample mailed free by writing us full particulars of your case. Address, HERMIT REMEDY COMPANY, Suite 736, Adams Express Building, Chicago, Ill.

#### Cloudcroft

Is a splendid summer resort, high up in the Sacramento Mountains, in New Mexico, on the El Paso Short Line (Great Rock Island Route). If you are looking for rest and recreation, you can find them at Cloudcroft. The mountain breezes, fresh with the fragrance of the great pine forests, bring health and cool nights. Cloudcroft gives all the pleasures and benefits of a sojourn in the mountains. Its story is best told in a handsome booklet just published by the Great Rock Island Route and which can be had free on application to E. W. Thompson, A. G. P. A., Topeka, Kans.

When writing our advertisers please mention the KANSAS FARMER.

## PILES

**NO MONEY TILL CURED. 25 YEARS ESTABLISHED.**  
We send FREE and postpaid a 200 page treatise on Piles, Fistula and Diseases of the Rectum; also 100 page illus. treatise on Diseases of Women. Of the thousands cured by our mild method, none paid a cent till cured—we furnish their names on application.  
DRS. THORNTON & MINOR, 1007 Oak St., Kansas City, Mo.



## Horticulture.

### Orchard Treatment.

W. B. EAMES, OF OTTAWA COUNTY, BEFORE THE KANSAS STATE HORTICULTURAL SOCIETY.

Kinds of good treatment of an orchard may vary in different localities. Perhaps the best way to treat an orchard from start to finish has not yet been discovered; although some methods are much better than others. I saw an article only a few days ago, in one of our leading newspapers, stating that seeding an orchard down to alfalfa was all right. Well, it may do in the eastern part of the State. The writer has known of several apple orchards being ruined in Ottawa County by seeding to alfalfa, and I have my doubts about its being the best method anywhere. I have had more experience with one apple than with other kinds of fruit-trees; so will speak in particular of the apple.

While an orchard is quite young, before the feeding roots start, if the plow is run so as to throw the soil well up on the body of the trees, these roots will form higher up on the trunk; then, with careful cultivation with the right kind of implements, so as not to disturb these surface roots or feeders, the soil next to the trees will gradually work away, from the effects of cultivation, wind, and rain, and as the roots enlarge they will be exposed next to the tree and will become much larger and healthier than if kept covered deeply.

The sharp-pointed-shovel, one-horse cultivator has done its mischief by catching the brace roots while quite small and dragging them around across other roots, where they have taken hold and grown again, leaving one side of the tree without necessary support. The orchard disk has also left its bad effect by cutting off, or nearly so, these most important of all roots; for these are the ones that make healthy trees and big apples. After using the orchard disk in my orchard one season it was discarded; and then the Acme harrow was tried, and with perfect satisfaction.

I believe that after an apple orchard has come into bearing, cultivation should cease; weeds and annual grasses allowed to grow until large enough to mow; then keep mowed down, except when there is an excess of moisture in the soil; then, if allowed to grow for a short time, they will assist in evaporating the surplus water from the soil. Then when the ground dries enough to drive onto, cut the weeds with a mower.

Set the trees so as to cultivate and mow both ways; for if mowed but one way the perennials get established in the row and ripen seed, and soon the orchard is sodded to perennial grasses, which are very detrimental to an apple orchard, especially in the western two-thirds of the State. I have had some expensive yet valuable experience with a moth-catcher, which proved a failure with me, for codling-moth. I shall try spraying, another season.

I would head apple-trees about three feet from the ground; where headed too low it is inconvenient. Trim while trees are young, seldom cutting large limbs.

### Small Fruits.

REPORT BY B. F. SMITH, OF LAWRENCE, BEFORE THE KANSAS STATE HORTICULTURAL SOCIETY.

The small-fruit season of the year 1901 was the driest known for many years, or at least since berry fruits became a commercial product. On the highlands around Lawrence there was not enough rain to lay the dust from April 18 till July 27. Many of the forty-seven varieties we are testing and growing for market wilted under the trying ordeal. Among the varieties that were the greatest sufferers were the Warfield, Windsor Chief, Splendid, Clyde, Miner, Parker, Earle, Lovett, Glendale, Brandywine, Kansas, Star, Patrick, Paris King, and some others. Varieties that resisted the drouth best were Bedwood, Excelsior, Johnson's Early, Sample, Bisel, Captain Jack, Crescent, New York, Vorhies, Margaret, Ridgeway, and No. 77 (a new variety of my own production, under test). About four-fifths of our crop of raspberries dried up on the bushes. Early Harvest blackberries turned out about four pick-

ings. All other varieties dried on the bushes.

In comparing the labor bestowed on the soil with other berry fruits from planting to fruitage, the gooseberry has been my most profitable crop. Notwithstanding the severity of the drouth, its berries were of good size from the first to the last picking.

The best currants are the Fay and Red Dutch varieties; other varieties on my soil are shy bearers; most of my currant bushes were planted six or seven years ago and this is the first season that they have borne any crop worthy of mention. The currant has more insect enemies than any other small fruit; but is good when grown on upland. It grows too long and doesn't develop as it does in the bottom. Warfield is well enough known to need no recommendation. Wm. Belt is a splendid home variety, and does well commercially. It is large, handsome, prolific, and decidedly pleasant to the taste; it is a good table variety. Windsor Chief commands about 25 cents per crate more than other berries of like size and color because of its fine table qualities. Clyde does better for us as a 2-year-old than as a yearling. Bubach, Marshall, Stayman, Eclipse, Glen Mary and Haverland have not done well for us. Bubach does better on upland. Excelsior is a new berry, and is the earliest I know anything about. It will pay you to plant it; it is very early, very prolific, and of good color; there is money in it. Nick Ohmer, another new variety, is too good to leave out; it is large, sweet, has a wonderful aroma, is very prolific, and in my opinion a remarkable berry. By all means try Excelsior and Nick Ohmer. Gandy is the latest of all, and prolongs the season until berries arrive from Colorado, and when strawberries, much as we like them, should give way to other fruits.

As to the care of strawberries, I think it is as necessary to mulch as to plow and hoe; a good, heavy mulch, about four times the amount that is taken for a given area of what will keep the berries clean, will keep the ground free from weeds during fruiting, and will also conserve the moisture.

I would not close this report without an exhortation to more systematic, persistent and thorough cultivation; you can not expect good, profitable results unless your ground is free from weeds and your soil is kept loose. If you are in doubt as to the result, try a single acre, and put double the usual work thereon, and see how it will pan out. The prospect for a crop next year is as good as could reasonably be expected after the severe drouth. Raspberries and blackberries made a good growth late in the season and promise well. Strawberries made few plants and look ragged; still I expect a half crop next year.

### Cultivate the Trees.

PRESS BULLETIN OKLAHOMA EXPERIMENT STATION.

Many of the trees that were planted for shade and fruit this spring are already dead. Many more will die before the summer is past. The chief cause for this loss has been and will be neglect. Assuming that the trees have been planted properly and that they were of sorts adapted to conditions, at least 95 per cent of those planted should live and thrive. Orchardists as a rule give their trees every needed attention and lose but few trees. The most notable example of intermittent enthusiasm may be seen along the streets of towns and cities. When spring comes, nearly every one plants trees as a matter of course or to get rid of some tree agent. Too often when the planting is done, no further attention is given. After planting, the dirt is often piled up in a nice mound about the base of the trees, possibly with the notion that this will hold the tree in place. The result is that what rain falls it is drained away from the roots of the trees instead of toward them. Instead there should be a slight depression about the trees so as to get a little excess of water if possible and let it soak in.

Cultivation throughout the summer should be given if trees are wanted. The growth of the trees will be better if all the space between them is cultivated after every rain. This is hardly desirable about the house and the next best thing is to cultivate a space about the trees. The soil should be hoed and kept loose for a space of from three to five feet about the trees, the larger the cultivated space, the better. It isn't a hard matter to grow trees if one will give them a little attention right along and will think of them as a crop that should be cultivated if good growth is expected. A treeless town is always cheerless to the stranger, while streets



## Mrs. D. Arnold, President German Woman's Club, Grand Pacific Hotel, Los Angeles, Cal., Relieved of a Tumor by Lydia E. Pinkham's Vegetable Compound.

"DEAR MRS. PINKHAM:—I suffered four years ago with a tumor in my womb, and the doctors declared I must go to the hospital and undergo an operation, which I dreaded very much and hesitated to submit.

"My husband consulted an old friend who had studied medicine, although he was not a practising physician, and he said he believed that **Lydia E. Pinkham's Vegetable Compound** would cure me. That same day I took my first dose, and I kept it up faithfully until twelve bottles had been used, and not only did the tumor disappear, but my general health was very much improved and I had not felt so well since I was a young woman.

"As I have suffered no relapse since, and as I took no other medicine, I am sure that your Compound restored my health and I believe saved my life."—MRS. D. ARNOLD.

**\$5000 FORFEIT IF THE ABOVE LETTER IS NOT GENUINE.**

When women are troubled with irregular, suppressed or painful menstruation, weakness, leucorrhoea, displacement or ulceration of the womb, that bearing-down feeling, inflammation of the ovaries, backache, bloating (or flatulence), general debility, indigestion, and nervous prostration, or are beset with such symptoms as dizziness, faintness, lassitude, excitability, irritability, nervousness, sleeplessness, melancholy, "all-gone," and "want-to-be-left-alone" feelings, blues, and hopelessness, they should remember there is one tried and true remedy. **Lydia E. Pinkham's Vegetable Compound** at once removes such troubles. Refuse to buy any other medicine, for you need the best.

bordered with thrifty trees are attractive and are appreciated by all. Cultivate the trees every time it rains and sometimes between times.

### Killing Weeds.

The best way to kill weeds is to dig them up with the hoe. In the case of quack-grass it is safe also to put the weed in a blazing fire after it is dug up. A good many men have worried their heads over the invention of a chemical weed-killer. If one could take some agreeable medicine for weeds, as he does for ague or that spring feeling, it would be a great relief from hoeing and plowing.

The botanist of the Vermont Experiment Station, who is an expert in such matters, says this sort of medicine will work in some cases. Gravel walks, drives, and tennis courts, for instance, can be kept free from weeds by the use of certain chemicals. Compounds containing arsenic seem to be far superior to other chemicals. The trials made at the Vermont Station have included salt, copper sulphate, potassium sulphid, kerosene, carbolic acid, sulphuric acid.

The arsenical compounds tested were as follows, named in the order of their merit: Henderson's fluid weed-destroyer, arsenate of soda; Smith's weed-killer, arsenical-soda mixture. In choosing between these, cost, convenience, and effectiveness are to be considered. The cost is as follows, using eight gallons to the square rod: Henderson's weed-destroyer, 40 cents to the square rod; arsenate of soda, cost 11 cents a square rod; arsenic-sal-soda mixture, 8 cents a square rod.

The arsenate of soda seems to be best for general use, especially when the expense is considered. For killing weeds in lawns or similar places where it is desired that useful plants shall occupy the treated soil as soon as possible thereafter, crude carbolic acid is the most generally useful chemical, since it is prompt in its action, and does not permanently poison the soil. Sulphuric acid comes next, but it is less penetrating. Its only advantage as compared with carbolic acid is that it is not malodorous. Common salt is inferior to any of the above chemicals for miscellaneous weed-killing.

Warm spring days produce a feeling of drowsiness if the body is loaded with

the impurities of winter diet. Cleanse the blood, liver and bowels with Prickly Ash Bitters. It creates energy and cheerfulness.

## Cash Buyers for Farms

or other real estate may be found through me, no matter where located. Send description and price and learn my successful method for finding buyers. **W. M. OSTRANDER**, North American Building, Philadelphia, Pa.

**STARK TREES** best by Test—77 YEARS LARGEST NURSERY. FRUIT BOOK free. We WANT MORE SALESMEN **PAY CASH** Weekly. STARK BROS., Louisiana, Mo.; Danville, N. Y.; Etc.

## Home-Grown Seed-Corn

Choice selected seed. Best white and yellow varieties. Also Red Red Russian Rust Proof Oats, Ohio and Triumph Seed-Potatoes. All sorts of field, garden, and flower-seeds. Poultry-food, oyster-shells, ground bone. \$1.40 special collection garden-seeds for \$1.00; 25 varieties.

The New Seed-House, 705 Commercial St., Farmers' Seed Co., Atchison, Kans.

**FARMS IN WESTERN CANADA FREE**

**A Dairying Proposition**

does not go badly with that of raising No. 1 Hard Wheat. Both are satisfactory in the Great Agricultural districts of Manitoba, Assiniboia, Alberta & Saskatchewan.

## Mixed Farming is an Assured Success.

Every condition is favorable. Schools, Churches, Railways, Climate most every requirement. By letters from settlers we find one man who, after a few years' residence, came to Western Canada with \$75, is now worth \$10,000; another who brought \$1,000 is now worth \$50,000, another who came with barely enough money to buy a team is now worth \$50,000, and so on.

These lands are the most valuable on the continent. Railroad and other lands at low figures adjoin the Homestead Lands. For fuller information, maps, pamphlets, etc., address **F. Fodley**, Superintendent of Immigration, Ottawa, Canada, or the Canadian Government Agent.

**J. S. CRAWFORD**, 314 W. Ninth St., Kansas City, Mo.

**Cascarets**

CANDY CATHARTIC

BEST FOR THE BOWELS

10c 25c 50c. All Druggists

Genuine stamped C.C.C. Never sold in bulk. Beware of the dealer who tries to sell "something just as good."



## The Home Circle.

### MEMORIAL DAY.

Where ocean surges cast their spray,  
Where inland rivers wind their way,  
To mingle with the sea;  
Where blossoms deck the Southern vine,  
And where the winds through Northern  
pine  
Make mournful melody.

In hamlet on the mountain side,  
In city where the human tide  
Sweeps ever restless by;  
A Nation gathers on this day,  
Her grateful tribute now to pay  
Where'er her heroes lie.

When memory links us to the past,  
And we recall the war's fierce blast  
Which o'er our country swept;  
How fierce and awful was the strife  
That threatened then our Nation's life,  
And how our Nation wept.

Our heads will bow and tears will fall,  
For those who gave their lives and all  
To make our country free;  
And tender recollections fill  
Our hearts, and all our pulses thrill  
With saddened memory.

Yet, when we think of what they wrought,  
The priceless heritage they bought  
And for us made secure,  
Our hearts are glad—we anthems sing,  
We to the breeze our banners fling,  
And scatter blossoms pure.

Then let the fragrance of our love  
Be mingled with the flowers above  
Each soldier's lowly bed;  
And let a grateful people bring  
Each year the choicest flowers of spring,  
A tribute to our dead.

Let bosoms blow with patriot fires,  
When youth remembers honored sires  
As future years go by;  
Let loyalty to flag and land  
Bind all together as one band,  
For country—live or die.

While we each year with reverent tread  
Surround the chambers of our dead,  
And strew their mounds with flowers,  
Let friendly act and loving word  
For those who linger yet be heard,  
To cheer their lonely hours.

Heroes they were, who fought and fell  
In battle's front, where shrieked the shell  
And death was in the air;  
But no less heroes, side by side,  
Stood in the fight with him who died,  
Preserved by God's kind care.

Honor the dead who wore the blue,  
Honor the living heroes, too,  
For honor is their due.  
Fraternity should ever glow,  
And charity forever flow  
From loyal hearts and true.

—W. F. Henry.

### What is a Practical Education?

W. A. CASEBIER, BEFORE THE BERRYTON FARMERS' INSTITUTE.

In presenting this subject, we desire to separate education into two distinct divisions: First—logical education; second—esthetic education. The former manifests itself in the judgment and the reason, while the latter loses itself in art. As we are to deal only with practical or logical education, we shall not touch on esthetic education farther than to say that it is the gloss of well rounded manhood or womanhood. As we understand it, practical education has for its aim the promotion of our material existence, while esthetic education promotes our spiritual existence.

If we are permitted to progress on this basis, we will speak briefly of those conditions and those attainments which enable us to grapple with the stern realities of life and master them: A practical education does not consist in a certain amount of coined thought held in our memories, a certain number of pages learned by note, and a certain number of rules and definitions memorized. A practical education must begin within; we must first know ourselves, and then space, time, magnitude, and all things tangible will yield to our research and mental activity.

Education which will make life's way seem easier is practical education. Education which will enable us to perform the plain, common duties of life with greater ease and accuracy than before, is practical education. Education which enables us to meet the business world on a business basis is practical education. We can not all have the eloquence of Demosthenes nor the logic of Bacon, but we all may have the two great faculties which placed these sages in the fore-front of Time's great drama; and these are a sound judgment and a tireless reason. All practical education is superinduced by a spirit of investigation; a desire to know that which to us is now unknown, a disposition to know the cause of certain effects, or, seeing the effects, ascertain the causes which produced them. We believe that the Creator of all things designed that all agencies should yield to the wisdom of man and serve him, and that mind which dared to draw the lightnings from the heavens and chain them to his own service was an educated mind; a mind practically educated. The man who harnessed steam in the iron cast of his peerless ingenuity, and caused it to become the servant

of future ages, was an educated man. Such accomplishments are not the spontaneous progeny of a transitory fancy, but they are the outgrowth of cool, calm, considerate thought, and such thought will bring its own reward in whatever direction it is exercised.

But all practical education does not lead in the line of invention and scientific discovery. We go into the office of any of our leading establishments and there at the desk, with mind riveted on his work, sits the calm, earnest bookkeeper. He has learned his lesson well, and as he turns from page to page of his great ledger he gives no thought of the world without, for he has become the trusted custodian of his employer's vintage.

And here would I emphasize the necessity of accuracy in our education. We must not only know that we can do a thing; but, after we have attempted it, we must know that we have done it, and done it right. No education is a practical education which does not bear the seal of accuracy. Andrew Carnegie, the great steel magnate, had with him for a number of years a trusted clerk by the name of Brown. On one occasion a dispute arose between Mr. Carnegie and one of his customers, relating to an account which the latter owed the former. For some time Mr. Carnegie was puzzled over the matter, for he was very positive that his customer was honest in contending that he had been overcharged. Finally, the great magnate summoned his clerks and inquired as to which one of them had kept the account. Fearing that some great blunder had occurred the clerks present were silent, but presently Brown stepped forward and said: "Sir, I kept that account and it is correct."

Then Mr. Carnegie turned to his customer and exclaimed, "If Brown kept the account there is no use of further controversy, for he never makes mistakes."

This man Brown had a practical education, he was master of his work.

We are too apt to leave a subject half finished, a work half done. How many of us can add a column of a hundred figures and know that we have the correct sum? How many college professors can do this? Yet this is practical and he who can do it has a practical education thus far. No education is practical unless we can apply it to the different propositions which come up in every day life.

I would not underestimate the importance of a higher education and here would assert that our teachers should acquire two things. First—a much more profound education than they now receive; second—a much deeper and a more useful interest in their work than they now have. And if ever we are to have the teacher that America needs, teaching must become a leading profession. Those who pursue it must take a full college course, before entering the school of pedagogy, and such a school they must enter and go through. It is an impossibility for a teacher to teach a thing until he first knows it himself, and as a practical education consists of every manner and method of acquirement, and is a preparation for life, domestic, economic, social, and political; not merely the acquisition of curious learning, elegant scholarship, or showy accomplishment. Its end should be the attainment of moral and social personality. I would most earnestly emphasize the necessity of becoming thorough in one branch before we discard it to take up another. Let us be prepared to say, "That work is correct, for I did it myself." A practical education is a fortune to its possessor, but a smattering of knowledge is an annoyance. What the world needs to-day is more men and more women who are thoroughly educated on the points which go to make up their chosen avocations. The time has passed when men are to be "Jacks of all trades, and masters of none." We must be able to apply our education to our own good and to the good of our

## SALLOW WOMEN

A disordered digestion makes itself manifest in a muddy or blotchy complexion, nervous weakness and irritable temper. The right remedy is

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fellow men, and then we will be practical those who correspond do so in the Education.

### The Program of Wash-day.

There are many methods of making easier the washing process and any of them is successful when "mixed with brains." The wise woman makes use of the one which, with existing conditions is easiest for her. The first step toward economy of time is in keeping the washing itself small. Squares of pure white oil cloth under the children's plates, and care by the elders, will make two cloths sufficient to keep the table a week. Dark or medium dark dresses, aprons and even summer shirts and drawers, for the men and children, are a great saving of time and strength. Loose, dark gingham fabrics are clean long before the same fabric could be restored to its original whiteness.

In buying for her household, the wise woman avoids fine, closely woven textures. Neither does she choose that which is coarse and heavy. A medium weight, loose in texture and of fast colors, is cheapest even if higher priced.

