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BREEDERS' DIRECTORY.

Cards of four lines or less will be inserted in the Breeders' Directory for \$15 per year or \$8.00 for six months; each additional line, \$2.50 per year. A copy of the paper will be sent to the advertiser during the continuance of the card.

HORSES.

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Write for prices of finest animals in Kansas. H. W. McAfee, Topeka, Kas.

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98 score 35 lb. young Bronze tom mated to 97½ point 20 lb. pullets. Eggs \$3 for 9. B. P. Rocks and L. B. Brahmas, score 92½ to 94½, eggs \$1.50 for 15. Cornish Indian Games, score 92½ to 93½, eggs \$2.50 per 15. Who can beat these prices, quality considered? I have a handsome lot of fall Poland-China males good enough to go anywhere. Write. Mention FARMER. GEO. W. NULL, Odessa, Lafayette Co., Mo.

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J. W. BABBITT, HIAWATHA, KAS. BREEDER OF Reg'd Berkshires Swine 45 in herd, headed by Lord Majestic 34708, a son of Imp. Lord Windsor 30461; dam Imp. Majestic 30460. 6 boars, 12 glts, by Model Duke II. 22467, and 9 fall of 1894 farrows, both sexes, for sale. Write or come.

BERT WISE, breeder of Poland-China Hogs, Holstein Cattle and Barred Plymouth Rock Chickens of choicest strains. Butler's Darkness No. 6346 S. and Ideal U. S. Nemo at head of swine herd. Only choice stock shipped on order. Sows bred and a few extra good young boars for sale. Three are out of my Orient sows. Write your wants. Satisfaction guaranteed. BERT WISE, Reserve, Brown Co., Kas.

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N. E. MOSHER & SON, SALISBURY, MO. Fifteen choice Poland-China sows bred to Mosher's Black U. S. and Faultless Wilkes for sale; ten choice young boars ready to go; six young Hereford bulls. Also eggs for sale from Black Langshans scoring 94 to 95½ and from a choice lot of Light Brahmas and Mammoth Bronze turkeys.

W. S. ATTEBURY, Rossville, Kansas. BREEDER OF Chester Whites Exclusively. Young stock at all times. Satisfaction guaranteed.

J. R. KILLOUGH & SONS, Richmond, Franklin Co., Kansas, POLAND-CHINA SWINE.

Headed by Upright Wilkes 13246 and assisted by J. H. Sanders Jr. 13739. Our brood sows are all richly bred and high-class individuals. A fine lot of fall pigs, both sexes, ready to go at reasonable prices.

BARRED PLYMOUTH ROCKS EXCLUSIVELY. All high-scoring birds. Have bred Plymouth Rocks for thirteen years. Yard headed by cockerels scoring from 92½ to 94 points, including a cock sired by the World's Fair winner, scoring 94 points by H. P. Hare, and a 93½ point cock from I. K. Felch's yards. Have shipped eggs to all parts of the United States. Eggs \$1 per thirteen or \$2 for thirty. I guarantee satisfaction. Send for circular. D. B. CERRY, Knoxville, Marion Co., Iowa.

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SUNNY SLOPE FARM, C. S. CROSS, Proprietor, Emporia, Kas.

Breeder of PURE-BRED HEREFORD CATTLE. Herd headed by Wild Tom 51592, a son of Bean Real 11055 and assisted by sons of Cherry Boy 26475, Archibald 1st 39258 and Washington 22615. 200 head, all ages, in herd. Strong in the blood of Lord Wilton, Anxiety and Horace. A choice lot of young heifers, fit for any company. Bulls all sold. Correspondence solicited, or, better still, a personal inspection invited.

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G. W. GLICK, ATCHISON, KAS. Breeds and has for sale Bates and Bates-topped SHORT-HORNS. Waterloo, Kirklevington, Filbert, Cragg, Princess, Gwynne, Lady Jane and other fashionable families. The grand Bates bulls Winsome Duke 11th 115137 and Grand Duke of North Oaks 11th 115735 at head of the herd. Choice young bulls for sale now. Visitors welcome. Address W. L. CHAFFEE, Manager.

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Thoroughbred Duroc-Jersey Hogs Registered stock. Send for 44-page catalogue, prices and history, containing much other useful information to young breeders. Will be sent on receipt of stamp and address. J. M. STONEBRAKER, Panola, Ill.

JOHN KEMP, North Topeka, Kas., breeder of Improved Chester White Swine. Stock of both sexes for sale. Correspondence invited.

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B. K. ADAMSON, Prop., Ft. Scott, Kas. 25 highly-bred brood sows of best strains, headed by Black Dandy 8809 S., Black Skop 10550 S. and Joker Wilkes 12682 S. About 100 selected individuals sold this season. 25 youngsters coming on now for choice. Write or come and visit my herd.

Quality Herd Poland-Chinas.

For first choice pigs from stock producing winners of seven prizes World's Fair. Darkness Quality 2d and Ideal U. S. by Ideal Black U. S. head the herd. Both first-prize winners Kansas State fair 1894. Come or write your wants. Willis E. Gresham, Burrton, Kas. Secretary Kansas Swine Breeders' Association

MAINS' HERD OF POLAND-CHINAS. JAS. MAINS, Oskaloosa, Kas. (Jefferson County.)

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Winterscheidt Bros., Prop'rs, Horton, Kas. Headquarters for Admiral Chip pigs. The great \$250 boar, Admiral Chip 7919, heads the herd, assisted by Kansas Chief 13676, Winterscheidt Victor 13294, Geo. Wilkes Jr. 11833. Also pigs from Orient's Success 27259 and Banner Chief 12714. Sows of following strains: Tecumseh, None Such, Wilkes Admiral Chip, etc. Prices reasonable. Write or come

D. W. EVANS' HERD REGISTERED POLAND-CHINAS. FAIRVIEW, BROWN CO., KAS.

250 head headed by Swi Tecumseh 11929 S., by L's Tecumseh 11413 S., and Billy Wilkes 9309 S., by George Wilkes 5350 S. A public clearance sale on Thursday, February 14, 1895, of 75 sows bred to these and other noted boars. Inspection invited.