The question of Monday as a fixed wash-day is open to debate in every household. Unquestionably some routine, adhered to as closely as possible, keeps the household machinery running most smoothly. But the wise woman never allows herself to be bound by rules unless they fit her needs. Whether she washes on Monday, Irons on Tuesday, bakes on Wednesday, etc., depends entirely upon whether this routine suits her circumstances or not. The woman who keeps no help and gives herself as complete rest as possible on Sunday, will find the larger part of Monday can be used in restoring order and caring for the left-overs in dairy and pantry. Therefore, Tuesday is the wash-day in many households. This gives many advantages in the way of preparation. Clothes can be put to soak and some one of the family may give help Monday evening that could not be given at any other time. No true man thinks it beneath his dignity to lend a hand at the washboard in the interests of his family. I could name men who have become eminent, whose hands have supplemented the wife's frail strength when the purse was small. "For love's sake" dignifies any work.

The wise woman does not keep her tubs on the north side of the house, the wringer in the kitchen, the washboard in the woodshed and the clothespins wherever they were used last. Where you find her tubs there you will find the entire outfit. You could find them all the darkest night of the year, without a light.

The wise woman never uses yellow soap for her flannels. All yellow soap contains resin and makes woolen cloth hard and gummy. No better soap was ever devised than good, homemade soap, and happy is the woman who has a good supply. Woolen goods of any kind are injured, too, by being frozen. Also by being rubbed hard on a washboard. A woolen garment can be shrunken one-third by hard rubbing. Here are some extracts from the wise woman's programs for wash-day.

Washing fluid.—One pound of laundry emulsion of ten tablespoonfuls of kerosene, a third of a bar or a small cupful of soft soap, and a gallon of water. (It will be an emulsion when it is thoroughly boiled.) This is sufficient for ten pails of water to be used in boiling the clothes. A half pint of this emulsion to a pail of water for the best clothes and a pint to a pail of water for the very dirty clothes. It is an advantage to soak clothes before boiling. Boil fifteen to twenty minutes. No rubbing is needed until after boiling and

but little then. Two rinsing waters are absolutely necessary, with this.

Washing with gasoline.—Few people know the merits of gasoline. It is the greatest cleaner known. It is absolutely safe so long as there is no fire in the room. To a half tubful of hot suds add half a pint of gasoline. Soak the clothes in this. A washing machine or pounder is best for the gasoline suds, as it is hard on the hands. Boil in the usual way.

Washing fluid.—One pound of laundry potash, one ounce of carbonate of ammonia, two ounces salts of tartar and one gallon of warm water. When thoroughly dissolved put in jug and label "poison." This amount costs 25 cents. Soak clothes over night. Wring and boil in water to which a tablespoonful of this fluid has been added for every pail of water. Boil twenty minutes. Rub soiled places if necessary.—National Stockman and Farmer.

### The Cabbage and the Hop.

JOSH BILLINGS.

The kabbage iz one ov the most innocent and reliable erbs that generate from dirt; and tho in its infancy more puny and less likely to liv than a half-drowned fly, it bekums in its old age az tuff and robust as a hornet's nest.

A kabbage is good enny way yu approach it, whether yu go for it raw and cut it up with pepper sass on it; whether yu bile it to deth in a pot, with four pounds ov salt pork for company; whether yu fry it in a spider and call it hot slaw; or whether yu jam it in a berrell with salt and let it work out its destiny in the shape ov sour krout.

The kabbage grows round and round, and wraps itself up tight in its own leafs, until at last it puts a head onto itself. Sour krout iz the only thing about kabbage that I hav enny doubts about, but my ederkashun in sour krout haz been fearfully neglected. I hav, a few times in my life, caught the aroma that gently stole from an open barrel ov sour krout in a frosty morning, and wondered at it; I may say that I was surprized and even mortified at its ritchness. I never et enny sour krout, and I am forced to say that if it tastes az it savours it would take two strong men to hold me while I et sum ov it.

The hop iz a vine and is as lawless az a 2-year-old colt in a hundred akker lot. They are born on the hop and go thru life on the hop skip and jump. The fruit ov the hop resembles the cones on a pine tree, and are az thick az the flowers on a rosebush.

The hop, like most other things in this world, duz better not to have its own way entirely, but have a pole set up for it to klimb. If the hop vine don't hav enny stick to mount it gits krazy, and runs az wayward as a schoolboy playing truant. I hav seen tneem cum out ov the ground on the 15th of May, run up onto the pig pen, skare the pigs half out ov their wits, then branch off onto a stun wall, leave that and tri to klimb an apple tree, then fall to the ground and fuss around for a month in the grass bewildered, then git back onto the pig pen and begin agin, and at last tie themselves up into a dozen untieable tangles, and at last git ketched by Jack Frost, and die, with a good deal ov vine to them, but mighty few hops.

Hops are rightly named, for they are not only grate hoppers themselves, but they make all things hop they get into. If it wasn't for hops bread would be az heavy az putty.

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see how clean and fresh it looks  
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## The Young Folks.

Conducted by Ruth Cowgill.

### TO KANSAS.

BY MAHLON OLIPHANT.

(Written in 1856, and first published in the Herald of Freedom, at Lawrence.)

Bright gem of the prairies, all covered with flowers,  
With thy valleys and streamlets and vine-covered bowers,  
Thy cool gushing fountains and river's green side,  
And the home where the Red man still roams in his pride,  
Are visions as lovely and zephyrs as bland,  
With sunsets as golden and starlight as grand  
As those which the poets of Greece sang of old,  
Or Italy's blue curtained heavens enfold.

O! shall thy bright plains be curved by the toll  
Of the goaded and wronged? Shall they generous soil  
By the hand that would blast thee from freedom be riven  
And to the proud tyrant ignobly be given?  
Shall the slave mother plead in vain for her child?  
Shall the scream from her scourging, so frantic and wild,  
Be heard through the land that to freedom was given  
And the cry of thy people rise vainly to Heaven?

Shall the bondman's hot tear burn up the green sod?  
And the slave-hunter hated by man and by God  
Whip women to toil, steal children for gain,  
And bind thy rich valleys with Slavery's chain?  
Shall the master in shame and infamy hold  
Here barter his own blood and sinew for gold?

Ah, no! from these demons of wrath we will turn,  
And all of their schemes we'll indignantly spurn,  
No cursed man thief shall here chase his prey  
And God's higher law by it we will stand  
No tyrant among us, no slave on our strand.

Break every yoke, says the voice of our God,  
And let the oppressed go free from the rod,  
Then shall our bright Kansas grow mighty apace  
Rejoicing in glory to run her high race;  
And from each hill and valley an altar shall rise  
And the song of the free shall ascend to the skies.

### Some Further Observations of Miss Horn.

Since I last wrote of my experiences during my visit in the country, several other occurrences have come to my mind, which I shall relate, in the hope that they may furnish useful object-lessons to my friends.

One day my friend's brother said he was going down to haul in the hay which was stacked in the field.

"Oh," said I, "Do let me go with you. I've never ridden on a hay-wagon, and I think it would be lovely."

"All right," he said. "Glad to have you, I'm sure"—though to tell the truth he did not look pleased.

My friend offered me a sun-bonnet, but sun-bonnets were never becoming to me, so I declined it, with thanks, donning my own hat, which was trimmed with pale blue roses and red grasses, and seemed especially appropriate for the occasion.

My friend's brother helped me into the wagon with as much gallantry as if it were an automobile. I sat on one side while he stood up to drive.

"Oh, how charming this will be!" I exclaimed.

"I'm sure you'll enjoy it," he said, as we started.

Well, enjoyment is not exactly the name for my sensations. Every kind of a vehicle that is built for people to ride in is furnished with springs, but a hay-wagon is made to carry hay, and not a spring does it contain.

"How f-far do we g-g-go?" I stuttered, as we dashed recklessly over the rough ground.

"Oh, about a quarter of a mile," he answered, smiling down at me from his superior height. He looked so exasperatingly happy and at ease as he stood gracefully balancing himself in our wildly tossing chariot, that I felt a mad impulse to push him over to see if that would disturb his equanimity.

At any rate he should not know that I was miserable!

"Th-this r-ride is glorious!" I lied, bravely. "This breeze"—it was blowing at the rate of seventy miles an hour, at least—"is so r-refr-freshing. I th-think—" Here we ran over the fallen trunk of a tree or some such small obstacle, and my mouth went shut with a snap, biting my tongue so severely that I decided the only course open for my heroism was to look happy. I think I succeeded, though it took considerable strength of mind.

I will spare you the details of the remainder of the ride. Suffice it to say

that I reached the house a total wreck, with the skin burned off my nose by the sun and my lovely blue roses and red grasses blown to tatters, yet protesting as I staggered wearily to a chair, "Oh, I've had a lovely ride—perfectly charming!"

But I shall never go riding in a hay-wagon again.

I had another ride that was almost as interesting.

My friend wanted to go to town one day and of course I went too. We went in a spring-wagon, which is really a very comfortable thing to ride in, at least, this one was. You sit perched high up in the air as you do in these swell high-seated traps. I could hardly keep from thinking it was one and felt very stylish as I looked down haughtily upon the people in phaetons and low buggies which we passed.

We stopped in front of a dry-goods store, and my friend jumped out, putting the lines in my hands. "You needn't bother to get out," she said. "I'll only be gone a minute."

"Oh, I don't mind getting out," I hastened to assure her, but she was gone. The truth was that I would have been only too glad to get out, for I was afraid to hold those horses, stamping their feet and switching their tails as they were. I could tell they were not pleased with me, too, by the contemptuous way in which they tossed their heads.

However I clung to the lines, somewhat reassured by the remembrance of the remark which my friend had made that the horses were "too lazy to run, even to get out of the way of a passenger train."

Presently my friend came out—her minute had lengthened into half an hour—and said, "I'm going across the street, Eliza. Just drive across, please."

"Oh, certainly," I said, graciously, though my heart thumped like a threshing machine, and I trembled so that I almost fell off the seat. I had never driven so much as a rocking-horse and here were two big horses and a spring-wagon thrust upon me. On one side of me was a hay-rack, on the other a buggy with a young man sitting in it, while across the street was my friend shopping in the store expecting me to come across.

"Well," I said to myself, "'Nothing ventured nothing lost,' only the brave deserve the fair,' faint heart ne'er won fair lady"—this sounds rather flighty, but I was trying to reassure myself, and these familiar phrases all rushed into my head at the moment.

I picked up the lines and of course pulled the wrong one—crash—bump! we were up against the hay-rack. "Whoa—, git up, git up!" I shrieked loudly, flapping the lines wildly over the horses' backs. They "got up" and started up onto the walk. By this time a crowd was gathering.

"Whoa! Whoa! come back," I called to my unmanageable steeds, while I pulled on the lines with all my trembling might. They backed swiftly into the road, running over the toes of a man who was standing with his hands in his pockets and a sarcastic smile on his face, watching my frantic efforts—I did not feel at all sorry for him. I clucked and flapped the lines again and people began to scatter. The horses made straight for the buggy with the young man sitting in it, and he drove swiftly away not once turning his head to see if we were still coming. I saw him a few moments later, however, among the considerable crowd who were watching my performances.

The horses were becoming tired of this thing, I could see that and I did not know when they might go tearing down the street, dashing me out upon the ground. They were standing so quietly with their heads together that I knew they were consulting as to what would be the best mode of getting rid of me. Once more I called out to them with a great assumption of boldness, "Get up, there, get up!"

"Pull on your right line! Pull on your right line!" shouted the crowd of spectators enthusiastically. I pulled, and with a jolt which I thought was going to overturn me, the wagon turned sharply, and we went sailing down the street. I pulled hard on the lines and spoke soothingly to the team—which I had heard was the best way to quiet fractious horses—"There, there, horses, nice horses, who-o-a, whoa!" and finally we stopped a block below the place where my friend expected me. I saw her come out of the store presently and look around for me. Some one pointed toward me with a ringing laugh which could have been heard a mile away, and my friend came toward me.

"I thought I would take a little drive and see the town," I explained with a sickly smile as she came up.

"That was all right," said she, "Why

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### FOR THE LITTLE ONES

#### "THANK-YOU DAY."

"Tis 'thank-you' day," said little May  
To the brindle cow, one morn;  
"I've come to thank you for your gifts—  
And here's a sheaf of corn;  
I like the milk, so rich and sweet,  
Which you give every day,  
The cheese and butter are so nice—  
Cease not to give them, pray!"

"Tis 'thank-you' day," said little May  
To the gray mare, in the lot;  
"The kindly service you do us  
Should never be forgot;  
You bear us swift where'er we would go,  
And steady are your feet,  
I've brought to you, this lovely day,  
An apple, red and sweet."

"Tis 'thank-you' day," said little May  
To the sheep, within the fold;  
"You give me that which keeps me warm  
When winter days are cold,  
I have a hood made from your wool,  
And some warm stockings, too;  
A bit of clover from the field  
I freely give to you."

"Tis 'thank-you' day," said little May  
To the pretty, speckled hen;  
"When I was weak and sick, your eggs  
Helped me to get strong again;  
And every day for breakfast I  
Eat one that you have laid.  
So now I thank you, speckled hen,  
With words and crumbs and bread."

"Tis 'thank-you' day," said little May  
To birdie in the tree;  
"And oft you sing the sweetest songs  
To Mamma and to me,  
I'll scatter now some little seed  
That birdies like, I'm sure,  
And when you've eaten every one  
I hope you'll sing some more."

"On 'thank-you' day," said little May  
"We all should thankful be;  
For the good gifts that through the year  
Are brought to you and me;  
And since they're brought the whole  
year 'round,  
I don't see why," said May,  
"Each day may not in truth be called  
A happy 'thank-you' day!"  
—Margaret A. Richards, in Chillico Stock  
Grower and Farmer.

#### The Mail Carrier.

Every morning, after the ten o'clock train came in, Rover would get his basket and run down to the post-office to get the mail. He was a very business-like dog and never stopped on the way. Sometimes he had to wait at the post-office while the mail was sorted, and then he would lie down, with his chin resting on the basket, and his brown eyes watching everyone who came in.

Everybody knew and liked Rover, excepting Towser. Whenever Rover went by with his basket, Towser would run out and bark. But Rover never took the least notice of him.

Towser's master was a poor little lame boy, and he watched every day to see Rover go by. When the warm days of spring came, he sat out on the steps.

"What makes you bark at Rover?" the boy asked, and he looked lovingly into the homely face of his dog. "Don't you know that it isn't polite? And sometime you will make him mad with you, and then he will eat you all up; he is big enough."

Rover liked the little lame boy, and sometimes, after he had carried the mail home, he would come back and see him. Then how Towser would bark! But Rover would only look down on him, and slowly wave his bushy tail. Then perhaps he would look up at the little boy, and open his mouth and pant. It seemed just as if he were laughing.

After quite a long time, Towser stopped barking at Rover and they became good friends.

The little boy wished that his dog would go for the mail, too, but Towser did not seem to care to. And besides, there never was any mail for the little boy.—The Mayflower.

didn't you go further? You may do the driving as we go home, if you like."

"Oh, no, thank you," I said earnestly. "I've had enough! I don't particularly enjoy driving."

My friend gave me a peculiar little smile and I wondered how much she had seen. I have never found out, to this day, for my adventure is a subject upon which I feel rather sensitive, and which I have never mentioned before this.

ELIZA GREEN HORN.

"I've often thought that if at the Judgment the good Lord would only examine me an' all them that went to school in my day in the old blue-back speller, 'stid o' tacklin' us on the weak p'int of our pore mortal lives, why, we'd stand about ez good a chance o' gettin' to heaven ez anybody else. An' maybe he will—who knows?"—Ruth McEnery Stuart.

#### The Arithmetic of Flowers.

MARY WHITING ADAMS, IN PILGRIM VISITOR.

Nobody teaches the baby flowers the multiplication table, and yet, from what botanists tell us, each little blossom follows it, faithfully. Some flowers go by threes, some by fours, some by fives, but they make few mistakes, and seldom get mixed up. For instance, let us take a hyacinth, and let us notice how it follows the rule of three. It has six petals—twice three—six stamens, and a pistil which, when cut across, shows three parts. Geraniums, on the other hand, are all in fives, and jessamine goes by fours. Four is not so favorite a number as five and three with the plants, but many of our everyday flowers show four or eight petals, four, eight, or twelve stamens, and a seed vessel splitting into four parts when it is fully ripened.

The trillium, so common in the woods, is called by its Latin name, because it is loyal to the number three. It has three green leaves close under the flower, and the blossom itself has three sepals, three petals, and three pistils. The common stone-cress is equally faithful to five, having five petals, five stamens and five pistils; but some of its near relatives go by fours instead, and one European member of the family has all its parts in threes.

But— isn't it queer—the flowers do not seem to be able to count much over twelve! When there are more than twelve petals or twelve stamens, and so on, the number is often irregular, as if a mistake had been made, and the flower had been confused in keeping count. It is an old saying that crows can not count over three. In the same way, plants seem to fail on twelve times anything. But then, they certainly understand fractions, for the arrangement of alternate leaves upon the stem, or of scales grouped in ascending spirals, like the pine cone, is always in some one of this series of fractions—1-2, 1-3, 2-5, 3-8, 5-13, 8-21, 13-24, or 11-55. The spiral may go from left to right, or from right to left, but the numerical arrangement is never forgotten.

So you see, boys and girls, that flowers learn arithmetic somehow, as well as children do. Perhaps the difference is that the blossom never forgets its multiplication table or its fractions, even in the summer vacation. Isn't that an example for some young folks who read this?

"Look not beyond the stars for heaven,  
Nor 'neath the Sea for hell!  
Know thou who leads a useful life  
In Paradise doth dwell."

The Indian smoking his pipe of peace  
Is rapidly passing away;  
But the Irishman smoking his piece of pipe  
Has surely come to stay.

—Ex.



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**PRIZE  
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PRIZES.**

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FIRST PRIZE. \$30.00 in cash will be given to party sending in the most words formed by using letters occurring in "GAVITT'S SYSTEM REGULATOR IS GUARANTEED."  
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NEXT TWO HUNDRED PRIZES, A \$1.00 Box of Gavitt's System Regulator each.  
NEXT FORTY PRIZES, 50 cts in cash each.  
NEXT ONE THOUSAND PRIZES, A 25c Package of Gavitt's System Regulator each.

#### CONDITIONS.

FIRST. In order to enter this contest, the contestant must have a PRIZE COUPON, which can only be secured by buying a box of our Gavitt's System Regulator, from our agents or from us direct. Price \$1.00 per box for nearly one year's treatment. Guaranteed to cure all Blood, Kidney, Liver and Stomach troubles or money refunded.  
SECOND. The prize period will close on July 1st, 1902.  
THIRD. In case of a tie, the party who sends in the words first will be eligible to the best prize.  
FOURTH. The words must be numbered consecutively.  
FIFTH. You may use the letters occurring in Gavitt's System Regulator as often as you like.  
SIXTH. We expect a great many contestants and would thank you to write the words very plainly, giving your name, post office address, etc., on coupon, and also on the list. Send the coupon and list direct to us at once.  
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OFFER**

**1,254  
PRIZES.**

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For our medicine and coupon, apply to any of our agents, or if we have no agent at your place send direct to us.

If the party buying the medicine does not care to enter the contest, they may sell or give their coupon to another. The coupon shall be evidence that there was a sale made by our agents or ourselves, therefore we will honor each coupon received, providing words are written plainly.

Any number of people may help select the words, but only one name must appear upon the coupon.

Give the coupon to your son or daughter—they will have plenty of time to form the words in the evenings, and with a little help from you, they in all probability, will secure one of the prizes.

You have 1,254 chances of receiving a prize; with a little work and thinking you should get one of the best.

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#### Grange Memorial Day.

Sunday, June 15, is Grange Memorial Day for the year of grace 1902. In every Grange it is to be a great day and a high day—a day devoted to the memory of those who have walked with us, worked with us, and joyed with us in other days, but who have passed from our earth and its limitations to the limitless life beyond. We will honor them, and in so doing honor the best that is in ourselves. Memorial Day is to be high day, a day given over to high thoughts and high aspirations.

Perhaps we have spoken too confidently or too hastily. Perhaps Memorial Day will not be a high day in every grange. Not every grange mourns for members who have died during the year. Possibly such will not care to have a special meeting. We do not advise. We call attention to the day and its significance. National Lecturer Bachelder advises that this special meeting be arranged for at a regular meeting, at which time a committee on resolutions should be appointed with the chaplain as chairman. He says further:

"The exercises should consist of the report of the committee followed by a brief address and by eulogistic remarks by members appointed to speak. Singing, prayer, and decoration of the graves of deceased members may properly be included in the exercises. The memorial services may be held in public session is deemed advisable."