(Breeders' Directory continued on page 16.)

FARMERS!

Prevent Your Hogs From Rooting By Using the Genuine



WOLVERINE

HOG RINGER and RINGS.

Best and Cheapest in the market. For sale at Hardware and General Stores. Made by Heesen Bros. & Co., Tecumseh, Mich.

The Stock Interest.

THOROUGHED STOCK SALES.

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

SEPTEMBER 6—Walter Latimer, Garnett, Kas., Poland-China swine.
OCTOBER 4—Winterscheidt Bros., Horton, Kas., Poland-China swine.
OCTOBER 9—Geo. W. Null, Odessa, Mo., Poland-China swine.
OCTOBER 22—F. M. Lall, Marshall, Mo., Poland-China swine.
OCTOBER 23—C. G. Sparks, Mt. Leonard, Mo., and G. L. Davis, Elmwood, Mo., Poland-China swine.
OCTOBER 30—L. N. Kennedy, Nevada, Mo., Poland-China swine.

THE FEEDING OF FARM ANIMALS.

[From Farmers' Bulletin No. 22, United States Department of Agriculture.]

PRINCIPLES OF FEEDING.

The feeding of farm animals, like the use of fertilizers for crops, rests upon well-defined principles. Our knowledge of these principles has been derived from the studies of the chemist and the animal physiologist on the composition and functions of food and the way it is utilized after it is eaten. These studies have shown that the materials of the body are continually breaking down and being consumed, and that to keep the animal in a healthy and vigorous condition there must be a constant supply of new material. If this is lacking, or is insufficient, hunger and finally death result. To keep up this supply is one of the chief functions of food, but in addition to this the food maintains the heat of the body and at the same time furnishes the force or energy which enables the animal to move the muscles and do work and also to perform the necessary functions of the body. In furnishing heat and energy the food may be said to serve as fuel. If, in addition to repairing the wastes of the system and furnishing it with heat and energy, growth is to be made, as in the case of immature animals, or milk secreted, an additional supply of food is required. To supply food in the right proportion to meet the various requirements of the animal without a waste of food nutrients constitutes scientific feeding. It is by carefully studying the composition of feeding stuffs, the proportion in which they are digested by different animals and under different conditions, and the requirement of animals for the various food nutrients when at rest, at work, giving milk, producing wool, mutton, beef, pork, etc., that the principles of feeding have been worked out. In applying these principles in practice the cost of different feeding stuffs must be taken into account.

COMPOSITION OF THE ANIMAL BODY.

The animal body is made up mainly of four classes of substances—water, ash or mineral ingredients, fat and nitrogenous matters. The proportion in which these four classes of substances occur depends upon the age of the animal, treatment, purpose for which it is kept, etc.

Water constitutes from 40 to 60 per cent. of the body and is an essential part. From 2 to 5 per cent. of the weight of the body is ash. This occurs mainly in the bones. The fat varies greatly with the condition of the animal, but seldom falls below 6 per cent. or rises above 30 per cent. The nitrogenous materials or protein includes all of the materials containing nitrogen; all those outside this group are free from nitrogen, or non-nitrogenous. The nitrogen referred to here is the same as that mentioned in connection with fertilizers, and is the element which constitutes about four-fifths of the atmosphere. It occurs in plants and animals in various compounds grouped under the general name of protein. Lean meat, white of the egg and casein of milk (curd) are familiar forms of protein. The flesh, skin, bones, muscles, internal organs, brain and nerves—in short, all of the working machinery of the body—are composed very largely of protein. The albuminoids are a class of compounds included under protein.

COMPOSITION OF FEEDING STUFFS.

The food of herbivorous animals contains the same four groups of substances found in the body, viz., water, ash, protein (nitrogenous materials), and fat; and in addition to these a class

of materials called carbohydrates, defined below.

Water.—However dry a feeding stuff may appear to be—whether hay, coarse fodder, grain or meal—it always contains a considerable amount of water which can be driven out by heat. The amount may be only from eight to fifteen pounds per 100 pounds of material, as in hay, straw or grain, but in corn fodder and silage it amounts to nearly eighty pounds, and in some roots ninety pounds. This water, although it may add to the palatability of a food, is of no more benefit to the animal than water which it drinks, and from which the chief supply is derived. For this reason, and because the proportion of water varies very widely, comparisons of different kinds of foods are usually made on a dry or water-free basis, which shows the percentage of food ingredients in the dry matter.

Ash is what is left when the combustible part of a feeding stuff is burned away. It consists chiefly of lime, magnesia, potash, soda, iron, chlorine and carbonic, sulphuric and phosphoric acids, and is used largely in making bones. From the ash constituents of the food the animal selects those which it needs and the rest is voided in the manure. As a general rule rations composed of a variety of nutritious foods contain sufficient ash to supply the requirements of the body. Corn, however, is poor in ash, and when fed extensively may need to have added to it additional ash material, as wood ashes, charcoal or bone meal.

Fat, or the materials dissolved from a feeding stuff by either, includes, besides real fats, wax, the green coloring matter of plants, etc. For this reason the ether extract is usually designated *crude fat*. The fat of food is either stored up in the body as fat or burned to furnish heat and energy.

Carbohydrates are usually divided into two groups, nitrogen-free extract, including starch, sugar, gums and the like, and cellulose or fiber, the essential constituent of the walls of vegetable cells. Cotton fiber and wood pulp are nearly pure cellulose. Coarse fodders, like hay and straw, contain a large proportion of fiber, while most grains contain little fiber, but are rich in starch, sugar, etc. (nitrogen-free extract). The carbohydrates form the largest part of all vegetable foods. They are not permanently stored up as such in the animal body, but are either stored up as fat or burned in the system to produce heat and energy. They are one of the principal sources of animal fat.

Protein (or nitrogenous materials) is the name of a group of materials containing nitrogen. All other constituents of feeding stuffs, the ash, fat and carbohydrates, are non-nitrogenous, or free from nitrogen. Protein materials are often designated as "flesh formers," because they furnish the materials for the lean flesh; but they also enter largely into the composition of blood, skin, muscles, tendons, nerves, hair, horns, wool, and the casein and albumen of milk, etc. For the formation of these materials protein is absolutely indispensable. No substances free from nitrogen can be worked over into protein, or fill the place of protein. It is, then, absolutely necessary for an animal to be provided with a certain amount of protein in order to grow or maintain existence. Under certain conditions it is believed protein may be a source of fat in the body; and finally it may be burned, like the carbohydrates and fat, yielding heat and energy.

[Some investigators assert that protein may entirely take the place of carbohydrates, but that, on account of its relative scarcity, it is poor economy to use it for this purpose.—EDITOR KANSAS FARMER.]

The sources of heat and energy in the animal, then, are the protein, fat and carbohydrates of the food and the fat and protein of the body, for the fat and protein of the body may be burned like that in the food. The value of the fat for producing heat is nearly two and a half times that of carbohydrates or protein. The sources of fat in the body are the fat, carbohydrates, and, probably, the protein of the food; and the exclusive source of protein in the

body is the protein in the food. These groups of food materials are termed nutrients, as they furnish the nutriment of the body.

The composition of feeding stuffs, or the proportion in which the nutrients occur, is determined by chemical analysis. A large number of analyses of American feeding stuffs have been made. These analyses have been compiled and are summarized in tables.

These tables show how great are the differences in composition between different kinds of feeding stuffs. Take the case of protein, for instance. In straw this varies from 3 to 4 per cent.; in hay of grasses from 6 to 8 per cent.; in hay of clovers, cow peas and the like from 12 to 16 per cent.; in grains from 10½ to 12½ per cent.; and in by-products it reaches 33 per cent. in linseed meal, 42 per cent. in cottonseed meal, and 47½ per cent. in peanut meal. Protein, like its counterpart, the nitrogen in fertilizers, is the most expensive element, and a considerable amount of it is absolutely essential to growth.

DIGESTIBILITY OF FEEDING STUFFS.

The tables just referred to give the total amounts of nutrients found by analysis in different feeding stuffs. But only a portion of these amounts is of direct use to the animals, i. e., only that digested. A part of the food is dissolved and otherwise altered by the juices of the mouth, stomach and intestines, absorbed from the alimentary canal, and in the form of chyle passes into the blood and finally serves to nourish and sustain the body. This portion is said to be digested and assimilated, and from it alone the animal is nourished. The other portion, the part not digested, passes on through the body and is excreted as manure.

As the rates of digestibility are not constant for different foods, and as only the digestible portion is of any nutritive use to the animal, it is essential to know in the case of each feeding stuff what part of its protein, fat and carbohydrates (the total quantity of which is shown by analysis) is actually digested by the animal. This is determined by digestion experiments with animals, and to secure approximately accurate figures the trials are repeated with a large number of animals and under various conditions. The figures obtained represent the percentages of the nutrients digested and are called digestion co-efficients.

In the case of wheat straw, for instance, on an average 23.4 per cent. of the protein which it contains, 35.6 per cent. of the fat, 55.5 per cent. of the fiber, and 38.7 per cent. of the nitrogen-free extract, is digested by cows. The table of composition shows wheat straw to average 3.4 per cent. of protein, or 3.4 pounds of protein in 100 pounds of straw. As only 23.43 per cent. of this is digestible, 100 pounds of straw would contain only 0.8 pound of digestible protein. The remaining 2.6 pounds of protein are voided and do not aid in nourishing the animal. The amounts of digestible fat and carbohydrates (fiber and nitrogen-free extract) are calculated in a similar way. The digestibility of such coarse fodders as straw, coarse hay, etc., is relatively low. The digestibility, like the composition, varies for the same kind of feeding stuff grown under different conditions and fed to different animals.

(To be continued.)

Battle of the Breeds—Polled Reds.

EDITOR KANSAS FARMER:—Referring to Jno. Witschy's article of the 8th inst., I desire to say: In my article on Red Polled cattle, in issue of April 24, I did not intend to sully the fair record of any improved breed of cattle. But, that I might give some idea of Red Polled, it was necessary to draw a comparison with some of the better known breeds. However, for my remark concerning the milking with "thumb and index finger," I expected to be slaughtered by some of the Channel Island cattle fraternity. If my Teutonic friend from the Alpine Republic will look at my "comment" once more, he will see that I did not refer to the Holstein as having small teats. As to the beef qualities of that breed, I am willing to let public opinion, backed by actual tests on the block, decide. Our friend also says: "As for the horns, I think the Almighty gave them to the

SPECIFIC FOR SCROFULA.

"Since childhood, I have been afflicted with scrofulous boils and sores, which caused me terrible suffering. Physicians were unable to help me, and I only grew worse under their care. At length, I began to take



AYER'S

Sarsaparilla, and very soon grew better. After using half a dozen bottles I was completely

cured, so that I have not had a boil or pimple on any part of my body for the last twelve years. I can cordially recommend Ayer's Sarsaparilla as the very best blood-purifier in existence."—G. T. REINHART, Myersville, Texas.

AYER'S

THE ONLY WORLD'S FAIR
Sarsaparilla

Ayer's Cherry Pectoral cures Coughs and Colds

Holstein for an ornament." If you have ever seen the Devil pictured, he always has horns. I suppose they were given his Satanic majesty for an ornament. At least they contribute to his personal appearance about as much as do horns ornament a cow.

Mr. Witschy advises that "it would be well for me to have some more experience." This I accept, with thanks, and am endeavoring to acquire it.

I am not so egotistical as our Holstein admirer, who says: "I am a Swiss. The most noted country for fine cattle is Switzerland, and I have been with them ever since I could drink milk, and have handled many different breeds, unfortunately not the Red Polled, but I find enough extra in the Holstein to convince me that I want no others." How logical is such argument! Because he is a Switzer, was a herdsman in his native land, lived in a chalet while he watched the cattle graze on the mountain side and drink from the beautiful lakes, he thinks that a breed of cattle which he has not tried must not be compared with his favorites. "Verily, he is joined to his idols."