We venture to add the suggestion that it might be well to invite some friend of the dead from another grange to deliver the principal memorial address. The occasion and its significance are to be emphasized in most cases rather than the particular merits of those who have passed away; for the day is to be a day of high thinking and noble aspirations, not a time for

vain regrets and useless grievings. It is not to be an occasion for sorrow only. There is to be cheer also, and hope and joy and the promise of better living for all those who are able to learn from the deeper lessons that come some time if not many times to every one of us.

It has often been remarked that the memorial services is the best part of the annual session of the National Grange. Then every jealous and every unworthy thought and ambition is forgotten or buried. The time and the associations suggest the names of those who shall speak for the departed. Every word uttered must be genuine or it will instantly shame the speaker. There can be no posing, no display of gifts of oratory; only the genuine expression of the deeper feeling and higher thoughts is appropriate. Only true friends may speak on such a day—only those with a word of praise, or respect, of cheer, of hope, or of faith.

When we are striving for prizes there may be rivalries; when we meet in honor of those who have finished the course, every man feels his own unworthiness, and so no one strives except to speak the message which his heart enjoins him to utter.

#### The Grange—Living, Growing, Blessing the Farmer.

We have been watching the trend of the various farm organizations for the past decade to see if we could reasonably formulate an opinion of the ultimate result of all that had been said and done for the supposed or real betterment of farmers in general. We think we are now able to say that the Grange is on a better foundation than ever before. The educational period within its membership has in a very great measure ceased to be one of encouragement and repression. It was once thought essential that everybody—farmers I mean—should be members. As a result there was so much crude material to be worked over that all sank below the level. We well remember the time when Clermont County had thirty-four granges; it has two at present; should have four more. As a matter of fact, the two are wielding a greater influence to-day than the thirty-four did in 1876. We would be far from criticising the work done in the past. It was necessary. Educating people is a slow process. The twenty millionaires in Ohio can get together in twelve hours and communicate with each other in that many minutes. Not so with two hundred and fifty thousand farmers. Now that the educational or for-

mative period within has passed we are not surprised to note the rapid growth of the Grange in the past year. To praise the present leaders might be doing an injustice to those who builded so well in the past.

There never was a time when organization was so much needed among farmers as at present. The spirit of commercialism is seizing upon everything—it's Napoleonic, ours should rather be Fabian. Avarice, lack of common honesty are no doubt growing when there is a dollar in sight. Dollars are all right and the Grange will aid us materially in getting those that rightfully belong to us in the race of life. We want no others; do you? If you do you have forgotten your place in the social, intellectual, moral, and momentary fabric called the State.

We have not done as much as we could or should in the past to deepen, broaden, strengthen the foundation—nor made beautiful the superstructure called the Grange in better farming, better voting, better living. How is it with you? The Grange will grow.—Lowell Roubesh, in National Stockman and Farmer.

And let it be emphasized again and again that if any industry has a right to claim protection, it is the industry which asks protection against fraud in manufacture and fraud in the market. Every man has a right to demand that his government protect him against those who try to sell him adulterated or dishonestly marked goods. Even if the farmer has no right to insist on being protected against the foreigner who is his rival in legitimate production he certainly has a right to demand that those who try to steal his market and ruin his business by making a cheap product in imitation of his expensive article shall be forced to practice the methods of honest men. What is inexcusable in morals is not justifiable in business, even though it may be tolerated in war. It is not competition that the farmer needs to fear, but unfair competition, the competition which gets its power through dishonesty and deliberate misrepresentation.—Grange Bulletin.

The final passage of the oleomargarine bill is a notable victory for the advocates of honest methods in the manufacture and sale of food products. We do not fail to see that protection to agriculture is a part of the motive for supporting the measure. Doubtless the effect will be to increase the demand

for pure dairy and creamery butter and to reduce the sales of oleomargarine. The manufacturers who have profited by the practice of fraud will probably have their profits reduced. They will, however, have a special inducement to improve their product. The energy heretofore spent in the attempt to make a good imitation can be turned to making a more wholesome product to be sold on its own merits. It may be that some of the dealers and manufacturers will be willing to pay the tax of 10 cents a pound rather than to sell the stuff as oleomargarine; but we are rather inclined to the belief that there will be a deliberate and studied attempt to popularize oleomargarine under its proper name and true color.—Grange Bulletin.

Impurities in the blood produced by digestive disorders must be driven out before hot weather sets in, otherwise sickness will appear at a time when a strong, vigorous body is most needed. Prickly Ash Bitters will expel all impurities and put the system in perfect order.



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### CONDITION OF WHEAT AND CORN IN KANSAS.

As the result of a searching inquiry into the condition of wheat and corn in Kansas, May 21, Secretary Coburn, of the State Board of Agriculture, last Tuesday issued the following:

Taking the 1902 assessor's returns for twenty counties thus far reporting, and the estimates of correspondents in the remainder, the State's area sown to winter wheat was approximately 5,951,000 acres, of which the reporters say 34.5 per cent, or 2,054,852 acres, has now been plowed up or abandoned, against the 18 per cent so reported by them April 1. This falling off, and likewise the rapid decline in the wheat condition for several days immediately following the April report, except possibly in a few localities favored by intermittent showers, was due principally to lack of timely moisture. Fields over-pastured and weak in vitality were the first to succumb. The present condition of the remaining 3,895,453 acres is 57.6, as against 74 April 1. As the present report, however, is based on conditions found May 21, it is reasonable to infer that the average for the State might now be safely advanced several points, owing to the copious, saturating, general rains and other favoring circumstances to which all plant life is vigorously responding. Of the wheat area now reported abandoned, 50.5 per cent, 1,041,000 acres, is or will be planted to corn. While the general precipitation came too late in some portions to be of much benefit to the wheat, the generous downpour dispelled the uncertainty in others, and gives assurance of at least a fair yield. Wherever insects formerly menaced vegetation their career seems to have been summarily ended by the rains. In the thirty counties yielding nearly 80 per cent or the ninety-million wheat crop of 1901, there are reported 2,665,944 acres (62.29 per cent), which will be left to mature, with a present condition of 51.19.

The apparently unabating desire to sow wheat probably stimulated somewhat by the yields and profits of recent years, not only resulted in increasing area last fall in the "wheat belt" proper, but the so-called corn territory was encroached upon, and of the twenty counties mentioned, nineteen show a decrease in their corn area aggregating 168,555 acres, while the twenty report a net increase in wheat of 206,674 acres. It is also revealed that their total acreage actually devoted to wheat last fall is larger by 4.5 per cent, or 67,362 acres, than the correspondents estimate, which is in pleasing harmony with the board's ever expressed desire, viz: that reporters "make none but safe, conservative estimates."

If this gain in wheat acreage in the twenty counties, a half-dozen of which are prominent wheat-producers, is fairly representative of the increase for the whole State, then, instead of the 5,833,643 acres earlier estimated by correspondents, Kansas will appear to have sown to winter wheat last fall a field exceeding 6,000,000 acres—which is not improbable. Deducting from 6,000,000 acres the per cent reported plowed up or abandoned would leave at this date nearly 4,000,000 acres of wheat, or within 10 per cent of the average annual wheat area in the past decade. In the twenty counties it is indicated that 275,263 acres of the abandoned wheat will be devoted to corn, giving them in reality a corn acreage considerably larger than the year before, and it is not improbable that later developments will disclose a quite similar condition for the entire State.

Corn-planting was generally delayed somewhat on account of the backward spring, but the recent abundance of moisture, warmth, and sunshine have resulted in a good stand and vigorous growth. Its cultivation is now being pushed, and its present condition for the State as a whole is 93.45. At approximately the same time last year its condition was 81.38; the year before, 93.2; and in 1899, when the yield was the second largest in the State's history, the condition was slightly above 90.

Among the counties showing the largest percentages of corn conditions at present are: Anderson 101, Brown 100, Cheyenne 100, Coffey 100, Crawford 101, Jackson, 100, Leavenworth 100, Nemaha 100, Osage 100, and Sheridan 100. Pasture and grasses have been rather backward, making early grazing short, but recent rains have greatly improved them. No disease is reported among live-stock, and there is now water in abundance for live-stock.

The following shows by counties the acreage of winter wheat presumably sown last fall; the acreage now estimated as abandoned or plowed up for other crops, the condition of that now

standing, the per cent of plowed up or abandoned wheat acreage which will be planted in corn, and the condition of the growing corn:

Counties.	Wheat sown—acres	Abandoned acres.	Present condition.	Planted to corn—per cent	Condition of corn.
Allen	4,561	45	98	98	98
Anderson	2,651	100	101	101	101
Atchison	23,757	2,375	80	50	99
Barber	36,174	6,149	58	55	94
Barton	269,463	86,228	42	36	88
Bourbon	2,562	204	88	97	97
Brown	43,150	9,061	44	65	100
Butler	18,774	3,191	82	64	96
Chase	10,488	1,048	63	75	98
Chautauqua	30,487	609	82	50	92
Cherokee	34,781	696	96	95	95
Cheyenne	5,207	2,082	85	75	100
Clark	5,278	2,111	50	10	65
Clay	57,256	10,347	44	40	93
Cloud	92,663	37,065	36	46	84
Coffey	11,365	227	90	28	100
Comanche	5,743	976	63	75	93
Cowley	100,697	36,250	55	40	94
Crawford	19,904	89	89	101	101
Decatur	51,880	5,186	88	85	95
Dickinson	117,995	21,239	50	38	91
Douglas	41,162	3,292	71	62	92
Douglas	23,289	698	84	27	95
Edwards	65,638	13,127	63	56	92
Elk	8,705	522	88	96	96
Ellis	157,287	70,779	31	14	78
Ellsworth	132,744	88,938	31	48	84
Finney	1,939	620	53	40	84
Ford	38,893	11,667	44	28	90
Franklin	2,868	3,523	74	39	93
Geary	19,576	15,780	53	33	93
Gove	29,775	6,944	74	57	91
Graham	43,403	5,385	94	90	90
Grant	11,128	5,564	42	18	77
Gray	419	326	25	18	87
Greenwood	3,075	307	87	67	98
Hamilton	131	85	25	75	75
Harper	151,818	54,654	62	64	97
Harvey	99,023	24,755	61	51	91
Haskell	3,924	1,962	42	35	85
Hodgeman	41,216	23,493	40	40	60
Jackson	1,804	396	56	60	100
Jefferson	14,264	570	80	30	97
Jewell	71,454	50,732	36	75	91
Johnson	20,239	94	94	96	96
Kearny	714	221	77	55	97
Kingman	112,842	29,338	62	44	90
Kiowa	34,817	6,267	68	64	94
Labette	57,429	97	97	96	96
Lane	36,286	22,134	40	22	75
Leavenworth	28,254	847	85	55	100
Lincoln	107,682	80,761	15	70	62
Linn	5,227	52	100	99	99
Logan	27,213	18,504	50	16	96
Lyon	6,316	63	89	1	94
Marion	99,224	19,844	58	45	90
Marshall	65,950	16,487	56	50	93
McPherson	200,970	46,223	53	61	88
Meade	11,219	5,385	54	34	70
Miami	3,869	94	94	92	92
Mitchell	151,220	99,805	29	66	85
Montgomery	70,809	3,540	71	40	90
Morris	1,619	113	85	50	89
Morton	679	289	25	39	89
Nemaha	9,159	1,373	52	36	100
Neosho	15,350	614	91	15	96
Ness	89,064	41,860	58	17	88
Norton	50,409	4,536	81	56	97
Osage	1,831	109	89	23	100
Osborne	136,531	109,224	20	46	66
Ottawa	116,782	60,726	36	57	87
Pawnee	156,981	48,667	40	24	84
Phillips	86,731	26,836	83	90	96
Pottawatomie	9,401	1,974	78	45	95
Pratt	128,525	11,567	70	48	82
Rawlins	70,687	27,567	78	34	88
Reano	152,701	49,329	65	72	86
Republic	30,868	10,495	48	78	91
Rice	175,007	70,002	36	68	85
Riley	7,768	1,786	61	67	97
Rooks	127,225	57,706	51	33	85
Rush	184,846	73,938	90	38	58
Russell	154,073	103,228	26	46	65
Saline	146,745	38,153	46	72	87
Scott	10,242	3,891	62	42	86
Sedgwick	170,261	74,914	47	73	93
Seward	304	152	60	80	80
Shawnee	3,122	156	78	95	95
Sheridan	57,935	11,587	75	53	100
Sherman	10,789	3,884	68	76	94
Smith	108,364	46,596	42	66	92
Stafford	178,362	35,672	63	80	87
Stanton	156	140	60	60	60
Stevens	79	7	70	90	90
Sumner	325,123	107,290	50	65	94
Thomas	84,007	29,402	58	15	81
Trego	59,173	19,527	55	28	98
Wabunsee	7,990	399	69	25	98
Wallace	516	412	42	60	90
Washington	45,196	7,683	63	68	94
Wichita	25,438	19,078	36	21	50
Wilson	18,308	1,068	91	2	96
Woodson	3,960	39	95	99	99
Wyandotte	9,927	99	90	90	96

### Bargains in Buggies.

Recently a Kansas Farmer representative visited the establishment of one of our most enterprising St. Louis advertisers, the Century Manufacturing Company, Dept. 54, East St. Louis, Ill. They are simply offering our readers some positive bargains for the money, as shown in their advertisement on page 587. After an examination of the celebrated Century buggies and sur-



veys, the writer feels confident nothing like it has been offered at the price. They furnish high-class goods at a low price and guarantee to save from \$20 to \$40 on every vehicle. This company has a half million dollars invested in the business and are building up a wonderful trade in the West, and the letters they receive from pleased customers is evidence conclusive that they are giving their customers a square deal. The illustration herewith is an exact picture of one of the jobs which is a popular seller to Kansas customers. Any of our readers needing a buggy or surrey should write them at once for further details.

### Universal Favorites of the Harvest-field.

For seventy-one years the farmers of the world have been familiar with the name McCormick which has always been identified with the world's best harvesting machines, the universal favorites of the harvest field. The preference given McCormick machines is nothing more or less than the deserved recognition of their double excellence. They are doubly superior, and give the best satisfaction wherever they are sold. They last much longer than ordinary machines. They will do 50 per cent more work and do the work 50 per cent better. These machines are fully illustrated and described in the "World Centre" and "King Corn" books which will be mailed free upon application to the nearest McCormick agent or to the company's home office at Chicago.

### THE MARKETS.

#### Kansas City Live Stock Market.

Kansas City, May 26. The past week has been a strenuous one as far as the local packers were concerned. Beef cattle were in a rather light supply and there was a continual strife between packers for the possession of the stock offered. Receipts of cattle were 18,300 head, a slight decrease from the previous week. Prices advanced until Wednesday when beefs sold at the high point of the year, \$7.25. On that day two Kansas men had in beefs that brought that price, A. N. Nelson, of Mound Valley, and William Lillibridge, of Hanover. In spite of the early advance, the market showed increased strength at the close of the week and finished at the high point of the season. Butcher cows and heifers showed life during the week and sold in proportion to the corn-fed stock, but the thin offerings, that were no more than fit to go back to the country, were dull.

The market on stock and feeding steers generally lacked life, despite the general rains that were falling all over the West during the week. It was naturally supposed that the feeder market would take a big spurt when grass was assured, but the farming element seems disposed to wait until the corn crop becomes more of a certainty than it is at present. This month marks the beginning of the big drought of last year. Conditions down to the present time could not be more favorable.

The hog market proceeded along strong lines all week. Receipts continued to show a scarcity of supplies in the country, total arrivals amounting to only 42,000 against 53,800 a year ago. Western receipts showed a decrease of 107,000 as compared with a year ago. There was some discrimination against light stock, but the most of the time supplies were so light that buyers had to be content with what they were able to get. The highest price of the week was \$7.42½. The market eased off a little at the close, but prices compared favorably with the close of the previous week, and in some instances looked a little higher.

Sheep were in good supply, receipts, which amounted to 20,400 head, being the largest since last November. Local buyers wanted everything offered and shippers also entered the competition. Spring lambs sold up to \$7.25 and closed at \$7.10 to \$7.15. Mixed native muttons brought \$8 as top. Good wethers were scarce and commanded \$8.25 for the best. Texas offerings were liberal which accounted for the big total for the week. They closed steady after a big decline the middle of the week.

Both the horse and mule trade proceeded along quiet lines. The demand for railroad mules has now fallen off and no more \$175 to \$200 sales are reported. Horses were the lowest of the season, the market being depressed by bad conditions in the East. The high price of beef keeps the demand for poultry brisk and prices firm. Fresh candied eggs were quoted at 13½¢ at the close of the week. Poultry quotations at the close of the week were: Broilers 20 to 25¢, live hens 8 to 9¢, young roosters 18 to 20¢, ducks, 7½¢, geese 4¢, turkey hens, 9¢, gobblers 7½¢. Eggs are holding up better than the trade looked for.

H. A. POWELL.

#### Last Week's Grain Market Review.

Topeka, Kans., May 27, 1902. The rains of the last few days have lessened the demand for grain of all kinds and consequently the week just past has been dead dull, with a slowly sagging price of wheat. The final government report on last year's yield of wheat based on census figures developed the fact that last year's acreage of wheat was four millions greater than former reports indicated, which makes the final figures on last year's yield 748,000,000 bushels, or nearly 50,000,000 bushels more than had been figured on up to this time. This information caused a weak feeling, which caused lower prices all around. It seems that the government's announcement of this new information ought to have stated what has become of this wonderful wheat yield, or where the remnant of the crop may be found. The crop of 1901 may have been large but the consumption of wheat has certainly been very large too.

Whatever the facts may be the information as given out by the government does not have the effect of advancing wheat prices, at least not at this time. Exports were again large—over 5,000,000 bushels last week—and the visible supply is now down to a little over 30,000,000 bushels and ought to decrease rapidly, but crop prospects, with the exception of Kansas, are said to be good and it is likely that we will have to wait for news from the threshing machine before much better prices may be expected.

Perhaps at no time in the last ten years has there been a better prospect for corn, or a larger acreage planted. The acreage for the United States bids fair to exceed one hundred millions of acres this coming season, or nearly nine million acres more than last year. This increased acreage may largely be accounted for because of the good price ruling, and partly, because of nearly five million acres of winter wheat having been plowed up. If the crop goes through the growing season without mishap it may prove to be a record-breaker.

Markets at all the exchanges closed weak as follows:  
Chicago.—No. 2 red wheat, 80½ to 81½¢; No. 2 hard winter wheat, 75½ to 76½¢; No. 2 corn, 63½ to 64½¢; No. 2 oats, 42½ to 43¢; No. 2 rye, 67½¢.  
Kansas City.—No. 2 red wheat, 75¢; No. 2 hard wheat, 73¢; No. 2 corn, 64½ to 64½¢; No. 2 oats, 43¢.

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Topeka, Kans.—No. 2 hard wheat, 73½¢; No. 2 corn, 65¢.  
F. W. FRASIER.

Elgin Butter Market.  
The quotations committee announces but-  
ter 22¢.



# WEEKLY WEATHER CROP BULLETIN.

Weekly weather crop bulletin for the Kansas Weather Service, for the week ending May 27, 1902, prepared by T. B. Jennings, Station Director.

## GENERAL CONDITIONS.

A fine growing week; warm and wet over the larger part of the State. The night, or minimum temperatures, were lowest in the western and highest in the eastern counties. The afternoon, or maximum, temperatures were above 90° from Morton to Scott and Lane in the west, and in Bourbon, Linn, Franklin, and Miami in the east. The rainfall ranged from less than a half an inch in the extreme western counties to six inches, and over, in the southern part of Pratt, in Chautauqua and Montgomery, and the northwestern part of Coffey.

## RESULTS.

### EASTERN DIVISION.

Wheat has improved in all counties; it is heading short in Atchison, and heading well in Shawnee; it is heading in Morris, is in blossom in Miami and Coffey, is filling well in Montgomery, is making rank growth in Jackson, is turning in Crawford, and is beginning to ripen in Labette; there is some rust in it in Labette, and rust is feared in Greenwood and Miami. Corn a good stand, growing rapidly and clean, but ground too wet to cultivate. Oats have greatly improved; they are heading in Atchison and in Montgomery. Grass has grown rapidly and is in fine condition. Alfalfa is ready to cut in the southern and central counties, cutting having begun in a few but was stopped by rain. Strawberries are ripe in the southern and central counties. Apple prospects have improved, and in Coffey county many trees that had been partially denuded by canker worms are putting out a second crop of leaves. Potatoes are growing well, are being marketed in Elk, and are in bloom in Johnson and Pottawatomie.

Anderson County.—Ground too wet to cultivate; growth of crops very rapid; corn in good condition, not very weedy; pastures good, stock doing finely; cut worms injuring some garden truck.

Atchison.—Heavy rains washed out grain badly in the eastern part of county; crop

blossom and very rank; fine crop of cherries ripening.

Montgomery.—Too wet for cultivating, but corn cultivated twice and is in good condition; oats heading, fine prospect; pastures and hay lands in good condition; too wet for cutting alfalfa; wheat filling well.