Yet, I admire our Teutonic friend for standing up for his favorites. Each farmer should select the breed he admires, but let it be one of the pure breeds. They all have their merits; and let his motto be "Excelsior." And after all these breed controversies, "each one, as before, will chase his favorite phantom." As for me, I will chase the reds, the all red, and always red.

Relative to Polled Durhams, I wish to say, the fact that Short-horn breeders are trying to establish a polled strain shows the trend of public opinion on the horn question.

I desire to ask Mr. Howes where his Polled Short-horns get the remaining 12½ per cent.? He states that they must be 87½ per cent. Short-horn before they can be registered. Also, where do they get their always red color? Is it not a fact that they are a mongrel—a cross between the Short horns and Red Polleds—and that such cattle can be produced from Short-horn cows and a Red Polled bull the first cross? What per cent. of the calves from horned cows and the so-called Polled Short-horns will be "muleys?" The name Polled Short-horn itself, is a misnomer. Just think of a pure breed of cattle being established in seventeen years! And such, Mr. Howes says, is true of the Polled Durhams, and states that all calves of registered Short-horn cows bred to Polled bulls are eligible to registry in the Polled Herd Book, provided they (the calves) are hornless. Now, I understand that the dam of such calves has horns; the sire is 87½

Irrigation.

COLLECTION AND STORAGE OF WATER IN KANSAS.

By Prof. E. C. Murphy, of Kansas State University.

This problem is one of the greatest importance to the people of Kansas. We have such a large amount of land which is practically useless without water, and which is exceedingly productive when irrigated. We also have a large amount of water running to waste in our streams, which not only is doing us no good, but doing much harm in the way of destruction of property along the banks.

Some idea of the value of water for irrigating purposes may be gotten from the prices paid for it in southern California. At Los Angeles a flow of from two to four cubic feet second for twenty-four hours sells for \$2; at Orange a "head," equal to about two cubic feet second for twenty-four hours, sells for \$2.50; at Riverside a flow of one cubic foot second for twenty-four hours sells for \$3. Mr. J. P. Flynn, C. E., has estimated that a flow of one cubic foot second under favorable circumstances for all time is worth in southern California \$40,000.

This is a very complex problem; there are so many factors on which its solution depends. The principal ones are: Physical features of the surface, rainfall, evaporation and percolation.

There are three possible sources of water supply in Kansas—surface water flowing in the streams; storm water, which may be stored in draws, and underground water.

The rivers of Kansas, with one exception, the Arkansas, are rivers of the plains; their source of supply is the rain falling on the plains. They have a large and sudden flood flow, and a very small flow during dry spells. Some of them have no visible water in them for weeks at a time. They rise quickly during a heavy rain and subside rapidly after the storm is over. They flow over and through formations which are readily eroded, and hence carry a large amount of sediment. The beds of some of the larger ones being sandy have a considerable underflow; this is especially true of the Arkansas and Cimarron.

The Arkansas being a mountain stream, differs from the other Kansas rivers in having a flood flow in May, due to the melting of mountain snow. This flood flow does not last long in Kansas, as so much of the water is used by the people of Colorado for irrigating purposes. During the remainder of the year it resembles the other plains rivers.

The only published measurements that I have seen of the flow of Kansas streams are those for the Republican, Smoky Hill, Kaw, Solomon and Saline, made by Prof. Hay and published in the United States Irrigation Report in 1893. They are as follows:

River.	Place.	Date.	Volume, Cubic ft. sec.
Kaw	Fort Riley	June 13, '91	8961
Republican	Scandia	June 10, '91	1534
Republican	Junction City	June 15, '91	2045
Smoky Hill	Ellsworth	June 8, '91	380
Smoky Hill	Law Junction City	June 15, '91	961
Solomon	Beloit	June 19, '91	270
Saline	Lincoln	June 8, '91	125

These seven single measurements are good as far as they go, but they are too few to be of any value in making estimates. The Arkansas, Cimarron and other streams might be included in this table since their visible flow is nothing at times. Measurements of flow, to be of much value in computing water supply and storage, should be made daily or oftener for a period of years.

The mean annual rainfall in Kansas varies from about forty-five inches in the southeastern part to less than fifteen in the southwestern part. On the accompanying map we have drawn the curves of mean annual rainfall for each five inches variation. They are drawn from the rainfall records of thirty-four places in Kansas published in the biennial reports of the Board of Agriculture. The length of these records varies from two years in the western part of the State to thirty-three in the eastern part. The western curves are based on so little data that they may be changed a good deal by future

data. Another fact in regard to these records must be kept in mind; some of them are older than others, and their mean may be considerably above or below the mean of a later period.

These curves extend approximately northeast and southwest, except in the northwestern part of the State, where they bend to the northwest. They are considerably nearer together in the eastern half of the State than in the western half.

We are concerned with the maximum and minimum rainfall as well as the

mean. The future storage basins of Kansas will probably not be large enough to store a supply of water for more than one year, so that the water from the minimum rainfall is all that the farmer is sure of. The maximum should be known in order to properly proportion the spillway and thus insure the permanence of the works.

The rainfall varies a good deal in Kansas from year to year. In Table I. we give the maximum, minimum and mean annual rainfall, and length and time of record in twenty-one places in Kansas.

TABLE I.

Place.	Years of observation.	Maximum annual rainfall.	Minimum annual rainfall.	Mean annual rainfall.	Years of record.
University of Kansas, Lawrence	25	44.18	24.25	35.65	1868-93
Agricultural college, Manhattan	33	45.86	15.17	30.81	1868-90
Leavenworth city	21	52.06	22.45	37.98	1872-92
Dodge City	18	38.55	10.69	20.87	1875-92
Independence	20	55.04	26.56	43.01	1873-92
Washburn college	14	43.28	23.23	33.93	1872-92
Wellington	12	40.49	19.70	31.88	1879-90
Fort Scott	10	62.60	29.25	42.13	1843-52
Fort Larned	11			20.61	1861-77
Fort Wallace	5	16.35	6.57	13.21	1870-74
Fort Hays	7			22.77	1869-74
Eureka ranch	10			18.77	1891-90
Concordia	5	34.47	17.61	27.38	1898-92
Allison	5	29.87	19.89	24.35	1894-98
Salina	6	30.60	20.80	26.93	1893-98
Sedan	5	44.53	23.22	35.47	1898-92
Toronto	5	48.68	28.86	36.51	1898-92
Cawker City	5	30.50	12.86	21.90	1897-73
Atchison	7			43.97	1884-90
Cunningham	7	31.65	20.29	25.72	1885-90
Halstead	6	32.40	21.40	26.92	

From this table (I.) it is seen that the maximum annual rainfall is more than three times the minimum at some of these places—Dodge City, for example.

TABLE II.

MONTHLY RAINFALL.															Extent of Record.....
Place.	Jan..	Feb..	Mar..	April..	May..	June.	July..	Aug..	Sept..	Oct..	Nov..	Dec..	Mean.		
Lawrence.....	1.26	1.28	2.29	3.17	4.05	4.94	4.26	3.60	3.60	2.89	1.87	1.61	34.66	1868-88	
Independence.....	1.52	2.18	3.08	3.68	4.23	5.75	4.03	3.23	3.72	2.98	1.99	2.97	44.25	1873-88	
Manhattan.....	0.79	1.16	1.46	2.03	3.03	4.06	4.56	4.67	3.51	3.31	2.45	1.41	0.90	30.89	1868-87
Salina.....	0.89	0.82	0.95	3.03	3.83	4.83	4.50	3.63	1.80	2.52	0.43	0.77	28.93	1883-88	
Wellington.....	0.71	1.12	1.24	3.28	4.89	4.44	3.99	2.91	3.80	3.28	0.99	1.05	32.05	1879-88	
Allison.....	1.26	0.80	1.31	3.11	3.14	2.93	4.18	2.65	1.76	1.17	0.43	0.76	24.35	1884-88	
Dodge City.....	0.37	0.55	0.82	1.58	3.86	3.37	3.37	3.14	1.23	1.24	0.57	0.76	20.91	1875-88	
Fort Wallace.....	0.09	0.20	0.07	1.75	2.74	1.03	2.82	1.20	1.23	2.38	0.46	0.10	13.21	1870-74	

Table II. gives the mean monthly rainfall at eight places in the State. It shows how the rain is distributed during the year. It is least during the winter and increases until June, when it is four or more times greater than in January. The variation in the monthly rain for any month from year to year is quite great; for example, Chancellor Snow's record shows that in August, 1882, the rainfall was 0.09 inches, while in August, 1888, it was 9.09 inches, the latter being 100 times the former.

The places in Table II. are chosen so as to show the variation in the monthly rainfall over the State. The first two places are in the eastern part, the next three in the east central, the two following in the west central and the last in the extreme western part. It will be seen that as the mean annual rainfall decreases, the proportion of it falling during the winter decreases.

(To be continued.)

Fall Irrigation of Fruit Trees.

J. R. Haines, of Larimer county, Colorado, writes to *Arid America* the following account of his method with fruit trees:

"I want to give your readers the benefit of an experiment I have tried on my nine acres of bearing fruit trees, consisting of apples, plums and cherries. I watch my trees close in the fall, and on the first indication of leaves turning yellow, or brown, I turn on the water, and it is surprising to see, even this late in the season, the change the leaves take on, becoming fresh and green, and ordinarily will hang on three to five weeks longer, thus delaying their blooming next spring proportionately. I have tried this experiment for the past three years, and think it worthy the trial of all who have orchards in this section of the State. I noticed your advice of planting late-blooming varieties, which I consider valuable, yet if by the means which I have followed we can secure additional safety by this late irrigation, it will be worth much to horticulture in the West. I feel assured that I am right on this proposition, as my trees have bloomed on an average three weeks later than other orchards in my neighborhood, securing a full crop while they did not exceed over one-half."

Ponds.

EDITOR KANSAS FARMER:—Seeing so much in your paper about irrigation and State appropriations, and having lived in the central part of Kansas for twenty-four years, I will venture to tell you what I believe would be a great benefit to Kansas farmers as a rule. It is for every farmer who has eighty or 160 acres of land and has a ravine or large draw that can be dammed up, to dam it, so as to hold a large body of water, and thereby hold our surplus water that falls in winter and summer. We get heavy snows in winter. They are drifted into the roads and along the hedges, from off the land. They thaw and go into the ravines, then to the small streams, then to the large streams, and out of the country in a very few days. The rains in summer go the same way. By the aid of ponds we could hold the most of that water in the vicinity where it falls. If every farmer that could have such a pond would make it, the State would have a vast amount of water held in our land, and especially in the central and western parts of the State, where we need the influence of water so much. The evaporation from such a large body of water must be of some benefit to us, as I believe it would help us to have more rains and heavy dews and moisture in general. Most of us would rather feel the cool breeze from a large pond than the hot winds from a dry piece of land, and there would be more or less water soak back into the soil, thereby helping our wells and springs; and the farmer so minded could have fish in plenty. These ponds could be built in the dry part of the fall and early winter when there is not so much work to be done on the farm, and without State aid, too. Besides, it would be of benefit to stock in hot weather. But farmers must all go to work, one not wait for another. We would rather have twenty-five men make ponds and one man miss than to have twenty-five farmers fail to make their ponds and one thrifty man make his pond. In other words, we must all make them if

we are to get the greatest benefit from them. With the combined efforts of all we would have a large body of water divided equally all over the country from our snows and heavy rains. This, I think, would be much better for us than to have it all leave the country in so short a time, and a pleasanter climate would result.

In conclusion, let me say to all farmers, make more ponds; plant more trees for wind-breaks. By so doing have more shade in summer; not so much stock sheltered by barb wire fence in winter; help beautify the country in general. We could have more fuel to use, and not have to sell grain for less than it is worth and buy coal at a very high price.

A. T. REMER.

Aulne, Marion Co., Kas.