Morris.—Warm wet week; some corn washed badly, but crop as a whole fine; alfalfa cutting commenced, good crop on old fields; wheat headed, chinch-bugs doing some damage; grass good; early potatoes fine; apples promising; strawberries on market.

Nemaha.—Ground well soaked; pastures improving; oats very short; wheat promises fair crop; corn in very good condition; potatoes promise well; apple orchards suffering from canker-worm.

Osage.—Rapid growth; corn and alfalfa in fine condition; wheat and oats doing well; blackberries and raspberries in bloom and a good crop promised; strawberries on the market; considerable damage to trees by high winds.

Pottawatomie.—Good rains; pastures good; alfalfa fit to cut; wheat doing well; potatoes in bloom; sweet potatoes doing nicely; corn a good stand.

Riley.—Too wet for work; corn needs cultivating; all crops looking fine; grass good; wheat promises a good crop.

Shawnee.—Wheat improved and is heading; good week for oats; early corn a good stand and growing nicely, ready to be cultivated; meadows and pastures improved; rye in fine condition; alfalfa ready to cut; apples promising; strawberries on the table.

Wilson.—Corn growing well; wheat will make a good crop.

Woodson.—Too much rain for farm work; corn growing nicely and is clean, and other crops doing well; alfalfa ready to cut; gooseberries and strawberries on the market.

Wyandotte.—Good growing week; corn, potatoes, and oats growing rapidly; wheat much improved; a fair prospect for apples.

### MIDDLE DIVISION.

Wheat has improved; it is heading in Ellsworth, Kingman, McPherson, and Republic; is blooming in Sedgwick, and filling in Sumner. Corn is growing rapidly, but is getting weedy in some counties; some corn was washed out by heavy rains. Oats are generally in fine condition, are much

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weedy; October wheat doing well, early wheat poorly; corn worked but little, but is not weedy; few peaches, other fruits better; plums and apricots full.

Reno.—Ground too wet to work; wheat looking well; oats heading nicely; corn making good growth; some cut alfalfa damaged by rain; early cherries ripe.

Republic.—Wheat improved, but is uneven and very short, mostly killed; oats beginning to head, short; corn most all up.

Rice.—Good week; wheat will be short; corn doing well; alfalfa ready for cutting; pastures getting good.

Russell.—Vegetation revived. Saline.—Ground thoroughly soaked; wheat somewhat improved, and some will be tall enough to bind; corn doing well, not a very good stand; oats doing well, but are weedy; pastures and alfalfa improved; potatoes and gardens growing nicely.

Sedgwick.—Streams full and ground thoroughly soaked; some corn and forage crops washed out; good outlook for hay crop; alfalfa being cut.

Smith.—Pastures improving; alfalfa very short; corn a poor stand; corn, Kafir, millet, and alfalfa being rapidly planted.

Stafford.—Good week for crops; wheat improved.

Sumner.—Ground too wet to cultivate; rapid growth; wheat filling; oats in head; corn weedy; May cherries ripe.

Washington.—Cereals greatly improved; corn good color and growing rapidly, some washed out by rain, but will be replanted; pastures look well; peaches and cherries very poor.

### WESTERN DIVISION.

Wheat has improved; the early is in bloom in Thomas. Corn is generally up, in good condition, and is being cultivated. Alfalfa cutting is progressing in Finney, Graham, Thomas, Trego, and Wallace; it is ready to cut in Sheridan. Grass is in fine condition, except in Hamilton, and is growing rapidly. Cattle are thriving on the range. Forage crops are being sown. Oats and barley are much improved, and in Thomas the barley is heading.

Clark.—Good soaking rains; condition of all crops favorable.

Finney.—Good rains, and all vegetation making rapid growth; cutting of first crop of alfalfa commenced; ranges in good condition and cattle fattening; heavy wind blew off much fruit.

Ford.—Good growing week; marked improvement in condition of wheat; oats, barley, corn, and alfalfa fine; cattle looking well, and range-grass abundant.

Gove.—Pastures fine; cattle doing well.

Graham.—Fine growing week; crop conditions good; alfalfa being cut; wheat improved, some rather short, but heading well; pastures fine, and stock doing well.

Hamilton.—Pastures and crops suffering from drought.

Hodgeman.—Grass growing rapidly; cane coming up; gardens hurt some by hail.

Lane.—Good rains put ground in excellent condition for growing crops; corn nearly all up, some cultivated; grass doing well, and stock improving.

Morton.—Good weather for grass and calves; planting forage crops rapidly.

Ness.—Ground in fine condition; wheat and rye in eastern part not improved by rain, where rye is heading short; condition of small grains improved in western part, rye in full bloom; corn a good stand; grass growing nicely, and cattle doing well; gardens improving; potatoes good; sorghum and millet coming up well.

Norton.—Plenty of moisture; some damage by hail in localities; crop prospects fine; grass abundant; gardens good.

Sheridan.—Rains have put crops in very good condition; most of the wheat looking well; alfalfa ready to cut; pastures good.

Thomas.—Fine growing weather; early wheat in bloom; barley heading; alfalfa being cut; corn cultivating in progress, range-grass doing nicely.

Trego.—Good rains; ground in fair condition; wheat improved; grass growing nicely; alfalfa cutting in progress, fair crop; feed crops still being sown.

Wallace.—Wheat, oats, barley, and gardens improved by rains; corn coming up nicely, and forage crops fairly well; cutting alfalfa, a good crop; range-grass good.

### Low Roundtrip Summer Rates

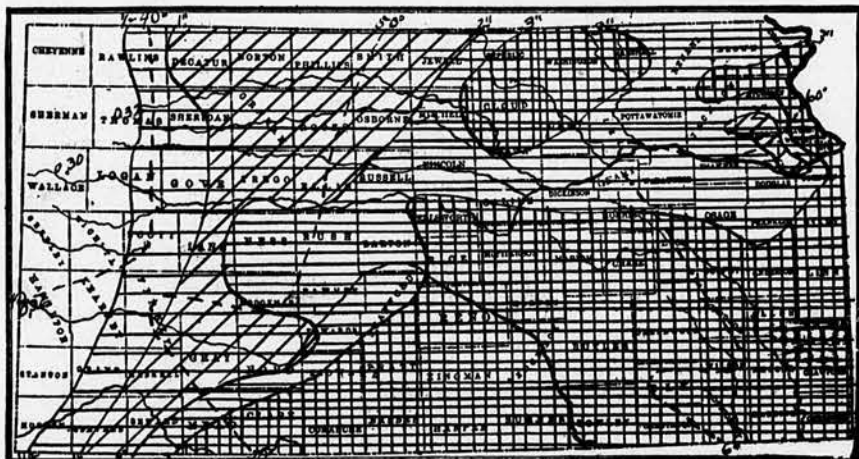
Via Chicago Great Western Railway to St. Paul, Minneapolis, the Cannon Valley Lakes, Duluth, and the Superiors. Tickets good to return October 31st. For dates of sale and other information apply to any Great Western agent, or J. P. Elmer, G. P. A., Chicago, Ill.

### An Appreciation.

Rear Admiral Evans in the May issue of McClure's Magazine says: "For comfort and luxury, the special train on which he traveled made a lasting impression upon the Prince and his suite. Prince Henry said: 'I have seen the best equipment on Russian railroads, and they are the best in Europe, but I have never seen or imagined that a train like this could be put together.'"

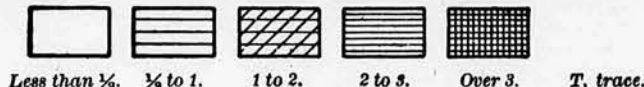
Coming from such an authoritative source this is indeed a compliment, especially so as two of the cars, the Iowa and Ohio, belong to the regular equipment of the Chicago Great Western Railway.

These beautiful compartment cars "up every night between Chicago, St. Paul and Minneapolis on the 'Great Western Limited' the new sumptuous Electric Lighted train.



Minimum Temperature for Week Shown by the Broken Lines

SCALE IN INCHES.



prospects in western part improved; corn a good stand, and growing nicely, cultivation commenced; oats looking well but heading short; wheat heading short; some damage to fruit and light buildings by high winds; chinch-bugs in grain fields; cherry crop will be light; apples not a full crop.

Bourbon.—Ground soaked, and crop conditions materially improved; corn in good condition, much cultivated second time; fruits being injured by canker-worm.

Brown.—Corn about all planted, some damaged by heavy rain; oats doing well; wheat fair; pastures improved; plenty of stock water.

Chase.—Heavy rainfall.

Coffey.—Warm growing weather, with plenty of moisture; some complaint of weeds; crop prospects good; some alfalfa cut but not cured; early wheat through blooming, late in bloom.

Crawford.—Cultivation of corn retarded by rain, but fields generally clean; wheat turning; all crops doing well; strawberries large and plentiful.

Douglas.—Subsoil thoroughly moistened; wheat prospects fine; corn in good condition.

Elk.—Too wet for farm work; some corn and Kafir washed out, and will be replanted; wind lodged some of the wheat; some new potatoes being used; cherries ripe; apples promise small crop.

Franklin.—Plenty of rain for present needs; corn doing finely, except some injury from lice.

Geary.—Rapid growth; corn needs cultivating, but ground too wet for work; chinch-bugs in wheat and listed corn.

Greenwood.—Corn growing well, but needs cultivation; wheat doing well; pastures good; alfalfa being cut.

Jackson.—Wheat and oats greatly improved; meadows and pastures thickening and much improved; corn a good stand, much damage by heavy rain.

Jefferson.—Rapid growth; flax a poor stand; a good stand of corn; other crops also in fine condition.

Johnson.—Good growing week; wheat making rank growth; some flax ground planted to corn; potatoes in bloom; prospect for apples good; strawberries ripe.

Labette.—Wheat beginning to ripen, with prospects for a good yield, some rust but no damage; corn and oats growing rapidly.

Leavenworth.—Plenty of rain; condition of crops good.

Marshall.—Good growing week; oats and wheat made marked improvement; corn very good; grass doing well; ground well soaked; alfalfa ready to cut.

Miami.—A fine growing week; wheat in

improved in Ottawa, heading in Kingman, and in head in Sumner. Alfalfa is ready to cut in many of the counties, but the weather has been too wet. Potatoes are doing well. The ground is in fine condition, but generally too wet to work. Early cherries are ripe in Clay, Reno, and Sumner, with an overstocked market in Cowley. Apples are fairly set in Ottawa. Pastures and meadow-grass have greatly improved, and cattle are in fine condition.

Barber.—Very wet week; ground too wet to cultivate; cattle getting sleek and fat. Clay.—Some corn washed out by heavy rain; weather very favorable for wheat; oats, alfalfa, and grass in fine condition; gardens doing nicely; early cherries ripe.

Cloud.—Considerable corn washed out, and will be replanted; wheat improving; pastures good; oats making a good stand; farm work retarded by rains.

Cowley.—Wheat condition much improved; corn getting weedy, growing very rapidly; oats fine; alfalfa ready to cut, but ground too wet for work; grass fine, and stock doing well; fruits and vegetables abundant; May cherries overstocking the market.

Dickinson.—Wheat improved, well headed, but straw short; corn, rapid growth and good stand; oats in good condition; potatoes doing well, and large acreage being planted.

Ellsworth.—Oats, corn, grass, and potatoes, doing nicely; wheat heading very short.

Harper.—Wheat improved; corn, oats, and pastures doing well; good fruit prospects.

Harvey.—Ground thoroughly soaked, and streams all full; wheat, oats, and corn making good growth, but corn getting weedy; alfalfa ready to cut; cattle doing well on grass.

Jewell.—Crops in fine condition; some corn washed out.

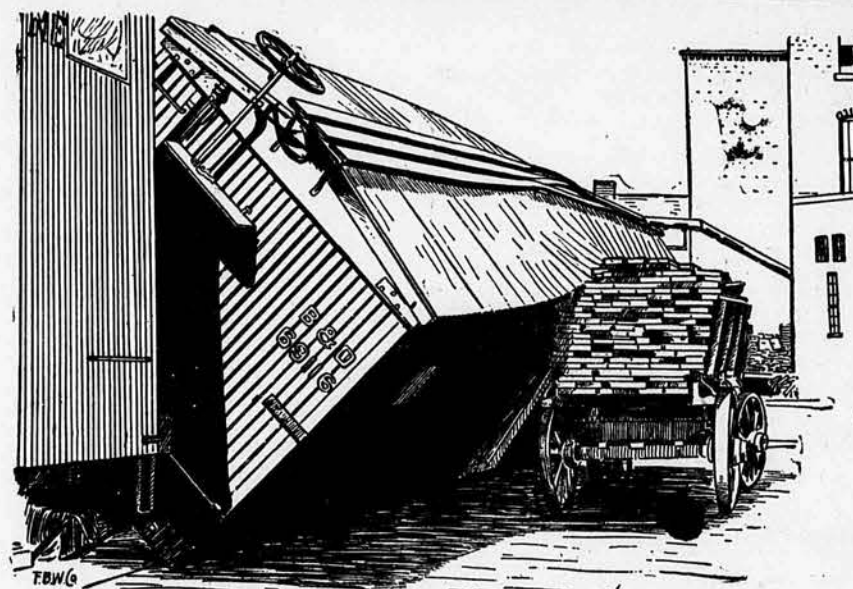
Kingman.—Rains helped grains materially; corn washed slightly; wheat and rye beginning to head; cherries and apricots promise a good crop.

Lincoln.—Rains caused great improvement in crop conditions; some corn to be replanted.

McPherson.—Copious rains revived crops greatly; wheat heading, but stand is light; corn growing, getting weedy; too wet for cultivating.

Ottawa.—Many wheat fields being planted to corn and forage crops; oats, alfalfa, and pastures greatly revived; some wheat will be harvested; potatoes fine; peaches and cherries a failure; apples fairly set; raspberries a full crop; strawberries fair.

Pratt.—Too wet to cultivate; corn clean



AN OBJECT LESSON.

A long time ago we learned that the most direct and forcible way of teaching was by object lesson. We are presenting an object lesson herewith and its teaching is so self evident as scarcely to need any comment from us. In the cut accompanying this article will be seen a large freight car overturned and resting upon a loaded wagon. This little accident occurred a few days ago in the freight yards of the Studebaker Bros. Manufacturing Company of South Bend, Ind. The wagon, which is a standard Studebaker, differing in no sense from multiplied thousands of the same kind in daily use, just happened to be standing in a way to catch the full force of the impact from the over-turned car. It will be observed that while the wagon is itself heavily loaded with lumber, it sustained not the slightest injury. The car, however, did not escape so easily. The cut, which is a strict reproduction from a photograph taken a few minutes after the accident occurred, shows that the car was stove in on the side and that the roof is torn loose clean up to the center where even the running board is displaced and broken. If the reader will just take the trouble to put his head into the next freight car he has the opportunity of examining, when he sees how thoroughly they are timbered, framed and braced,

with hard wood and iron, he will better understand just what amount of shock this wagon was compelled to stand. As first stated, this peculiar accident serves to show in a much better way than it could be otherwise stated just how strong and thoroughly dependable the Studebaker wagons are.

We believe, however, that this case will not occasion much surprise to those hundreds of our readers who have been using Studebaker wagons and are therefore well acquainted with their unusual merits. Undoubtedly some of the users of Studebaker wagons can cite cases where they have stood even more severe tests than did this one without being in any way injured. The standing of such tests as these finds a good and sufficient reason in the great care in selecting the best of material and the employment of the best procurable labor-characteristics of the Studebaker institution. They know how to build wagons at Studebaker's, having been engaged in that one line of work for more than fifty years. In addition to their full and complete line of heavy wagons they also manufacture every style and variety of light vehicle and single and double harness, both light and heavy, for all purposes. Practically every dealer in the country can supply you with the Studebaker goods.



## Analyses of Corn, with Reference to its Improvement.

(Continued from page 578.)

K 515—Shull's Mixed×Chester Co. Mammoth.	2.29	x 2.28 y 1.72	x 2.18 y1 2.02 y2 2.29 y3 2.12 y4 2.73	2.21
K 516—Shull's Mixed×Gardner.	2.09	Lost.		
K 417—Shull's Mixed×Red.	A 2.26	a 2.08	al 1.88 as 2.28	2.13
K 518—Shull's Mixed×Haney's Yellow.	2.18	x 2.87 y 2.24	y 2.68	2.49
K 519—Shull's Mixed×Zimmerman's White.	B 2.30	B 2.59	B1 2.08 B2 2.36 B3 2.57 B4 2.78	2.45
K 521—Gardner×Mammoth Dent.	2.24	2.25	2.31	2.26
K 522—Gardner×Babbitt's Sweepstakes.	A 2.16	Ax 1.99	Ax1 2.64 Ax2 2.17 Ax3 2.06 Ax4 2.19 Ay1 2.44 Ays 2.73	2.26
K 535—Red×Gold Standard.	2.15	x 2.18	x1 2.20 xs 2.15 xm 2.61 yl 2.36 ys 2.18 ym 2.48	2.31
K 538—Red×Mammoth Dent.	A 2.44	Ax 2.21	Ax1 2.17 Axs 2.29 Ay1 2.92 Ays 1.98	2.31
K 541—Red×Shull's Yellow.	2.24	2.45	1.250 s 2.65	2.46
K 542—Red×Chester Co. Mammoth.	A 2.24	A 2.38	A 2.22	2.37
	B 2.19	B 2.96	B1 2.26 Bs 2.32	
K 543—Red×Shull's Mixed.	B 2.28	B 2.56	B1 2.11 Bs 2.53	2.37
K 545—Red×Haney's Yellow.	B 2.19	Bx 2.42 By 2.20	Bx 2.68	2.43
K 547—Haney's Yellow×Boone County White.	B 2.39	Bx 2.15 By —	Bx 2.18 Byl 2.47 Bys 2.55 Bym 2.37	2.35
K 554—Haney's Yellow×Missouri Dent.	A 2.22	Ax 2.49	Ax1 2.29 Axs 2.76 Ay1 2.02 Ays 2.42 B1 3.02 Bs 2.70	2.46
K 557—Haney's Yellow×Shull's Yellow.	B 2.18	1.39	B1 2.44 Bs 2.34	2.08
K 559—Haney's Yellow×Shull's Mixed.	2.17	2.13	2.64	2.31
K 560—Haney's Yellow×Red.	B 2.30	Bx 2.05 By 2.61	Bx 2.45 Byl 2.94 Bys 2.49	2.47
K 562—Zimmerman's White×Boone County White.	A 2.23	Ax 2.10	Ax1 1.93 Axs 1.85 Axm 2.68 Ay 2.59	2.19
K 564—Zimmerman's White×St. Charles (rough).	B 2.19 C 1.93 D 2.13	B 2.15	B 2.12	2.15
K 565—Zimmerman's White×St. Charles (smooth).	B 2.17 C 2.23	B 2.02 Lost.	B 2.16	2.12

The preceding table exhibits analytical data that may be studied from various points of view. It will be seen that, of the nearly 600 ears analyzed the first year, only about 80 have been retained to the present. The crosses analyzed in 1899 showed wide variations in nitrogen content. Average corn contains 1.84 per cent of nitrogen, or 11.5 per cent of protein in the dry substance. In selecting the crosses for further propagation in 1900, 2 per cent of nitrogen was taken as the minimum. Some having that amount or more were not included. It will be seen that if varieties containing no more than 2 per cent of nitrogen—that is, 12.5 per cent of protein can be firmly fixed—the cereal would be very much improved. Calculating the increase on the protein itself instead of on the whole substance, the increase would be nearly 9 per cent. This was set as our minimum. In following from year to year the nitrogen content exhibited by the several crosses

kept under culture, one can not but be struck by the persistence with which the original high nitrogen content is maintained. Examination of the detailed results shows that there is a certain tendency to variation, with the production of some ears low in nitrogen, but the great preponderance of ears high in nitrogen is very striking and encouraging.

TABLE SHOWING AVERAGE COMPOSITION FOR THREE YEARS, INCLUDING ALL THOSE GROWN IN 1901, AND THEIR ANCESTORS.