The Water Supply.

An irrigation outfit is pumping water at the rate of 650 gallons per minute for whoever wants it. It is a centrifugal pump, operated by Charlie Love's traction engine. The customer puts down a four or six-inch point, and when the water is needed the outfit comes to his place and pumps water for him at the rate of 75 cents per hour.

To give people an idea of the almost inexhaustible supply of water underneath us, S. H. Brown mentioned a few facts the other day. On Tuesday morning, Love's irrigating outfit came to his place, and after a half day's work had sunk a six-inch point thirty feet into the ground. The centrifugal pump was then attached, and with steam power the water was drawn up at the rate of 650 gallons per minute. This continued for a day and a half, without any perceptible fall of the water in the well, the gauge then indicating ten feet. There is no trouble about the water supply. All that is needed is the work to raise it to the surface.—*Sterling (Rice Co.) Bulletin and Gazette.*

Thursday morning we visited the old Worrell farm, now occupied by Mr. Richter. He has a Menge pump with a capacity of 60,000 gallons of water per hour, operated by a small engine. The water is taken from an artificial lake which has been scooped out to the underflow. At the time we visited the farm there was not sufficient water to keep the pump in constant operation but as often as the lake is pumped out, men and horses with scoops are put to work dredging the bottom deeper into the water with a constantly increasing supply. The water is carried to the fields direct from the pump by means of a ditch, and then by the use of furrows applied to the growing crops, and rows of fruit trees. Mr. Richter has three fields of Irish potatoes, twenty acres in all, that are looking fine, and in one field of which, containing eight acres, the young potatoes are setting on and are from the size of a shot to a small marble. His orchards are loaded with apples, plums and cherries, and a fair show for peaches. The recent cold weather did not damage his fruit to any extent. When Mr. Richter gets his lake completed, he thinks he will be able to water his large farm in a single week.—*Garden City Imprint.*

Chiddix Bros., of North Topeka, have purchased from Fairbanks, Morse & Co., of Kansas City, an irrigation plant, consisting of a three-horse-power gasoline engine and a No. 1 centrifugal pump. With this they will lift the water a height of nineteen feet, from Soldier creek, for the irrigation of their truck farm.

Parr Bros., of Topeka, have purchased from the Weber Gasoline Engine Co., of Kansas City, an irrigation plant, consisting of a nine-horse-power gasoline engine and a centrifugal pump. Water is to be lifted about twenty feet, from Shunganunga creek, and applied by means of underground porous pipes of the manufacture of W. S. Dickey, of Kansas City.

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Weekly Weather-Crop Bulletin.

Weekly Weather-Crop Bulletin of the Kansas Weather Service, for week ending May 20, 1895.—T. B. Jennings, Observer Weather Bureau, Director:

CONDITIONS.

A cool week, the temperature remaining below normal the entire week except the 18th. But little rain has fallen except in the central counties of the eastern division, where fair to good rains occurred on the 15th, reaching one inch and over in Osage and Anderson.

RESULTS.

EASTERN DIVISION.

Corn is growing slowly; wheat headed short, with no improvement in condition; oats, grass and flax need rain very much; fruit still holding its own. Gardens and potatoes are making some progress. Frosts have nipped corn and vegetables in localities even as far south as Coffey.

Anderson county.—The cold, raw weather of the week is not benefiting our crops.

Bourbon.—There is much complaint of chinch bugs.

Brown.—Wheat is firing badly and bugs are working in it; oats are turning red; corn is being cultivated; gardens and pastures show the need of rain.

Chautauqua.—Corn looking well; oats heading very short; much local damage done by hail on 15th.

Cherokee.—Crops have about held their own except wheat, which cannot make over half a crop; fruit badly blown off; strawberries about half a crop, owing to dry weather.

Coffey.—The cold winds have retarded grass, flax, corn and oats, but corn is rooting deep and will make good growth with warmer weather; trees loaded with fruit; frost on 17th cut some corn and vegetables.

Doniphan.—The dry, cool weather is

stroyed by cut-worms have been replanted, but it is too dry to germinate the seed; everything at a stand; pastures are dying out, and stock water is very scarce.

Woodson.—Oats and flax have made the most improvement; corn is doing well, though growing slowly; the cold winds scorched the apple tree leaves on the north sides.

MIDDLE DIVISION.

It has been a hard week on crops, the conditions being continuously unfavorable—frosts, dry weather and sudden changes in the temperature, with much wind, doing the work. Corn is still the best crop, though cut-worms have damaged it considerably.

Barber.—Very dry; pastures and all kinds of crops damaged.

Barton.—No wheat; oats and barley four to six inches high and fired badly; alfalfa looking fine; corn has come up well in western part of county, not half up yet in eastern; fruit dropping badly; the frosts were severe and did much damage.

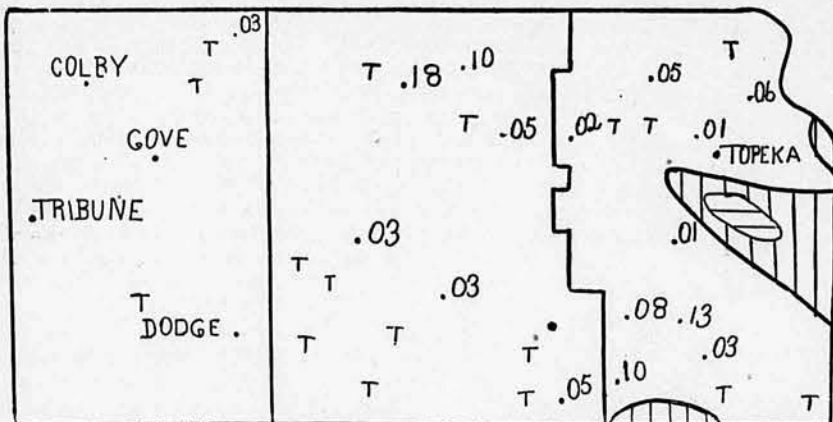
Clay.—Wheat, rye and oats drying up very seriously; corn about half a stand; many wells, springs, creeks and artificial ponds are dry; pasture feed getting short.