Cross number.	Ears analyzed.	Per cent nitrogen.
K 39.....	16	2.00
K 466.....	6	2.01
K 411×K 407.....	2	2.02
K 82.....	4	2.04
K 199.....	9	2.05
K 528.....	4	2.08
K 557.....	4	2.08
K 13.....	7	2.08
K 77.....	5	2.09
K 447.....	7	2.10
K 222.....	4	2.11
K 565.....	3	2.12
K 517.....	4	2.13
K 218.....	14	2.14
K 564.....	3	2.16
K 140.....	5	2.16
K 209.....	8	2.18
K 369.....	3	2.18
K 10.....	8	2.19
K 487.....	10	2.19
K 562.....	7	2.19
K 151.....	9	2.20
K 435.....	3	2.20
K 6.....	4	2.21
K 491.....	6	2.21
K 515.....	8	2.21
K 479.....	8	2.22
K 26.....	12	2.23
K 16.....	8	2.24
K 92.....	15	2.25
K 415.....	5	2.25
K 352.....	6	2.26
K 434.....	5	2.26
K 514.....	3	2.26
K 521.....	9	2.26
K 522.....	6	2.27
K 223.....	8	2.28
K 405.....	6	2.28
K 462.....	2	2.28
K 106.....	8	2.29
K 116.....	5	2.29
K 206.....	5	2.29
K 213.....	6	2.29
K 403.....	5	2.29
K 314.....	4	2.31
K 374.....	6	2.31
K 535.....	9	2.31
K 538.....	7	2.31
K 559.....	3	2.31
K 476.....	4	2.32
K 141.....	7	2.33
K 171.....	8	2.33
K 143.....	9	2.34
K 417.....	8	2.35
K 485.....	8	2.35
K 493.....	13	2.35
K 547.....	6	2.35
K 396.....	4	2.36
K 401.....	5	2.36
K 427.....	3	2.36
K 488.....	4	2.36
K 542.....	7	2.37
K 543.....	4	2.37
K 430.....	3	2.38
K 525.....	2	2.38
K 76.....	12	2.39
K 467.....	3	2.41
K 138.....	3	2.42
K 322.....	5	2.43
K 545.....	3	2.43
K 429.....	6	2.45
K 519.....	6	2.45
K 513.....	4	2.46
K 541.....	4	2.46
K 554.....	11	2.46
K 560.....	6	2.47
K 400×K 398.....	2	2.48
K 518.....	4	2.49

For more ready comparison, we have compiled the above table showing average composition for three years. This is not a picked table, but includes all that have been grown continuously. The crosses are designated by number only, and are arranged in the order of nitrogen content. It will be seen that of the seventy-nine, not one falls below 2 per cent of nitrogen. The fact that we are in possession of seventy-nine varieties that, as an average for three years, exceed 2 per cent in nitrogen is certainly of great significance. When we see further that an even dozen of them contain over 2.40 per cent of nitrogen—that is, over 15 per cent of protein, which is nearly as much as average wheat bran—the possibilities in the way of corn improvement become fairly luminous, and the existence of ears with nearly or quite 3 per cent of nitrogen adds still more to the brightness of the prospect. It should be stated, however, that in many cases the ears showing very high percentages of nitrogen were small or the grains were scattering on the cob, and we can not hope to secure such nitrogen content with a maximum development of grain. We have, notwithstanding, many very good ears containing a high percentage of nitrogen. In K 554 we have a cross of Haney's Yellow and Missouri Dent, in which, in analyses of eleven ears, not one fell below 2 per cent of nitrogen, and one exceeded 3 per cent, the average of all being 2.46 per cent. K 138 B has an almost equal record. It is a cross of Ziller's Yellow and Missouri Dent, and among eleven analyses only one fell below 2 per cent of nitrogen, the maximum was 2.81 per cent, and the average 2.42. K 560 B averages still higher, but its record rests on but six analyses, ranging from 2.05 per cent to 2.95. It is a cross of Haney's Yellow and Red. The four ears analyzed of K 518 average 2.49 per cent, and range from 2.24 to 2.87 per cent.

It is a cross of Shull's Mixed and Haney's Yellow. Space forbids calling special attention to further notable examples, all of which may be easily traced by means of the tables.

We have compiled a table which shows the number of times each of the original varieties was used in the production of the crosses still under cultivation. It also shows the crosses in which each was used as the female parent, and those in which it was used as the male, the average per cent of nitrogen contained in each of these groups, and in all the crosses in which a given variety was used as either parent. In this table the varieties have been arranged in the order of the nitrogen content of the original ears. It is evident that certain of the varieties rich in protein have impressed this characteristic upon their offspring. The mean given in the last column is the average of all crosses in which the variety named was used—not simply the average of the averages of the crosses in which it was used as the female parent and those in which it was used as the male parent. These final means, each involving as it does a number of varieties, tend to the same value, as might have been anticipated.

	Times used.	Percentage nitrogen.
Shull's White.....	6	2.23
As female parent, K 13, K 16.....	2	2.16
As male parent, K 223, K 322, K 462, K 528.....	4	2.27
Gold Standard.....	8	2.28
As female parent, K 116, K 415, K 417.....	3	2.29
As male parent, K 171, K 218, K 427, K 487, K 535.....	5	2.27
Zimmerman's White.....	5	2.15
As female parent, K 562, K 564, K 565.....	3	2.15
As male parent, K 519, K 546.....	2	2.14
St. Charles (smooth kernels).....	3	2.13
As female parent, K 39, K 352.....	2	2.13
As male parent, K 565.....	1	2.12
Chester County Mammoth.....	6	2.23
As female parent, K 218, K 222.....	2	2.22
As male parent, K 141, K 209, K 491, K 515.....	4	2.23
Boone County White.....	6	2.22
As female parent, K 6, K 10, K 814.....	3	2.24
As male parent, K 199, K 547, K 562.....	3	2.20
Normandy Giant.....	5	2.28
As female parent, K 82, K 92.....	2	2.15
As male parent, K 396, K 467, K 485.....	3	2.37
Mammoth Yellow Dent.....	10	2.27
As female parent, K 462, K 466, K 467, K 476, K 479.....	5	2.25
As male parent, K 6, K 106, K 314, K 417, K 513.....	5	2.32
Cooper's Yellow.....	6	2.30
As female parent, K 106, K 396, K 401, K 403, K 405.....	5	2.32
As male parent, K 16.....	1	2.24
Babbitt's White.....	3	2.07
As female parent.....	0	0.00
As male parent, K 39, K 82, K 369.....	3	2.07
Mammoth Dent.....	5	2.37
As female parent, K 447.....	1	2.10
As male parent, K 415, K 429, K 521, K 538.....	4	2.32
Shull's Mixed.....	13	2.32
As female parent, K 223, K 512, K 513, K 514, K 515, K 517, K 518, K 519.....	8	2.32
As male parent, K 222, K 403, K 476, K 542, K 559.....	5	2.32
St. Charles (rough kernels).....	3	2.27
As female parent, K 26, K 322.....	2	2.33
As male parent, K 564.....	1	2.15
Missouri Dent.....	4	2.34
As female parent, K 151.....	1	2.20
As male parent, K 138, K 206, K 554.....	3	2.39
Babbitt's Sweepstakes.....	5	2.24
As female parent, K 171.....	1	2.33
As male parent, K 374, K 447, K 512, K 522.....	4	2.24
Shull's Yellow.....	14	2.26
As female parent, K 199, K 206, K 209, K 213, K 485, K 487, K 488, K 491, K 493.....	9	2.25
As male parent, K 140, K 401, K 514, K 541, K 557.....	5	2.26
Gardner.....	6	2.32
As female parent, K 521, K 522, K 525.....	3	2.30
As male parent, K 76, K 92, K 493.....	3	2.33
Ziller's Yellow.....	10	2.31
As female parent, K 138, K 140, K 141, K 143, K 427, K 429, K 434, K 435.....	8	2.32
As male parent, K 26, K 488.....	2	2.29
Red.....	14	2.30
As female parent, K 528, K 535, K 538, K 541, K 542, K 543, K 545, K 546.....	8	2.34
As male parent, K 10, K 77, K 143, K 434, K 517, K 560.....	6	2.25
Haney's Yellow.....	14	2.32
As female parent, K 547, K 554, K 557, K 559, K 560.....	5	2.33
As male parent, K 151, K 213, K 352, K 405, K 435, K 479, K 518, K 525, K 545.....	9	2.31
Buehler's White.....	6	2.21
As female parent, K 76, K 77, K 369, K 374.....	4	2.24
As male parent, K 116, K 466.....	2	2.15

The experiments with crosses during the last four years have been carried out in spite of the two seasons of protracted drouth. This would not have been possible had we not had the Manhattan water-supply available for irrigation, and our work would have been entirely lost, or, at best, set back two years.

## A COOPERATIVE EXPERIMENT.

In the spring of 1889, when Professor Cottrell withdrew from further connec-

tion with the work in seed-breeding, he suggested an experiment growing out of the experience of one or two farm-

ers of the State, and arrangements were made to carry it out. Its object was to test the alleged fact that seed-corn, the product of cross-fertilization, yields much better than that fertilized in the ordinary way. A number of farmers in the vicinity were induced to cooperate with the station, and arrangements were made by correspondence with several in other parts of the State. The experiment was clearly explained to them, and was essentially as fol-

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## WOOL

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lows: The station furnished each farmer making the trial with seed-corn enough to plant two rows across the middle of the field. The tassels were to be completely removed from these rows as they appeared, so that any corn on them must be the result of cross-fertilization. This corn was to be gathered by itself and used to seed at least an acre the next year, so that its yield could be compared with that of the field grown from seed obtained in the usual manner.

For various reasons, not one of the twenty-four farmers beginning this experiment carried it through to its conclusion. Only four planted the crossed corn the following season, and they obtained no result because of the almost total failure of the corn crop from drought in this vicinity in 1900. The accompanying table gives a summary statement of the outcome in each case.

#### RESULTS OF A COOPERATIVE EXPERIMENT WITH FARMERS, IN CROSSING CORN FOR THE PRODUCTION OF SEED, 1899 AND 1900.

Birch —, Manhattan—Corn was poor, small, hard, flinty; abandoned at end of first season.  
Bills, C., Manhattan—No Report.  
Cunningham, J. S., Manhattan—Corn was poor; abandoned at end of first year.  
Huse, Ansel, Manhattan—Corn was poor; abandoned at end of first year.  
Huse, Corliss, Manhattan—Corn was poor; abandoned at end of first year.  
Kean, J. A., Holland—Hired man destroyed (poor anyhow).  
Kimball, Richard, Manhattan—Detasselling was neglected by the station.  
Knipe, Rev., Manhattan—Crossed corn too poor for use as seed the following year.  
Koppenheffer, S., Manhattan—Crop failed the first year.  
Maintz, R. W., Linn—No report.  
Miller, T. B., Manhattan—Crossed corn good; abandoned second year on account of leaving the farm.  
Schuler, A. J., Junction City—Crossed corn good; planted half his field with it the next year, but corn crop was a failure.  
Steustrom, C. A., White City—Crossed corn inferior, yield, 25 bus. per acre; other corn 60 bus. per acre; abandoned second year.  
Stowell, C. W., Sabetha—First planting washed out.  
Swingle, J. F., Manhattan—Nothing done the second season on account of rush of work.  
Thorpe, F., Chapman—Second year a total failure of corn crop.  
Toy, John, Manhattan—Crossed corn cut with rest of field by hired man.  
Tully, M. J., Manhattan—Washed out the first year.  
Westgate, H., Manhattan—Corn poor; abandoned at end of first year.  
Westgate, E. W., Manhattan—Second year a total failure of corn crop.  
Westgate, P. E., Manhattan—Second year a total failure of corn crop. (Some of this seed made 10 bus. per acre on college farm.)  
Whitney, Will, Manhattan—Corn poor; abandoned at end of first year.  
Yenawine, Rollin, Manhattan—No report.  
Yenawine, S. J., Manhattan—Bugs killed corn first year.

The outcome of this cooperative test as tabulated above ought not to occasion surprise. It is the experience of stations generally that cooperative experiments with farmers are seldom satisfactorily carried out. The farmer has too much else to attend to of greater moment to him individually. Our experience with farmers growing sugar-beets furnishes ample illustration of the same difficulty. Even when they were definitely hired to do the work, results were not obtained. All such experiments must be under the immediate control of a station officer from start to finish. The experiment also indicates that the product of the crossing is apt to be rather unpromising in appearance. Whether or not it really was poor will not be known, since no one finished the test successfully. It is not unlikely that a part of the unfavorable results of the first year's work was due to the injury that the corn received in detasselling it. In our opinion, care should be taken to avoid unnecessary injury in this part of the process. The liability of failure, even when experiments have been conducted according to plans laid out, on account of drought or other untoward climatic conditions, is strongly brought out in this experiment.

#### SOME ANALYSES OF COMMERCIAL SEED-CORN.

In view of the probability that many farmers in the State would be obliged to purchase seed-corn this year, it seemed desirable to make analyses of some of the seed offered, and, if material differences were found, to publish recommendations. Accordingly, all the varieties offered by the leading seed firm of the State were purchased, and their nitrogen content determined. The results are published in the succeeding table, and make a striking contrast to those that have preceded. The seed was apparently of good quality, and its low content of nitrogen simply shows the deficiency of this important element that corn ordinarily exhibits:

Brazilian Flour Corn.....	1.39
Iowa Gold Mine.....	1.47
Early Mastodon.....	1.53
Hickory King.....	1.54
Champion White Pearl.....	1.59
Improved Learning.....	1.62
Forsythe's Favorite.....	1.63
Iowa Silver Mine.....	1.69
King of the Earliest.....	1.70
Kansas Sunflower.....	1.72
Golden Beauty.....	1.74
Pride of the North.....	1.81

#### SUMMARY.

Corn is deficient in protein, and in 1898 experiments were begun which are still in progress, having for their object the origination of varieties that should be richer in protein. Thirty-three varieties were analyzed, and these showed percentages of nitrogen ranging from 1.56 to 2.26. Analyses of single ears of each of two varieties showed great differences in the nitrogen content of different ears of the same variety, the percentages ranging from 1.53 to 2.24 in a variety that had been grown for thirty years on the same farm with-

out admixture, and from 1.35 to 2.22 in a cross originated the year previous. Analyses of single kernels from the same ear showed considerable differences in nitrogen content, though not as great as among different ears of the same variety.

Analyses of a large number of single kernels, the specific gravity of which had been determined, showed that, while there seemed to be a tendency toward higher nitrogen content with lower specific gravity, there is no uniform connection between these factors, and therefore corn richer in nitrogen can not be separated from that poorer in nitrogen by means of specific gravity.

From the original thirty-three varieties twenty-one were selected, and used in making crosses by the botanical department. Each ear saved was pollenized by hand, and all other fertiliza-

tion prevented. The crosses originated in 1898 in this way were planted in 1899 and each close fertilized. The ears obtained that year were analyzed, and the next season those showing 2 per cent or more of nitrogen were planted, as a rule. These were again close fertilized, the crop of each analyzed, and the same ones, in general, planted in 1901. They were again close fertilized, and the ears produced analyzed. These crosses show remarkably high percentages of nitrogen in many cases, and all contain 2 per cent or more of nitrogen as the average for three years. In twelve cases the average is above 2.40 per cent of nitrogen, or 15 per cent of protein.

The unsatisfactory outcome of a cooperative experiment is detailed, and analyses are given of a number of varieties of corn offered on the market, which show how inferior the seed-corn now available is in nitrogen content. The selection of seed-corn richer in nitrogen, by choosing ears in which examination shows that the kernels possess relatively large germs, is strongly urged upon farmers as a practicable method of increasing the percentage of both protein and fat in corn.

#### Salt for Asparagus.

EDITOR KANSAS FARMER:—We have a bed of asparagus which is very weedy, and we have been told to mow it in the dark of the moon in July and salt it heavily—enough to cover it. We mature it every fall. It is an old bed probably 10 or 15 years old.

Would the salt hurt it or benefit it? If it needs salt, when, and give manner of applying it.

Does spraying stop canker-worms?

SUBSCRIBER.

Elmont, Shawnee County.

ANSWERED BY GEO. O. GREENE.

Asparagus beds should never be allowed to become weedy. The ground should be kept well hoed and loose until the crop is off and the plants are large enough to shade the ground to such an extent that the weeds can not grow. In the fall, any time after the tops turn ripe, the whole crop should be mown and trash raked off and burned. This destroys spores of fungi, eggs of insects, and the larvae of insects that may be hiding in the stalks. After this the ground should be given a dressing of well-rotted manure and thoroughly disked.

This application of salt to asparagus beds is said to greatly benefit them. This salt should be applied to only well-rooted beds and in spring or early summer, during the growing period. Forty pounds to the square rod would be a fair top dressing of salt.

Two-thirds of all the letters which pass through the postoffice of the world are written by and sent to people who speak English, according to Brad-

## "The Stitch In Time"

### A Lesson in Practical Economy.

It must have been a woman, a mother of children, who coined that familiar saying, "A stitch in time saves nine." For it is the mother who realizes how the little rent becomes a yawning tear if not properly mended. So when little Willie comes in dragging his sled, hungry for a "piece," and his mother spies a rent in his coat she says, "Take your coat off, Willie, while I mend that hole." Willie pleads to wait until evening, but in vain—"By evening you won't have any coat left to mend," his mother says, "if I let that hole go now."

The peculiar thing is that a woman should limit the application of a truth which she so thoroughly understand.



It's just as true of sickness as of anything else, that "A stitch in time saves nine." Women suffer for long years because of the neglect to care for the health when the first symptoms of womanly disease begin to appear. Procrastination is the thief of health as well as the thief of time. The woman who is weak or sick and who says "Tomorrow and to-morrow" is doing violence to her own practical good sense, which will not let a torn garment go an hour unmended because she knows that the longer the rent is neglected the harder it is to repair.

#### DON'T PUT IT OFF.

If you are weak or sick do not put off for another day the timely care which will lead you back to health. That weak women can be made strong and sick women made well is proved by a multitude of women witnesses who have been perfectly and permanently cured by the use of Dr. Pierce's Favorite Prescription.

"I have been using your medicine with good results," writes Mrs. Lula Hines, of Frazer, Wayne Co., Ky. "You may remember I applied to you for advice. When I wrote you I was a physical wreck, suffering from irritation of the uterus and indigestion. For nearly two years no one knew what I suffered. I consulted Dr. R. V. Pierce, of Buffalo, N. Y., and he kindly told me to try his 'Favorite Prescription' and 'Golden Medical Discovery.' I followed his advice and before I had used one bottle of 'Favorite Prescription' great was the change in my condition. Continued the medicine and my health improved steadily. To-day I am in good health, have rosy cheeks and clear skin, and have gained in flesh. Am willing to have you publish this if you think it will aid suffering women to find relief. I thought I never would be well again. Tried the best doctors in Frazer, but none relieved me until I got your medicines, 'Favorite

'Prescription' and 'Golden Medical Discovery.' These are the best medicines in the world. I would not give them up for all the doctors in Frazer. Please pardon me for not writing sooner, for I owe my life to Dr. R. V. Pierce and his wonderful medicines.

"A word too for your little 'Pellets.' They are the best for indigestion and distress of stomach and constipation. I used ten bottles of 'Favorite Prescription,' three of 'Golden Medical Discovery' and one vial of the 'Pellets.'"

#### CONSIDER THE CONTRAST.

There is no better example of what "Favorite Prescription" will do for sick women than is furnished by Mrs. Hines. She was a physical wreck. Her sufferings for nearly two years was beyond the power of words to express. She tried the best available doctors and got no relief. She consulted Dr. Pierce, by letter. She received his free advice, began the use of "Favorite Prescription," and

persevered until cured. To-day she is able to say, "I am in good health, have rosy cheeks and clear skin, and have gained in flesh. I owe my life to Dr. R. V. Pierce and his wonderful medicines."

Dr. Pierce's Favorite Prescription makes weak women strong and sick women well. It establishes regularity, dries weakening drains, heals inflammation and ulceration and cures female weakness. It is a wonderful tonic for worn-out, worked-out women, curing nervousness, sleeplessness, headache, backache, and restoring the lost health. It is a purely vegetable preparation, and can not disagree with the most delicate constitution.

"For two years I had been a sufferer from female weakness and uterine trouble," writes Mrs. J. Muschinski, of Marathon, Marathon Co., Wis. "Was so weak that I could do no work, and could hardly stand on my feet. Suffered from bearing-down pains, headache, pain in left side and back, and pain near the heart. Also had catarrh, breath was short and I had a dry cough. Was nervous, felt down-hearted and had but little hope for recovery. After reading your 'Medical Adviser' I wrote to you for advice. You advised me to take Dr. Pierce's Favorite Prescription and 'Golden Medical Discovery.' I followed your advice, and after taking six bottles of 'Favorite Prescription' and five of 'Golden Medical Discovery' my troubles left me, and I feel like a new person. I can cheerfully recommend your medicines to all suffering weak women."

#### AN EXTRAORDINARY OFFER.

Dr. R. V. Pierce, chief consulting physician to the Invalids' Hotel and Surgical Institute, Buffalo, N. Y., invites weak and sick women to consult him by letter, free. All correspondence is held as sacredly confidential, and the written confidences of women are guarded by the same strict professional privacy observed by Dr. Pierce and his staff in personal consultations with weak and sick women at the Invalids' Hotel and Surgical Institute. Address, Dr. R. V. Pierce, Buffalo, N. Y.

Accept no substitute for "Favorite Prescription." There is no other medicine "just as good" for womanly ills.

#### ONE THOUSAND AND EIGHT.

Dr. Pierce's Common Sense Medical Adviser contains one thousand and eight large pages and over seven hundred illustrations. This modern medical work is sent free on receipt of stamps to pay expense of mailing only. Send twenty-one one-cent stamps for the book in paper covers, or thirty-one stamps for the cloth-bound volume. Address Dr. R. V. Pierce, Buffalo, N. Y.

street's. There are substantially 500,000,000 persons speaking colloquially one or another of the ten or twelve chief modern languages, and of these about 25 per cent, or 125,000,000 persons speak English. About 90,000,000 speak Russian, 75,000,000 German, 55,000,000 French, 45,000,000 Spanish, 35,000,000 Italian, and 12,000,000 Portuguese, and the balance Hungarian, Dutch, Polish, Flemish, Bohemian, Gaelic, Roumanian, Swedish, Finnish, Danish, and Norwegian. Thus, while only one-quarter of those who employ the facilities of the postal department

of the civilized world speak as their native tongue English, two-thirds of those who correspond do so in the English language.

## SEVEN GREAT SCHOOLS.

Chillicothe Normal School  
Chillicothe Commercial College  
Chillicothe Shorthand College  
Chillicothe Telegraphy College  
Chillicothe Pen-Art College  
Chillicothe School of Oratory  
Chillicothe Musical Conservatory  
Last year's enrollment 729. \$120 pays for 48 week's board, tuition, room rent, and use of text-books.  
For FREE Illustrated Catalogue, address ALLEN MOORE, President, Box 9, CHILICOTHE, MO.



## The Poultry Yard.

### Poultry Picking.

IDA E. TILTON, IN FARM, STOCK, AND HOME.

If chicks are to perch in the general hen house, or even hens be set there, the room should first be cleaned after its winter's use. Lime scattered on the runs intended for future chicks, if done before spring rains, will greatly purify the ground as it washes in.

If no regard is had to "points," it does not take much money to buy a healthy, full-blooded rooster every year. If each is of the same breed, three years will see a pretty uniform flock, especially when the mongrel horde is carefully culled and reduced first. At least, dispose of the very old and fat, and those having had feet or combs frozen, and leave none of the mongrel roosters.

A turkey-raiser to whom was loaned a fine Bronze tom, had great success in the size and number of the year's poults. The next year she could not borrow a breeder, and rather than buy, she rode several miles, traded around, got a scrub tom, lost all she had gained, and has never raised a large flock of poults since.

The largest turkeys are not always the heaviest. Some have loose plumage, while others show feathers overlapping each other in a solid mass.

The Maine Station has plans for a home-made trap-nest, by which it has discovered some really-truly 200-eggs-a-year hens, and some decidedly otherwise, the range being from 208 to 36 eggs a year. If there are children or old people, with time not too valuable for watching nests and releasing layers, these nests would pay even on a farm, if used long enough to discover the best layers and set only their eggs.

It is some trouble to alternate males, shutting one up every other day, but here are the advantages: It does away with favoritism, for most roosters greatly prefer certain hens. It gives an unselfish bird, that calls his harem to every choice morsel, a chance to eat and recuperate. There is no fighting. It helps prevent feather pulling, because the cocks, more gallant than females, are apt to stand still and permit this done. A change discourages habit by interruption. Few of these advantages are secured by two males constantly with flock.

A Pennsylvania poulterer who for three years has given heed to the old woman's whim about picking out well-rounded eggs for setting, rejecting any

of peculiar size as well as shape, now reports pullets instead of roosters to sell during all the year. Last season there were only eight roosters in a flock of 40 chickens. Our own experience has long been similar.

An experienced broiler-raiser advises distributing the work of hatching over a considerable time, so one will not be rushed with work and omit the many little details of care which secure success. This is true, but since large chicks rob and stunt smaller ones the hatches should be fed separately.

Diarrhea among chickens is caused frequently by brooders or coops becoming cold; but too wet food is often responsible.

Wood charcoal is excellent, cheap and harmless in arresting bowel looseness. Adults may sometimes have it in the form of parched corn or other grain. Little chicks can have the powdered charcoal added to their puddings. Two pens of turkeys were fed alike, except one lot had charcoal, the other had none. When killed the first averaged one and a half pounds more weight, each, and were superior in flavor and tenderness.

Summer chicks, on range, eat much grass, the tips of which are tender and easily broken. Brooder chicks likewise need some green stuff easily broken and assimilated. A head of lettuce hung in the brooder by a string seems to meet the desired want and is eagerly eaten. I was once called to visit some dying little ducklings that were so unsupplied with and crazy for greens that they actually ate catnip I offered them.

The poultry-breeder who wants to make the most money will hatch his chickens early, grow them into early maturity, get eggs in winter when prices are high, and sell the most of his hens before more than two years old.

### How's This?

We offer One Hundred Dollars Reward for any case of Catarrh that can not be cured by Hall's Catarrh Cure.

F. J. CHENEY & CO., Props., Toledo, O. We the undersigned, have known F. J. Cheney for the last fifteen years, and believe him perfectly honorable in all business transactions and financially able to carry out any obligations made by their firm.

West & Truax, Wholesale Druggists, Toledo, O. Walding, Kinnan & Marvin, Wholesale Druggists, Toledo, O. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system. Price, 75c per bottle. Sold by all druggists. Testimonials free.

Hall's Family Pills are the best.

Write us for sample copies.

## A Strong Man

Is strong all over. No man can be strong who is suffering from indigestion or some other disease of the stomach and its associated organs of digestion and nutrition.

For when the stomach is diseased there is a loss of the nutrition contained in food, which is the source of all physical strength. When a man doesn't feel just right, when he doesn't sleep well, has an uncomfortable feeling in the stomach after eating, is languid, nervous and irritable, he is losing the nutrition needed to make strength.

Such a man needs to use Dr. Pierce's Golden Medical Discovery. It cures diseases of the stomach and other organs of digestion and nutrition. It enriches the blood, stimulates the liver, nourishes the nerves, and so gives health and strength to the whole body.

Mr. Thomas A. Swarts, of Sub. Station C, Columbus, Ohio, Box 103, writes: "I was taken very sick with severe headache, then cramps in the stomach and my food would not digest, then kidney and liver trouble and my back got weak so I could scarcely get around. The more I doctored the worse I got until six years passed. I could only walk in the house by the aid of a chair, and I had given up to die. Then one of my neighbors said, 'Take my advice and take Dr. Pierce's Golden Medical Discovery and make a new man out of yourself.' The first bottle helped me and after I had taken eight bottles in about six weeks I was weighed and found I had gained twenty-seven (27) pounds, and I am as stout and healthy to-day, I think, as I ever was."

Dr. Pierce's Pleasant Pellets cure constipation.



## POULTRY BREEDERS' DIRECTORY.

S. C. B. LEHIGH EGGS—Thirty for \$1. New blood and good stock, f. o. b. here. F. P. Flower, Wakefield, Kans.

CORNISH INDIAN GAMES—Prize-winning; cock scoring 94. White Rocks, Black Langshan eggs \$1 per 12. Mrs. J. C. Strong, Moran, Kans.

ROSECOMB WHITE LEHIGH EGGS—White guinea, Leghorn eggs, \$4 per 100; guinea eggs, \$1 per 16. Mrs. Winnie Chambers, Onaga, Kans.

EGGS—\$1 per 15. Select Barred Plymouth Rocks, Fine fellows. Duroc-Jersey and Poland-China pigs—all sizes. D. Trott, Abilene, Kans.

WHITE WYANDOTTES—Exclusively. Eggs for hatching, \$1 per 15. Mrs. E. F. Ney, Bonner Springs, Kans.

BLACK MINORCAS, biggest layers of biggest eggs. Eggs for hatching, \$1.50 per 15. Also at same price eggs from choice matings of Houdans, Buff Laced Polish, White Crested Black Polish, Buff, Brown and White Leghorns, and American Dominiques. Satisfaction guaranteed. Write for illustrated descriptive catalogue. James C. Jones, Leavenworth, Kans.

NO MORE PUPS FOR SALE until after May 1, but can furnish B. P. Rock eggs from large, vigorous, and finely-marked birds; 15 years' experience with this breed. Send me your order; you will be pleased with results. \$1.50 per 15.

W. B. WILLIAMS, Stella, Neb.

### White Wyandottes Exclusively.

The big white kind that wins prizes and lays eggs. Eggs in season—\$2 for 13.

C. H. WILLSEY, - - - Dexter, Kansas.

### PURE-BRED POULTRY.

Eggs for setting, 10 cents each. Barred Plymouth Rock, Rosecomb White Leghorn, Single Comb Brown Leghorn, Black Langshan, White Holland turkey, Imperial Pekin ducks. J. C. CURRAN, Curran, Kan.

## Gem Poultry Farm.

C. W. PECKHAM, Prop'r, HAVEN, KANS.

Four Yards—15 Acres. Exclusively taken by the largest and best flock of Buff Plymouth Rocks in Kansas. Eggs sold from two best yards only, at \$2 for 15.

Prize-winning M. Bronze Turkey Eggs, \$2 for 15.

### DUFF'S POULTRY

Barred Plymouth Rocks, White Plymouth Rocks, Buff Orpingtons, Partridge Cochins, Silver Wyandottes, Black Langshans, Light Wyandottes, White Wyandottes, Silver Spangled Hamburgs, Brown Leghorns, and Belgian Hares. First-class Standard Stock of Superior Quality. Stock For Sale. Eggs in Season. Write Your Wants. Circular Free.

**A. H. DUFF, Larned, Kans.**

## ADVANCE POULTRY CENSUS REPORT BY STATES.

### POULTRY AND EGGS ON FARMS AND RANGES.

		Number of fowls 3 months old and over June 1, 1900.					Value of	Value of	Dozens of	Value of
		Number of farms	Chickens, including	Turkeys.	Geese.	Ducks.	all poultry, June 1, 1900.	poultry raised in 1899.	eggs produced in 1899.	all eggs produced in 1899.
States and Territories.	Number of farms.	reporting.	Guinea fowls.							
The United States.....	5,739,657	5,096,252	233,598,065	6,599,367	5,676,863	4,807,358	\$85,794,996	\$136,891,877	1,293,819,186	\$144,286,158
North Atlantic division.....	677,506	605,732	27,952,114	529,932	144,527	453,580	13,706,762	20,624,439	191,764,000	28,612,489
South Atlantic division.....	962,225	850,074	22,293,912	810,975	908,908	458,918	8,546,899	15,553,805	105,349,996	11,687,293
North Central division.....	2,196,567	2,014,138	123,469,068	3,072,456	1,899,026	2,416,327	43,416,629	69,828,121	716,663,710	74,208,117
South Central division.....	1,658,166	1,441,315	50,299,631	1,876,382	2,589,164	1,257,084	15,672,938	24,770,049	222,096,860	20,465,926
Western division.....	242,908	184,021	9,551,296	304,950	135,163	199,977	4,414,365	6,053,738	57,787,867	9,266,716
Alabama.....	223,220	191,383	4,737,066	129,236	243,657	76,947	1,409,269	2,263,346	18,778,960	1,825,978
Alaska.....	12	5	176	.....	.....	.....	166	179	1,043	360
Arizona.....	5,809	3,304	165,200	6,043	840	2,439	80,798	114,884	819,507	163,274
Arkansas.....	178,694	156,922	5,393,157	140,661	378,475	180,583	1,540,006	2,179,634	25,694,860	2,328,509
California.....	72,542	55,479	3,947,200	158,356	28,419	62,283	1,877,439	2,492,067	24,443,540	3,864,679
Colorado.....	24,700	19,281	968,761	30,781	2,576	15,002	393,219	587,536	5,704,290	852,978
Connecticut.....	26,948	23,064	1,073,026	7,717	3,530	14,100	644,050	984,207	7,959,430	1,523,319
Delaware.....	9,687	9,312	628,866	19,465	6,438	10,933	357,475	596,391	3,571,870	488,401
District of Columbia.....	269	95	8,004	46	16	227	3,108	5,480	42,580	6,492
Florida.....	40,814	34,950	1,107,516	32,869	36,658	6,877	394,557	574,703	4,214,186	553,534
Georgia.....	224,691	195,136	4,549,144	103,416	208,997	64,896	1,458,055	2,481,610	15,505,330	1,615,538
Hawaii.....	2,273	967	31,888	4,672	75	21,508	98,237	61,546	155,710	45,257
Idaho.....	17,471	12,739	516,412	10,211	3,850	9,536	203,127	282,468	2,879,590	465,504
Illinois.....	264,151	247,034	16,600,728	446,020	307,657	382,587	6,415,033	11,307,599	86,402,670	9,842,401
Indiana.....	221,897	208,652	11,103,006	345,379	271,004	230,432	4,222,409	8,172,993	70,782,200	7,441,944
Indian Territory.....	45,605	40,675	1,960,505	92,508	77,216	88,069	515,384	647,844	6,949,640	625,418
Iowa.....	228,622	214,832	18,907,673	424,306	223,612	487,752	6,535,464	9,491,819	99,621,920	10,016,707
Kansas.....	173,088	155,834	11,966,843	275,330	97,768	216,244	4,356,997	6,491,183	73,190,590	7,237,111
Kentucky.....	234,667	211,891	6,849,079	279,749	541,576	185,064	2,723,221	4,970,063	35,337,340	3,460,607
Louisiana.....	115,969	89,696	3,890,563	115,921	169,936	123,069	1,057,889	1,425,116	12,820,290	1,281,713
Maine.....	59,299	48,043	1,564,853	6,437	4,566	9,708	756,153	955,468	13,304,150	2,038,225
Maryland.....	46,012	42,295	2,113,544	101,782	33,389	56,930	1,158,020	2,077,490	12,511,450	1,572,682
Massachusetts.....	37,715	30,504	1,625,269	3,018	6,389	46,017	1,018,119	1,407,681	12,928,630	2,571,341
Michigan.....	203,261	185,241	8,033,521	191,863	73,267	106,399	2,685,829	4,551,945	54,318,410	6,104,462
Minnesota.....	154,659	136,623	7,730,940	193,143	90,975	127,635	2,274,649	2,927,717	43,208,130	4,437,148
Mississippi.....	220,803	187,562	5,194,586	189,698	357,963	95,668	1,655,319	2,387,494	18,942,070	1,871,705
Missouri.....	284,886	265,203	14,903,601	466,665	428,307	278,140	5,720,359	9,525,252	85,203,290	8,315,371
Montana.....	13,370	9,830	531,774	12,637	2,629	9,639	296,806	398,487	3,002,890	631,143
Nebraska.....	121,525	108,504	7,417,837	118,892	74,007	201,503	2,374,930	3,499,044	41,132,140	4,068,002
Nevada.....	2,184	1,690	100,661	3,618	880	2,379	55,826	71,175	589,490	122,522
New Hampshire.....	29,324	23,500	870,461	2,386	1,289	3,803	467,104	610,696	7,005,180	1,213,703
New Jersey.....	34,650	30,958	1,993,594	32,378	10,513	40,024	1,300,853	2,265,816	11,942,550	1,938,304
New Mexico.....	12,311	5,556	156,853	3,805	830	1,527	62,419	90,152	839,890	157,175
New York.....	226,720	206,389	8,964,736	190,879	45,933	150,864	4,310,755	6,161,429	62,096,690	8,630,062
North Carolina.....	224,637	196,721	3,871,858	120,737	234,424	102,942	1,434,158	2,689,970	17,704,020	1,810,116
North Dakota.....	45,332	34,464	1,409,285	39,073	17,206	23,816	477,358	594,761	7,438,400	782,790
Ohio.....	276,719	256,824	14,269,525	362,924	179,665	206,238	5,085,921	8,847,009	91,766,630	10,280,769
Oklahoma.....	62,495	51,012	2,527,353	86,450	12,934	71,562	900,743	1,302,460	13,724,900	1,284,414
Oregon.....	35,837	29,997	1,290,818	36,031	26,580	19,774	582,524	826,687	7,709,970	1,162,071
Pennsylvania.....	224,248	209,697	10,533,106	259,824	60,780	171,271	4,483,486	7,151,243	67,038,180	9,080,725
Rhode Island.....	4,898	4,866	500,618	4,604	6,335	8,957	305,047	398,790	3,217,310	656,845
South Carolina.....	155,355	132,401	2,664,784	120,140	83,543	39,852	899,953	1,539,755	9,007,700	925,966
South Dakota.....	52,622	44,756	3,028,700	53,740	33,334	62,511	856,966	1,020,382	17,349,750	1,727,392
Tennessee.....	223,623	207,562	6,184,210	193,397	391,698	202,432	2,275,864	4,282,740	31,807,990	3,115,335
Texas.....	352,180	304,713	13,562,302	648,671	415,709	234,664	3,595,243	5,311,362	58,040,810	4,672,000
Utah.....	19,387	16,145	534,842	10,649	2,759	8,503	186,922	282,563	3,387,340	424,628
Vermont.....	33,104	28,711	806,451	22,689	5,187	8,836	421,195	689,109	6,271,880	959,985
Virginia.....	167,886	154,123	4,590,311	207,675	125,495	117,989	1,886,768	3,744,654	25,550,460	2,836,899
Washington.....	33,202	28,340	1,196,639	29,155	64,488	66,433	614,838	848,291	7,473,790	1,259,225
West Virginia.....	32,874	28,041	2,759,585	105,265	129,948	58,273	963,805	1,843,752	17,242,400	1,877,676
Wisconsin.....	169,795	156,171	8,097,399	155,121	102,224	92,800	2,410,714	3,398,427	46,249,580	4,854,000
Wyoming.....	6,095	3,660	142,136	3,664	1,312	2,452	60,397	78,488	837,570	163,500



## Sharples "Tubular" FARM Cream Separators

The Wonder of the New Century. Greatest step ever made in advanced Cream Separator construction.

Superior as the Sharples Separators have always been, these Tubular machines are far ahead and completely distance every competitor. They are worth double the money because guaranteed under usual conditions to produce enough more butter than the best competing separator to pay fully six per cent interest on the whole first cost of the machine.

We absolutely warrant it and give free trial to prove it.

Our factory is running double turn, one gang all day and one all night, for the dairyman who sees this machine buys it.

In addition to yielding more butter it is very light running. A 400 lbs per hour tubular turns as easily as a previous 300 lbs per hour machine. No disks bother with and get out of order, no complications. Washed in two minutes. Top of milk vat waist high.

Highest award—Gold medal and special Knights decoration at Paris Exposition. Valuable book "Business Dairying and Catalog No 165, free. Sharples Co., Chicago, Ill., P. M. Sharples, West Chester, Pa.



## In the Dairy.

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

### Individual Difference in the Value of Dairy Cows.

The following summary is taken from Bulletin No. 66 of the Illinois Experiment Station:

There are vast differences in the efficiency and profit from individual dairy cows.

One cow may produce more than twice as much butter-fat in a year as another on exactly the same basis.

A good cow, well cared for, may produce five times as much as the average cow in the United States, or nearly as much as three "profitable" cows for Illinois.

Nearly all dairymen are keeping a portion of their herd at an actual loss.

Many keep cows that pay only half as much as a bushel for the grain consumed as other cows in the same herd.

Excellent cows are obtainable at a

reasonable price in nearly all sections of the country. (There is almost no dairying in this region, yet the cow Rose and several others nearly as good were purchased in this community for \$50 each.)

Give the cows a one-week test every three months; have a profitable standard; gradually raise it each year and dispose of any cows that do not come up to this.

Breed the best cows to a dairy sire of excellent breeding and individuality and raise the heifer calves.

### The Secret of Dairy Success.

F. F. FAIRCHILD, BEFORE THE TONGANOXIE FARMERS' INSTITUTE.

A man asked me the other day if I would tell him how to make money in the dairy business; he said, "If there is a secret in it, I would like to know it."

I said, "I will tell you. There is only one way to be successful and that is to study the capacity of your cows the same as you do your machinery, keep your eyes open and see that everything is in running order, don't feed too heavy or you will get up too much steam, give them enough but not too much and they will last the longer; and by all means let them rest six or eight weeks each year, and they will more than repay you."

It is not the large quantity of feed that makes the milk, but the quality; it is the heavy feeding that kills the cow. I know a man who lost thirty-five cows in five years. We keep about the same number as he does and have lost three in the last five years.

### Description of the Kansas Dairy School.

E. H. HODGSON, STUDENT.

The dairy school at the Kansas Agricultural College constitutes one of the principal departments of the institution, and is one of the best equipped for its purpose in the Middle West. The department occupies almost the entire lower floor of the large agricultural building, being divided into three different parts (besides several small store-rooms), viz., separating and churning, receiving and testing, and cheese room, all of which are fitted with modern dairy machinery. The separating room contains four large power separators with a capacity of about 3,000 pounds per hour for each machine, and six good hand separators with a capacity of about 400 pounds each per hour. Thus the student gets considerable practice with machinery. This also contains two large churns of 420 and 1,000 gallons respectively. There are several vats for various purposes, besides other

things that are needed in the process of butter-making.