Cloud.—Tender vegetation injured by frosts; cool weather beneficial rather than otherwise, but rain is needed.

Cowley.—Not much advancement in the crops, too dry; some are cultivating corn and some are replanting.

Dickinson.—Wheat and oats getting worse every day, many fields will not be cut; corn standing still; fruit largely fallen off, except peaches, which look well and promise a good crop.

Harvey.—Too dry for all vegetation; corn, oats, potatoes, etc., greatly injured by frost; everything except corn retrograding; wheat on point of heading out but has made no progress since



ACTUAL RAINFALL FOR WEEK ENDING MAY 18.

bad on oats and corn; fruit all right; wheat half a crop.

Douglas.—Not much damage from the frost; corn looks yellow; oats showing effects of dry weather; potatoes all right.

Elk.—Oats and wheat about gone; flax doing poorly; corn needing rain badly.

Greenwood.—Not enough rain to benefit crops; much wind this week.

Johnson.—Frost damaged some corn and potatoes on low ground; chinch bugs at work in some places.

Labette.—Corn is clean; oats heading out four to twelve inches high and will make short crop; wheat will not go over half a crop; frost bit some corn.

Lyon.—Growing crops in good condition; frost slightly damaged fruit.

Marshall.—Cold and dry; some damage to fruit and oats by frost; corn has made no gain on account of low temperature.

Montgomery.—Dry weather, frosts and wind made this the worst week of the season on crops; corn on well-prepared ground is growing slowly; some wheat indicates a half crop; cherries nearly all killed, other fruits damaged.

Osage.—Crops somewhat benefited by the rains; corn looks well and is growing slowly; pastures and gardens doing fairly well; stock water scarce; but little damage by frost.

Pottawatomie.—Oats brown from dry weather, much of it destroyed by chinch bugs; wheat and rye heading out; curculio working on fruits; tame grasses are dying; corn being cultivated.

Riley.—The low temperature has helped to prevent the bad effects of the drought, but crops are suffering.

Shawnee.—Oats largely a failure and wheat not much better; grape vines looking unhealthy and fruit dropping very badly; late planted corn not coming up; frost of 17th did much damage; Silver Lake is dry, the driest since 1880.

Wilson.—Some fields of corn de-

stroyed by cut-worms; fruit prospect greatly lessened.

Kingman.—Ground about as dry as ashes; all crops, gardens and orchards suffering badly; much corn not up, especially that planted with planter.

Kiowa.—Ground absolutely dry; fruit still falling, about half gone; some corn fields that were taken by the cut-worms being planted to Kaffir corn; grasshoppers are bad.

Mitchell.—Corn doing well and being worked; oats look fairly well but need rain; rye heading short; potatoes look unusually well, early planted coming into bloom, and all have strong and healthy tops; bugs fewer than usual; much preparation being made to irrigate small patches.

Osborne.—Much damage to fruits, potatoes and corn by frost; pastures drying up.

Ottawa.—Wheat almost an entire failure; oats, corn and pasture failing; late corn a poor stand, some not up yet; much damage to fruits by frost.

Phillips.—Wheat, rye and oats doing poorly; grass cut by frosts and drying up; corn at a standstill.

Reno.—A bad week; much damage by frosts.

Saline.—What vegetation left is being destroyed by cut-worms and chinch bugs.

Stafford.—Poor prospect for wheat; cut-worms still working on corn, many fields being replanted; all crops suffering for rain.

Sumner.—Wheat heading out very short; corn yellow; cool, with sudden changes.

WESTERN DIVISION.

All irrigated crops are in fine condition, but the unirrigated are growing poorly or retrograding. Alfalfa is the best crop in this division and the first crop is now being harvested in the southern counties and is nearly ready for harvesting in the northern.

Decatur.—Week has been clear and cool; no rain; a good rain would yet

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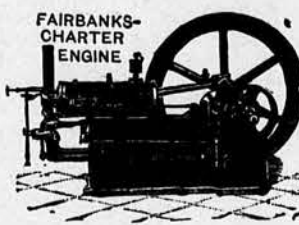
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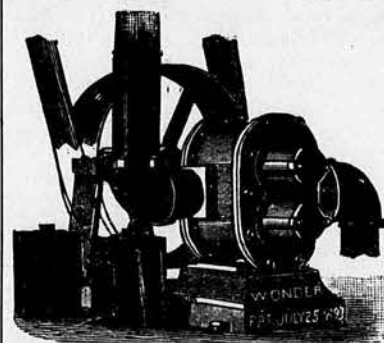
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make fair to good wheat; corn not yet injured; ground still moist enough for listing; grass suffering.

Cheyenne.—All crops needing rain; frosts injured gardens.

Finney.—Drought unbroken and all crops are suffering; frost has killed nearly all grapes, raspberries and strawberries; alfalfa haying has begun, yield light.

Ford.—Light frost did some damage in river bottom; all crops suffering for rain; fruit prospects good.

Gove.—No rain; wheat cannot hold out much longer.

Graham.—Getting pretty dry; frosts have injured gardens, fruits and grass.

Hamilton.—Alfalfa still doing well; windy and dusty week, without rain.

Kearney.—Wheat, barley, rye and oats suffering for rain; the Arkansas river is about dry and irrigating ditches are without water; irrigated alfalfa is doing well and the first crop is being harvested.

Meade.—All crops are needing rain; wheat and barley much damaged; fruit and gardens not injured by frosts.

Ness.—Getting very dry; frost killed considerable vegetation.

Norton.—Small grains suffering for rain; corn at a standstill; frosts hurt gardens in valleys; ground getting too dry to list.

Sheridan.—Crops of all kinds suffering for rain; fruit killed by frost but gardens recovering; a large acreage of broomcorn is being planted; stock of all kinds doing well.

Thomas.—Wheat at a standstill with very little hope for any unless rain comes soon; oats and barley making very little growth; grass is drying up; frost did no damage.