The receiving and testing room contains a large 500 gallon vat into which is turned the milk received after it has been weighed and sampled. The milk is pumped from the large vat to the milk-heater in the adjoining room. This room also contains several tables upon which the testing boys work. There are five of the Babcock testers, three of them being steam and two of them hand testers, all of which are used by the students in their daily practice. The cheese room is somewhat larger than the testing room, but is not so large as the separator room. It contains four 50-gallon and one 500-gallon cheese vat, all arranged so that either hot or cold water may circulate around them and hold milk or curd at any desired temperature between 50 and 212 degrees. It also contains a large cheese press and various other small instruments such as milling machine, curd-cutter, etc.

These three rooms have the best of tile flooring sloping slightly toward a central drain. The walls and ceiling of the rooms are covered with opaque glass, which gives a very neat appearance as well as being durable and easy to clean. Hot and cold water may be had any time from various places about the buildings, the heating being done from a large boiler in the basement.

The students are required to wear clean white uniforms and the utmost care as to cleanliness is required. It is a requirement that vessels be cleaned from time to time during the day and on leaving at night everything must be left in the best of order for the commencement of work the next day.

The industrial work is accompanied by text-book work taught by very able instructors. This school has proven such a success that many students from all parts of the State (several of them being 30 years of age) have come to obtain knowledge before starting out to run skimming-stations and general work in the dairy line.

### Improper Care of Milk a Financial Loss.

H. V. NEEDHAM, BEFORE THE TONGANOXIE FARMERS' INSTITUTE.

I will try to show how money is lost by not properly caring for milk; and I am sorry to say that to many people the money side of the question is of vastly more importance than any moral aspect. It is well known that the cream trade brings more money in the warm months than does butter, and we are near enough to Leavenworth and Kansas City to get a good trade, but most of the dealers demand a good keeping cream. Ordinary commercial cream, 20 per cent cream as it is called, carries a good proportion of milk in it and this cream must be taken from milk that is pretty well on the road to sourness. Every patron knows about the clabbered milk in his cans when he gets home, or soon after. One of the large dealers in Kansas City told me that he would have bought large quantities of cream of us if it would only keep; but he had tried it several times and could not use it.

Now for the butter side. All butter made above our order trade must go on the market on its merits. Suppose the tubs, salting, grain, and color of the butter are perfect, but it lacks that high flavor so much coveted by consumers, it will probably go as first. It may not have a namable fault, only the desirable high flavor is lacking. Let us see what the difference is to our pockets. A recent number of Hoard's Dairyman quotes Chicago extras, 27; firsts, 25 and 26; Milwaukee extras, 28; firsts, 24; New York extras, 30; firsts, 28 to 29. All the way from 1 to 4 cents difference and out of the patron's pocket.

On the other hand there are creameries with such a fine reputation for

## — DE LAVAL — CREAM SEPARATORS.



HIGHEST AND ONLY REGULAR AWARD  
CHICAGO EXPOSITION, 1893.



HIGHEST AWARD AND ONLY GOLD MEDAL  
OMAHA EXPOSITION, 1898.



HIGHEST AWARD AND ONLY GRAND PRIZE  
PARIS EXPOSITION, 1900.



HIGHEST AWARD AND ONLY GOLD MEDAL  
BUFFALO EXPOSITION, 1901.

2000 PRIZES, MEDALS AND AWARDS.

Every Important World's Highest Award  
From 1880 to 1902.

THE DE LAVAL SEPARATOR CO.

SEPARATORS & CHURN, 875  
CHICAGO, ILL. General Office: 875  
1102 ARCH STREET, 74 Cortlandt Street, 74 & 77 York Street,  
PHILADELPHIA. NEW YORK. TORONTO.  
217-221 DUNDAS ST. 248 McDougall Avenue,  
SAN FRANCISCO. WINNIPEG.

## Notice to Dairymen

If you are thinking of buying a Cream Separator, write us for catalogue and information. We manufacture the best machine on the market.

DAVIS  
CREAM SEPARATOR CO.  
54 to 62 No. Clinton St.,  
CHICAGO, ILL.



The Easiest to Operate, the  
Closest Skimmer, Simplest and  
most Durable, is the  
KNEELAND OMEGA  
Cream Separator.

We want you to know how good it is  
before you buy any other kind. Send  
for our free book, "Good Butter  
and How to Make It."  
The Kneeland Creamery Co.,  
25 Concord Street, Lansing, Mich.

fancy goods that they contract their output at one-half cent to one cent above extras and they do something else, too; they put a man with a highly cultured nose at the weigh can and the law of these Medes and Persians is that every can of milk that is below a certain standard goes home. I believe it

## CO-OPERATION.

The time has come when co-operation has reached the dignified place of a successful business principle. The success of capitalist and laborer are inseparable—the success of one means the success of both. Especially is this true of the dairy business. Call it a trust if you please, but when every creamery man, grocer, dairyman, and even the cows and the calves, are banded together for honest business success, it means general prosperity for them and all dependent upon them.

## How We Do It.

We leave the price out of our hands. This is all there is to it. We pay on the basis of the New York market, the highest and most stable market in the country. We pay 2 1-2 cents below that market for butter fat in cream separated and in can at railroad stations. If we separate, weigh, test, and ship it we charge you the actual cost of running the skimming station. If you do the separating and the rest, we charge you nothing.

## How About the Market?

Our station operators are furnished with the New York Produce Review every week. This paper contains the latest New York market reports and being the leading market paper of the country its reports are of necessity absolutely reliable. You can see these papers for yourself by asking our operators for them, or we will furnish you with reports on application. Our patrons get all the rise in the market. We are doing our business on a small margin and depend upon the size of the business to make our increased profits. Fairness and honest co-operation is our business policy and our success shows that our efforts are appreciated. Try a Continental milk check. They are the best happiness-producers in the country. See our operators or write us.

The Continental Creamery Co.,  
Topeka, Kansas.

## WHY SHOULD YOU BUY

a cream separator? Because, if it is a good one, it will save you Time, Labor and Money, and Improve the Quality and Quantity of your Calves and Pigs, as well as of your Cream and Butter. The value of warm, sweet skim milk for feeding, is often overlooked, but is an important item. Why should you buy



## A U.S. CREAM SEPARATOR?

Because it is the best. It is not only "The Kind that Gets all the Cream," but it is the most Substantially Made, and saves its users money by wearing longer and not causing them to spend money for repairs like other makes, that are complicated and imperfectly made.

For further information, write for illustrated catalogues  
VERMONT FARM MACHINE CO., Bellows Falls, Vt.



will not be long until creameries will adopt another standard, the acid test, and all milk showing slightly acid will be paid for at about one cent per pound. The creameries using cream from hand separators will adopt it first and the whole milk establishments will have to follow suit or be left.

We have built up a business here that brings in over \$30,000 a year with a higher outlook than ever. No less than six different localities within the last few months, have asked to be taken into our system, three of them with outfits. It would be a matter of pride to every citizen if our present business could be nearly doubled, but the management is determined not to lower our standard of excellence of product or of the price paid to the farmer; and not only this, but we would like to pay you better prices, and we can do this if you, my brother farmers, will but view the subject in its true light. It is up to you now, as the boys say, and what will you do about it?

#### How Dairying Has Progressed.

Less than a century ago dairying did not receive much attention. Each farmer had just cows enough to supply his family with milk and butter, which seemed to be all that was necessary at that time.

The utensils that were used were mostly of wood, such as wooden buckets, bowls which were very poor for this purpose, because of their being hard to clean properly, and when such things are not cleaned properly bacteria develops very rapidly, causing the milk and butter to have a bad flavor.

After tin-ware became more common it was a great aid, as it is much easier cleaned than the old wooden buckets, and was used instead of wooden vessels. It was also seen that to make good butter the milk should not be allowed to stand for so long a time as was necessary for the cream to raise. To remedy this a separator was invented with which the cream could be taken from the milk as soon as it was drawn from the cows and this prevented the growth of bacteria to a great extent.

Later in the century it was found that a certain bacteria could be developed in cream which would give the butter a better flavor, and coloring was added to improve the general appearance of the butter. All of these improvements have increased the dairy business until at the present day dairying is one of the most profitable occupations in the United States.

ED. LOGAN.

#### Dairy Notes Worth Considering.

When milch cows grow fat there is a tendency for the milk cans to go empty.

To have the milk in the best shape to produce good flavored butter it should be kept at a temperature of 60° or below, and should never be allowed

to go above 70° from the time it is cooled until it reaches the weigh can.

In these days of fierce competition it is not enough to know what the herd averages, but we must be able to pick out those animals that are bringing the average down. We will then be in a position to tell how much we can profitably feed our cows, and thus increase or decrease this feed in accordance with the element of profit.

Gov. Hoard says that we should treat the cow with as much respect as we would a lady, and thinks that it would do no harm to even tip our hats to her. Contrast this treatment with that received by most of our Kansas cows and we need not be surprised that they sometimes become offended and make their protest at the milk pail.

The owner of a race-horse would not think of feeding all corn. He knows too well that his horse could not begin to make his best record when thus fed. Neither would the soldier fill his cannon with all powder, nor again with all cannon balls. He knows the effect he wishes to produce and gauges the different elements entering his machine accordingly. The cow-owner should be no exception to the rule.

If a patron will sit down and take the yield of butter-fat from one of his cows by months during her period of lactation, and then, with the prices of butter-fat by months before him, figure out the cash he would receive if the first month of lactation came in April, and again if it came in October, he would doubtless obtain results that would astonish him. From records and prices of butter-fat before us, we find that there are differences of over \$4 per annum in favor of the cow that comes in in the fall. But this is not all. The fall cow will give a good flow of milk during the winter, and when grass comes in the spring she will receive a second stimulus in milk production, and the total product for the year will be more than if she calved in the spring. The calves will also do better, since there will be more time to attend to them, and the skim-milk will be returned in a good sweet condition, and by spring they will be ready to turn on grass. The work on the farm will be more evenly distributed throughout the year.

The greatest success in the line of stock foods in America is accorded to the International Stock Food Company, Minneapolis, Minn., as will be observed by reference to their series of new and attractive advertisements appearing from time to time in the Kansas Farmer. The \$3,000 stock book which they send free has been an educator, in the way of improved stock as well as in improved methods of feeding all classes of live stock, and they do a larger acceptable business than any other firm in their line. Notice their advertisement on page 579 and in writing them do not fail to mention the Kansas Farmer.

To make cows pay, use Sharples Cream Separators. Book, "Business Dairying" and Catalogue 237 free. West Chester, Pa.

## More Milk. More Money.

Cows will give 15 to 20 per cent. more milk if protected from the annoyance of flies with Childs' So-Bos-So Killyfly. It is a thorough fly and insect killer, and it absolutely destroys all bacterial germs. It allays nervousness in horses as well as cows and keeps both in better general condition by the comfort it gives. For scours in calves, hog cholera, and foul in calves' feet it has no equal. It is perfectly harmless to man and beast and may be rapidly applied with Childs' Electric Sprayer.



Mr. Jacob Steibel, Supt. to the Hon. John E. Parsons, Lenox, Mass., says: "I have used So-Bos-So Killyfly with good results. It is a comfort to both man and beast at milking time." Ask your dealer for SO-BOS-SO or send \$2.00 for 1 gallon can and sprayer complete, express paid to any point east of Mississippi river.

CHAS. H. CHILDS & CO., Sole Mfrs., 18 LaFayette Street, UTICA, N. Y.

## Brain Markets.

Conducted by James Butler, Secretary of the Farmers' Co-operative Grain and Live Stock Association.

"The human race is divided into two classes,—those who go ahead and do something, and those who sit still and say, 'why wasn't it done the other way.'"—Oliver W. Holmes.

Mr. James Butler, Secretary, Topeka, Kans.—Your letter of the 16th inst. at hand. I am glad your association has done so well. I am one of those who were in Salina a year ago. I received benefits more than the stock cost me in selling my last year's crop here as they paid nearer the market price for wheat since the Salina organization than they ever paid before. You may be sure that I will do all I can to aid the association whenever opportunity offers. Wishing you success, I remain,

DAN MCCARTHY.

Hays City, Kans., May 21, 1902.

It is to be regretted that all the farmers can not see their own interest and patronize cooperative institutions in the matter of handling their grain. The regular grain dealers throughout the State have paid a higher price for wheat wherever a cooperative buying station has been established. This is proven by the fact that they have paid from 2 to 5 cents per bushel nearer the Kansas City market than they have for the past ten years. Because these grain dealers, wishing to kill this association, have paid as much and in some cases more than we could afford to pay is taken advantage of by them and heralded broadcast as positive proof that the regular grain dealer can pay the farmer more for his wheat than he can get out of it through cooperative associations. This is not a fact and the farmers would soon find it out if the central association should cease doing business. The grain trust can fool all of the farmers some of the time, it can fool some of the farmers all of the time, but it can not fool all of the farmers all the time.

The cooperative plan of handling grain as contemplated and being worked out by this association aims at nothing less than the handling and marketing of the farmers' grain at actual cost. To accomplish this the association charges 1 cent a bushel commission on wheat and out of this commission is paid all the running expenses of the association, and if any part of it is left over after the expenses are paid it will be paid back to the members in proportion to the amount of business furnished by each member. If this association had charged the same commission that the regular grain dealers were charging before its organization they would have had several thousands of dollars in the treasury to have paid back as dividends, but the plan on which we have been working has left all this money with the farmer. This plan has not only benefited the membership of this association but it has benefited every farmer who has sold wheat, as it has forced the regular dealer to advance his prices up to or a little above that obtained by the cooperative company. If he had not done this his extortionate profits would have been visible to everybody.

Mr. Butler is visiting several local associations this week assisting them in their organization work and looking after the interests of the central association in general. During his absence W. C. McConnell, Morehead, Kans., is in charge of the office and is responsible for what appears in his department this week.

The personal fight that has been put up against Secretary Butler during the past few months instigated, we believe, by representatives of the grain trust, shows very plainly the ideas of the enemy. They consider Butler the main stay of the cooperative movement in the grain business and they think by crushing him they will kill the move-

ment in Kansas and thus stop its spread to other States. Butler has labored long and faithfully for the farmers, and his loyalty to the cause is proven by hundreds of acts of self-sacrifice for their good. To the personal knowledge of the writer, Mr. Butler has refused an offer from another institution at double the salary paid him by this association. It is this self-sacrifice and loyalty to their cause that makes the farmers love him.

The farmer is compelled to occupy a twofold position. First—he must be an agriculturist; he must know how to raise good stock and good crops; he must study carefully all the minute details of his work, so as to know how to get the best results for his work. Second—he must be a business man and in that capacity he must study the general crop conditions, he must study the market to enable him to sell his product at a profit. If he should neglect the latter he will be just as much of a failure as if he neglected the former. It is one thing to raise a good crop and altogether another thing to be able to dispose of it at a good profit. Good business judgment is on the side of cooperation, and every farmer in the State should study this proposition very carefully. It is the only thing in sight now that offers the farmer any chance of getting a fair price for his products. The man who will not investigate is standing in his own light.

If one farmer out of every five in this State would subscribe and pay for one share of stock in this association, it would have sufficient capital to construct storage elevators in various parts of the State, to store all of the surplus products. This would be a great benefit to the farmers as they could then store their grain and take their elevator receipts and use them as collateral with the banks if they needed money, and hold their grain until the price suits them. That would be a case of eating your pudding and having it. The low price of grain immediately after harvest as a result of throwing the bulk of the crop on the market at once would thus be obviated. The plan is practical and the farmers have the means of securing these elevators if they want them.

On the 16th inst. we sent a personal letter to each of our members. This was the occasion of our first birthday, and we felt proud that the trust had not eaten us up body and soul. We are no spring chicken any more and the trust will find us growing tougher every day now. It was a great deal of work to get out all those letters, but we felt that the members would appreciate the information contained therein. Now we hope that each one will do as requested and secure at least one member for this association. By doing this each member will be contributing to the success of the organization. We always feel proud of an institution when it can be said that we helped to make it a success.

The central association is contemplating the addition to its office force of a thoroughly competent and experienced grain man to take charge of the sales department. This is a much needed addition and Secretary Butler has more work to do now than one man can possibly look after. With this addition Mr. Butler can devote more of his time to the general organization work of the association. This addition is necessitated by the increasing patronage of the company. May the good work go on until the central association shall handle all of the grain of the State.

As a rule one's friends do not attempt to murder or injure him in any way. They will rather defend his honor and protect his interest. Watch the people, if there be any, who are fighting your organization. Evidently they are not your friend or they would want to benefit you rather than do you an injury.

# The Way That Loses ..Money..

The Old Way. The Hard Way. The Long Way. The Poor Way.

Dairyman.	Milk Hauler.	Skimming Station.	Creamery.	Consumer.
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# The Way That Pays.

The New Way. The Short Way. The Easy Way.

Dairyman.	Creamery.	Consumer.
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The road from the Dairyman to the Consumer on the skimming station route is a long, rough, and tedious road. The man that takes it has an expensive trip. For every Ten Dollars realized, there is Six and a half expended. The road from the Dairyman to the Consumer on the new route, the Hand Separator Route, is a short, smooth, and delightful road. The trip is cheap. For every Ten Dollars realized, there is less than One expended. Do you want to reach the consumer by the new route? If so, write to the

**BLUE VALLEY CREAMERY CO.,**  
ST. JOSEPH, MISSOURI.

Pioneers of the Best Creamery System On Earth.



## Special Want Column.

"Wanted," "For Sale," "For Exchange," and small or special advertisements for short time will be inserted in this column, without display for 10 cents per line of seven words or less, per week. Initials or a number counted as one word. Cash with the order. It will pay. Try it.

SPECIAL.—Until further notice, orders from our subscribers will be received at 1 cent a word or 7 cents a line, cash with order. Stamps taken.

### CATTLE.

FOR SALE—Shorthorn cows—three aged cows, two heifers by Rosemond Victor 12th, cows bred to Jubill Knight (126088). D. B. Hostetler, Hope, Kans.

RED POLL BULLS FOR SALE—From 7 to 11 months old. D. F. Van Buskirk, Blue Mound, Kans.

D. P. NORTON, Dunlap, Kansas, has a few young bulls, by British Lion, fit for service the coming season.

TEN REGISTERED HEREFORD BULLS FOR SALE—\$75 to \$125; 3 unregistered thoroughbred bulls, \$50 to \$80; 60 grade cows, \$35 to \$50; with calves. R. J. Simonson, manager Cherry Red HEREFORDS, Cunningham, Kingman Co., Kans.

FOR SALE—Two registered Angus bulls, 14 to 18 months old; good ones. R. L. Milton, Stafford, Kans.

FOR SALE—My entire herd of high-grade Hereford cows and heifers; also one registered Hereford bull 18 months old. A. Johnson, Clearwater, Kans.

FIVE HEREFORD BULLS FOR SALE—Never used in a herd, they are in fine fix, at a bargain for cow men. O. L. Thistler, Chapman, Kans.

FOR SALE—Six good Shorthorn bulls, four of them straight Cruickshanks; prices reasonable; now is your chance to get a good individual. H. W. McAfee, Topeka, Kans.

TWO full-blood Polled Angus bulls, without pedigree, can be bought very cheap at Conrad Kruger's ranch. Address Hays, Kans.

FOR SALE—Three pure Cruickshank-Shorthorn bulls. Call on or address H. W. McAfee, Topeka, Kans.

SHORTHORN CATTLE SALE—I will offer at public sale, 1 1/2 miles south of Marysville, at 2 o'clock p. m., on Tuesday, October 15, 17 registered Shorthorns, 19 high grade Shorthorns, and 3 thoroughbred Jerseys. Lewis Scott, Marysville, Kans.

### HORSES AND MULES.

FOR SALE—One Clyde stallion, 3 years old May 14, weight 1,610 an extra good horse, fine style and action; will sell him right if sold soon. H. W. McAfee, Topeka, Kans.

FOR SALE—Black Percheron stallion Monthaber 13162 (24057), 12 years old, weight 1,900 pounds; an extra breeder; price \$400. Address G. W. Southwick, Riley, Kans.

PROSPECT FARM—CLYDESDALE STALLIONS, SHORTHORN CATTLE and POLAND CHINA HOGS. Write for prices of finest animals in Kansas H. W. McAfee, Topeka, Kansas.

### SHEEP.

FOR SALE—100 head of well-bred Shropshire ewes. Reason lack of pasture. Correspondence solicited. B. A. Sponseller, Emporia, Kans.

WANTED—To get pasture for 400 grade Shropshire sheep, or put them out on shares, or sell them. Would give time on part. W. W. Cook, Russell, Kans.

### FARMS AND RANCHES.

FREE 200 printed farm and ranch descriptions in 5 counties, 55 m. from K. C. Prices, maps, statistical book. Write G. Winders, Ottawa, Kans.

FARM FOR SALE OR EXCHANGE—I have a large farm in eastern Kansas. I would like to exchange for a smaller one, or land that would do for a sheep ranch. For further particulars inquire of John Morrison, Drexell, Mo.

160 Acres, 7-room house, timber, bottom land, well located. Buckeye Agency, Agrícola, Kans.

SOME BARGAINS in farms and ranches. Correspondence solicited. J. M. Patten and Co., Dighton, Kans.

### MISCELLANEOUS.

IF YOU HAVE small fruit to gather, send for a set of patent, steel, thumb-nail Stem Cutters, 25 cents post-paid. Special prices to dealers and agents. Give diameter of thumb. Made in assorted sizes. E. O. Bevan, Pekin, Indiana.

FOR SALE—Five hundred Angoras with registered bucks. Three hundred-acre ranch, excellent water and climate; price \$2,000. Write for particulars. L. H. Hall, East Las Vegas, New Mexico.

GAS-RELEASEING BIT—Write to Wilbern Bush 711 North Market Street, Wichita, Kans., and ask for his circulars showing his great invention for preventing bloat in dairy cattle and other stock. Every farmer would save money by using this bit.

DR. CLARK'S Instant Relief and Absolute Catarrh Cure. One month's treatment 50 cents. J. C. Whitaker Medical Co., 375 Oak Street, Chicago, Ill.

FOR SALE—20 iron rain-water tanks at \$1.50. 111 East 6th St., Topeka, Kans.

WANTED—Pasture for cattle, or will lease a good pasture. E. W. Melville, Eudora, Kans.

COLLIE PUPPIES for sale, 3 1/2 months old, unexcelled in breeding, and individual qualities, \$6 and \$4. Address J. W. Babbitt, Hiawatha, Kans.

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

WOOL WANTED—Will pay highest market price for wool. Sacks for sale. Topeka Woolen Mill Co., Oakland, Kans.

THE BEST CUP OF COFFEE and plenty of good things to eat. Farmers' trade a specialty. Come and get something good. The Two Minute Restaurant, 532 Kansas Ave., Topeka, Kans.

FOR SALE—Feed mills and scales. We have 2 No. 1 Blue Valley mills, one 600-pound platform scale, one family scale, and 15 Clover Leaf house scales, which we wish to close out cheap. Call on P. W. Griggs & Co., 208 West Sixth Street, Topeka, Kans.

WOOL WANTED—We have just completed our New Woolen Mill in North Topeka and want at once 200,000 pounds of wool for which we will pay the market price. Write us if you have wool for sale. Western Woolen Mill Co., North Topeka, Kans.

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POLAND-CHINA PIGS! In order to reduce my large stock quickly will make very low prices for 30 days. Boars ready for service, young sows bred or not—in fact any kind or size of pig you want. Quality first-class. Write now for description and price. H. W. Cheney, North Topeka, Kans.

CHESTER WHITE BOAR—For sale, 20-months boar by Eclipse. Sure breeder and guaranteed to be all right. Call at Seabrook, or address Robert Stone, 501 Jackson Street, Topeka, Kans.

FANCY POLAND-CHINA Boars; of fall furrow ready for use, sired by full brother of Missouri Sweepstake Winner; Priced to sell. A. M. Jordan, Alma, Kans.

### SEEDS AND PLANTS.

FOR SALE—A few bushels of Whippoorwill cow peas, hand-picked seed, \$2.25 per bushel; bags 20 cents. J. T. Smith, Independence, Kans.

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CANE-SEED—KAFIR-CORN—Choice white Kafir, choice cane-seed. All home-grown, thoroughly tested and warranted to grow; \$2 per 100 lbs., sacked in jute sacks f. o. b. Kremlin, O. T. M. T. Williams & Co.

MAMOTH YELLOW SUEY-BEANS—Fine seed, best variety to grow; price, \$2.25 per bushel. Wm Bowby, Lone Elm, Kans.

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WANTED—If you wish to buy or sell corn, oats, hay, cane seed, Kafir-corn, corn chop, or anything in the feed line, correspond with us. Western Grain & Storage Co., Wichita, Kans.

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J. A. ROSEN, Patent Attorney,  
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AGENTS WANTED TO SELL NURSERY STOCK. 40 per cent to good, competent men.  
Hart Pioneer Nurseries, Fort Scott, Kansas.

## The Stray List.

Week Ending May 29.

Montgomery County—D. S. James, Clerk.  
MARES—Taken up by J. H. Brinker, five miles southeast of Coffeyville, in Cherokee tp. (P. O. Coffeyville), May 15, 1892. One iron grey mare, 5 or 6 years old, weight 800 or 900 pounds, branded half moon and double bar underneath brand on left hip; valued at \$20. One light bay mare, branded H on left shoulder, weight 900 or 1,000 pounds; valued at \$30.

## ROSE HILL HERD OF DUROC-JERSEY HOGS

Boars ready for service, gilts bred for fall pigs, and also for early spring farrow. Pigs now ready for shipment. S. Y. THORNTON, Blackwater, Mo.

## VERMILLION HEREFORD CO. VERMILLION, KANSAS.

Imported Alberta 2d blood. Boatman 58011 at head of herd. A few excellent, young bulls for sale. Contributor to Marshall Co. Hereford Ass'n Annual Sale. E. E. WOODMAN, Vermillion, Kansas.

## Wild Tom Herefords.

SUNNY SLOPE TOM 14th AT HEAD.  
Contributor to Annual Sale Marshall County Hereford Association.  
A. H. BIRD, AXTELL, KANSAS.

Weston Stamp Herd REGISTERED . . . HEREFORD CATTLE  
Anxiety 4th females with Weston Stamp 9th at head. Contributor to Annual Sale Marshall County Hereford Association.  
WM. ACKER, Vermillion, Kansas.

## Ash & Creek & Herd REGISTERED HEREFORDS

Anxiety 4th females with Edwards 113325 at head  
WM. BOMMER, Marietta, Kas.  
Contributor to Annual Sale Marshall County Hereford Association.

## Spring Branch Herd Original Stocks & Sons HEREFORDS.

Alliant females with Jim Wilton 106761 at head.  
MRS. A. J. STOCKS and C. D. HOLMES, OWNERS.  
Address C. D. Holmes, Mgr., Blue Rapids, Kas.  
Contributors to Annual Sale Marshall County Hereford Association.

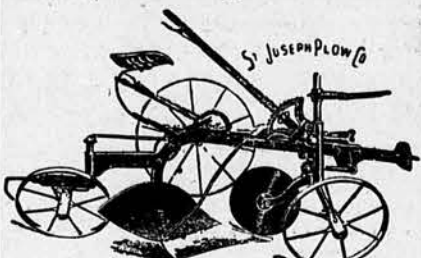
## Capital Bluff Stock Farm. PURE-BRED HEREFORDS.

Baechalaureate 81587, bred by Gudgell & Simpson, at head of herd. Write for prices now.  
Contributor to Annual Sale Marshall County Hereford Association.  
I. D. YARICK, Blue Rapids, Kansas.

## North Elm Creek Herd Pure-bred Shorthorns and Poland-Chinas

Scotch-topped Young Mary females with 9th Knight of Elmwood 161507 at head. (See Vol. 48, Shorthorn herd book. Call on, or write,  
W. J. Smith, Oketo, Kas.

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July 1 to 18, inclusive.

\$19.00 To Denver, Colorado Springs, and Pueblo, Col  
June 1 to 21, inclusive.  
June 25 to 30, inclusive.

\$25.00 To Salt Lake City and Ogden, Utah.  
August 1 to 14, inclusive.

\$25.00 To Glenwood Springs, Col.  
June 22 to 24, inclusive.  
July 1 to 18, inclusive.

\$30.00 To Salt Lake City and Ogden, Utah.  
June 22 to 24, inclusive.  
July 1 to 13, inclusive.

\$31.00 To Glenwood Springs, Col.  
June 1 to 21, inclusive.  
June 25 to 30, inclusive.

\$32.00 To Salt Lake City and Ogden, Utah.  
June 1 to 21, inclusive.  
June 25 to 30, inclusive.  
July 14 to 31, inclusive.

\$45.00 To San Francisco or Los Angeles, Cal.  
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\$45.00 To Portland, Ore., Tacoma and Seattle, Wash.  
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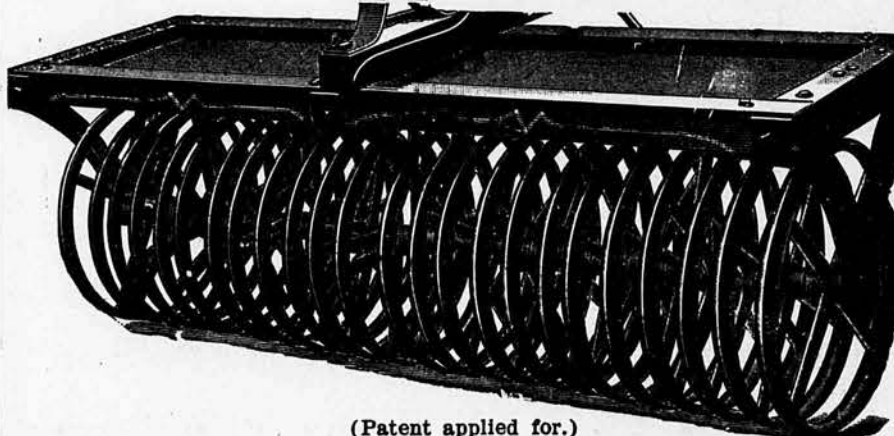
**The Superior Cream Extractor.**  
"It Gets the Cream"—20 per cent more than by setting in pans.  
WATER IS NOT MIXED WITH MILK  
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And principal points in Texas and the Southwest. This train is new throughout and is made up of the finest equipment, provided with electric lights and all other modern traveling conveniences. It runs via our now completed  
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Every appliance known to modern car building and railroading has been employed in the make-up of this service, including  
**Café Observation Cars,**  
under the management of Fred. Harvey. Full information as to rates and all details of a trip via this new route will be cheerfully furnished, upon application, by any representative of the  
**FRISCO SYSTEM**

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Can be used East or West.  
Can be used at any time.  
Can be used on anything planted in rows.  
Will pack anything planted in rows as well as prepare a good seed-bed.  
It is no experiment.  
One rolling is equal to one inch of rain.



**PAGE**

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don't turn out well, Turn Everything Out of it with PAGE 16-Bar, 48-Inch Garden Fence. The six bottom wires are only 2 inches apart. Close?

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

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may be spoiled by a bad fence.

**If You Use**

**Advance Fence**

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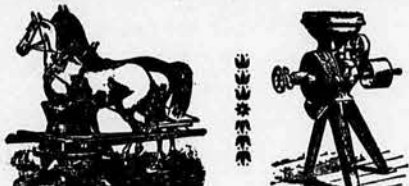
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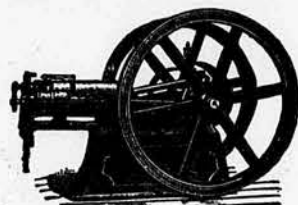
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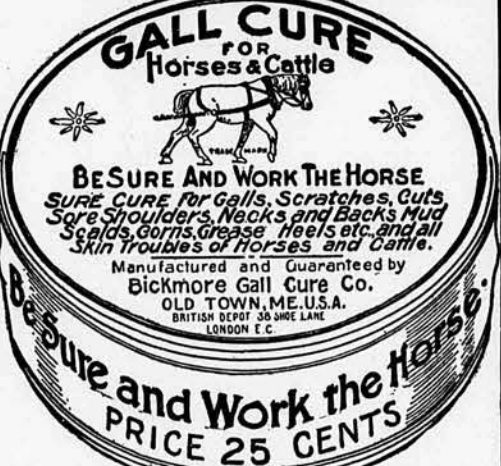
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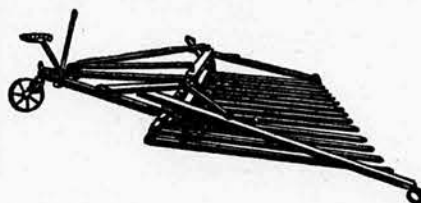
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Account Annual Meeting Benevolent and Protective Order of Elks. Tickets on sale August 7-8-9-10. Good returning as late as September 30.

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G. C. Clemens, is a man of deep intellect and wide experience. He is considered one of the foremost lawyers in this country. In a recent letter to the Dr. Miles Medical Co., Mr. Clemens says:

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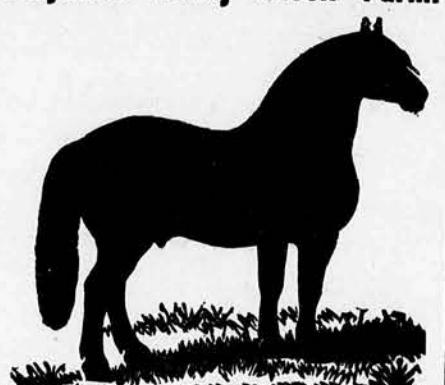
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Three of them, 3 years old, balance 10 to 20 months, in good, serviceable condition, by Cruickshank and Scotch-topped sires. This is the best and evenest lot of bulls we ever raised. Prices moderate. **A. B. & F. A. HEATH, Republican, Neb.**

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In young SHORTHORN BULLS got by the great Scotch sire Bar None, he by the great Abbottsford; pure Scotch and Scotch-topped. Fine, registered 3-yr. old Clyde Stallion for sale now.

**Write THOS. ANDREWS & SON, Cambridge, Nebraska.**  
**H. O. TUDOR, HOLTON, KANSAS.**  
**BILL BROOK BREEDING FARM,**  
**(REGISTERED SHORTHORNS),**

Comprising cattle from the following well-known families, (topped with the best Scotch and Bates blood): Rose of Sharon, Zella, Belina, Ruby. This is a select draft from my herd and will constitute one of the best offerings of the year 1902. Also breeds registered and high-grade Angora goats.

## ROME PARK STOCK FARM.

**T. A. HUBBARD, Rome, Kans.,**

...BREEDER OF...

**Poland-Chinas and**  
**Large English Berkshires.**

FOR SALE—12 Berkshire boars and 20 bred sows and gilts, 20 Poland-China boars, and 50 bred sows and gilts.



**STEELE BROS., Belvoir, Douglas Co., Kans.,**

\* \* Breeders of SELECT \* \*

## HEREFORD CATTLE

Young Stock For Sale. Inspection or Correspondence Invited.



## Bulls Cut Price 30 Days.

We have a carload of registered Bulls, 12 to 20 months old, several are pure Scotch and herd headers. Will sell singly, or in lots to suit purchasers. These bulls were sired by Lord Mayor 112727 and Knight's Valentine 157068, both Scotch bulls. The dams of these bulls are splendid cows with from two to five Scotch-top crosses. We desire to close these out during the next 30 days and for that reason will sell at reduced prices.

**T. P. BABST & SONS, Auburn. (R. F. D.), Shawnee Co., Kans.**



## GLENDALE SHORTHORNS.

Imp. Prince Lovely 155860 and Scotland's Charm 127264  
 IN SERVICE

Young Bulls, Cows, and Heifers for sale at all times.  
**O. F. WOLF & SON, Ottawa, Kans.**

## T. K. Tomson & Sons,

\* \* Proprietors of \* \*

## Elderlawn Herd of Shorthorns.

DOVER, SHAWNEE COUNTY, KANSAS.

Gallant Knight 124468 and Imported Tellycalm in service. A choice lot of serviceable bulls, and a few bred cows for sale. Correspondence and inspection invited.

## Sunny Slope Herefords

...200 HEAD FOR SALE...

Consisting of 40 good Cows 3 years old or over, 10 2-year-old Heifers bred, 50 yearling Heifers, and 100 Bulls from 8 months to 2 years old. I will make VERY Low Prices on any of the above cattle. Write me or come and see me before buying.

**C. A. STANNARD, Emporia, Kans**



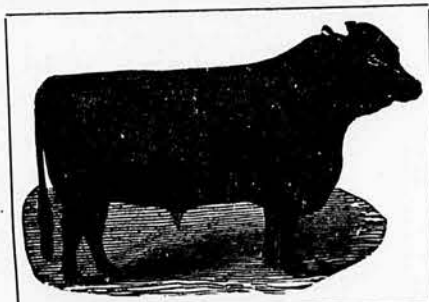
## Pearl Shorthorns.

**YOUNG BULLS FOR SALE**  
 sired by the Cruickshank bulls La-fitte 119915, and Baron Ury 2d 124970, ranging in age from 8 months to 2 years.

Inspection Invited

**C. W. TAYLOR, Pearl, Dickinson Co., Kans.**

## 100 ABERDEEN-ANGUS CATTLE FOR SALE



### 50 Aberdeen-Angus Bulls

Coming 1 year old, weighing about 750 pounds.

### 50 Yearling Heifers

Sired by the registered bulls: Hummel 23993, Ebbitt 31509, Heather Lad of Estill 2d 17440, Emmert P 36728, Regnal Doon 32728, and Gardner Mine 32240.

Bulls from my herd have, probably, during the last three years produced more market-topping steers than have been produced from the bulls of any other herd of Angus cattle in the United States during this time. My cattle are full blooded by breeding up but are non-registered. These cattle are on my farm adjoining Frankfort, 75 miles west of Atchison on the Missouri Pacific Railroad.

For further information, call on or address **O. H. BUTLER, Frankfort, Kans.**

## COMBINATION SALE

....OF....

## SHORTHORN CATTLE

TO BE SOLD

**TUESDAY, JUNE 17, 1902, AT 1 P. M.,**

AT THE

**SALE PAVILION, AT KANSAS CITY STOCK YARDS,**  
**KANSAS CITY, MO.**

The cattle are all selected, and from the following well-known herds:

**N. H. GENTRY, Sedalia, Mo., 6 head**  
**SAM W. ROBERTS, Pleasant Green, Mo., 16 head.**  
**A. A. WALLACE, Bunceton, Mo., 10 head.**  
**GENTRY BROS., Sedalia, Mo., 6 head.**  
**JUNE K. KING, Marshall, Mo., 10 head.**  
**GALLAGHER & MEYER, Highland Station, Kans., 6 head.**

The cattle represent the Scotch and Bates in their purity and other good standard families, well topped with the best of Scotch and Bates bulls. Catalogues on application to

**JUNE K. KING, Marshall, Mo.,**  
**Or Any Consignor.**

## SCOTT & MARCH

BREEDERS OF PURE BRED

## HEREFORDS.

BELTON, CASS COUNTY, MO.

BULLS in service, HESIOD 29th 44904, Imp. RODERICK 80155, MONITOR 53275, EXPANSION 93662, FRISCOE 93674, FULTON ALAMO 11th 83731.

25 miles south of Kansas City on Frisco; Ft. Scott & Memphis; and K. C., P. & G. Railroads

**J. G. PEPPARD,**  
 1101 to 1117 West 8th St.  
 (Near Santa Fe St.)  
**KANSAS CITY, MO.**

**MILLET CANE**  
**CLOVERS**  
**TIMOTHY**  
**GRASS SEEDS.**

## SEEDS

## BLACKLEGINE

Pasteur Blackleg Vaccine ready for use.

Single Blacklegine (for common stock): No. 1 (10 doses) \$1.50; No. 2 (20 doses) \$2.50; No. 3 (50 doses) \$6.00. Double Blacklegine (for choice stock) \$2.00 for 10 doses, first lymph and second lymph inclusive. Blacklegine Outfit, for applying Blacklegine, 50 cents.

## Pasteur Vaccine Co.,

Chicago, New York,

Ft. Worth, Denver, San Francisco.

## Vaccinate Your Cattle

PARKE, DAVIS & CO.'S BLACKLEGIDS (Blackleg Vaccine Pills)

WILL POSITIVELY PROTECT THEM FROM BLACKLEG.



Our Blacklegids afford the simplest, safest, surest method of vaccination. No filtering is necessary, no measuring, no mixing. Each Blacklegid is an exact dose, and it is quickly and easily administered with our Blacklegid Injector.

While still marketing our "Blackleg Vaccine Improved," we recommend the use of our Blacklegids because of their absolute accuracy of dosage and their ease of administration. Ask your druggist for them and you will get a vaccine that is reliable, a vaccine that has stood every test. Write us for literature—free on request.

**PARKE, DAVIS & CO., Detroit, Mich.**

Branches: New York, Kansas City, Baltimore, New Orleans, Chicago, Walkerville, Ont.; Montreal, Que.; London, Eng.