Trego.—Cloudy weather; light frosts did no damage; late-sown barley holds its color; early-sown turning yellow; wheat and rye stemming; Kaffir corn and sorghum is being drilled in some wheat fields; grasses doing well.

Wallace.—Wheat, oats and barley turning brown; grass drying up; considerable corn being planted; all irrigated crops looking fine; alfalfa almost ready to cut.

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Half Rates.

Half railway rates to Pan-American Congress of Religion and Education, at Toronto, Canada, July 18 to 25, 1895.

The Pan-American Congress of Religion and Education will be held at Toronto, Canada, July 18 to 25, 1895. Rev. Samuel G. Smith, D. D., of St. Paul, Minn., is President. The congress will be composed of representatives from every country, province and State in North and South America, including Protestants, Roman Catholics and Hebrews. The congress will consider the great moral and social questions of the day. Many of the highest dignitaries of church and state, and prominent philanthropists, have promised to participate.

The congress will have the following sections: (1) Authors, Editors and Publishers; (2) Education, including Colleges and Church Schools; (3) Philanthropies, Hospitals, Asylums, Homes, Reformatories, etc.; (4) Woman's Work, Temperance Rescue Work, etc.; (5) Denominational Section; (6) Young People's Societies and Sunday Schools, Kindergartens, Missionaries, etc.

It is expected there will be 7,000 delegates. Cities, counties, churches and benevolent societies are asked to send delegates. Each section will hold a session each afternoon, besides the general sessions forenoon and evening.

The terminal railways leading to Toronto have granted a half-fare rate (plus \$1 Pan-American membership fee), and all other railways in North America are asked to grant the same rate. Board and lodging at private house \$1 and up, at hotels \$2 and up. Toronto is a charming city on Lake Ontario, forty-five miles from Niagara Falls. Very low excursion rates to all points of interest by lake, river and rail.

For particulars about rates, routes and program, write to General Passenger Agent of nearest railway, or address S. Sherin, Secretary, Headquarters, Rossin House, Toronto, Ontario, Canada.

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IRRIGATION.

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The Home Circle.

To Correspondents.

The matter for the HOME CIRCLE is selected Wednesday of the week before the paper is printed. Manuscript received after that almost invariably goes over to the next week, unless it is very short and very good. Correspondents will govern themselves accordingly.

Written for KANSAS FARMER.

BEAR UP.

Oh, we ponder o'er our troubles
And we brood upon our woe,
And our lives are full of darkness,
Just because we make them so.

For without its share of trouble
No life would be complete;
'Tis by tasting of the bitter
We appreciate the sweet.

Did the iron cup of sorrow
Ne'er reluctant lips employ,
We would never drink of pleasure
From the golden cup of joy.

When the darkness all is over
And we lose our load of care,
Then our hearts will feel the lighter
For the weight that has been there.

Let us gather up our burdens,
Struggle on as best we may,
For to-morrow will seem brighter
For the darkness of to-day.

GEORGE ALBERT TANTON.

Ellsworth, Kas.

IMPROVISED BOOKCASE.

Suggestions for Eliminating an Ugly and Unneeded Doorway.

A superfluous doorway or window too often mars the effect of a room, and the present-day architecture, as found in cheap apartments and houses, frequently abounds in this sort of generosity.

To surmount the difficulty a very useful inclosure can be constructed by placing two uprights and a few shelves within the doorjamb, or against it, as the case may be. Staining or painting them to match the rest of the woodwork is a small matter, while arranging brass rods and pretty curtains is



AN IMPROVISED BOOKCASE.

not much more. The sketch presents a bookcase thus designed, with a very useful stowaway place below for papers and the like. A china closet was built against a kitchen door which led into a dining-room in a very pretentious apartment. A desire to close up the door and give access through a large closet was the necessity which mothered the invention, and not only disguised the very bad architectural arrangement, but provided a unique closet for choice china and glass. Glass doors were fitted to this one. Two large jardinières ornamented the top of the closet, which was decorated with a carved railing.

A pretty effect may be obtained by breaking the shelves; that is, by making half of one lower than the other half, thus giving room for large books or tall pieces of china. Ingenuity will devise to suit the need, and the superfluous door made into a thing of use and beauty.—N. Y. Times.

TREATING THE HAIR.

A Point of Beauty Which No Girl Can Afford to Neglect.

Regular steady brushing of the hair with a clean brush, fifty strokes before going to bed at night, twenty-five in the morning when dressing, will keep the hair thick, smooth, soft and lovely. Once a month at least the tips of the hair should be clipped off, just the merest tip-ends at the edges,

and once a month the head should be very carefully washed with tepid water and soap, thoroughly rubbed and well dried. If mamma has time to take this sort of care of her daughter's hair, she will be repaid by seeing rich and flowing tresses, or sisters may easily do it for one another. Do not cut your hair in bangs. It is much prettier simply parted and combed back plainly, then braided in one or two long tails and tied with a ribbon. Avoid essences, oils and pigments; the hair needs only cleanliness, and much brushing. Keep your hair-brush clean by frequently dipping it in a bath of hot water and ammonia and drying it in the sun. Everything used in treating the hair must be scrupulously neat.

It is nice for a girl to have dainty toilet articles if she can. Silver, china and ivory are beautiful on one's dressing-table, but if she has not these, she can still keep everything that belongs to her in perfect order, if she will only take pains, and order is itself beauty. Have a linen cover for your bureau or table prettily embroidered, and always add as a finishing touch a little vase of flowers.—Harper's Young People.

THE MODEL HOSTESS.

Her Two Essential Requisites Are Tact and Calmness.

A woman may possess wealth untold, she may have the kindest of hearts and the brightest of minds, but unless she has absolute control of her feelings there will be sometime in her career as hostess that she will display annoyance or flurry, and the contagion spreading to her guests will cause an otherwise successful entertainment to die out in undisguised failure.

A model hostess must, to all appearances, be made of stone, so far as disagreeable happenings are concerned. Even though a guest or careless waiter inadvertently breaks a bit of china which can never be replaced, she must smile on as though the loss of the entire set would but emphasize the pleasure of the evening. Her well-bred calm inspires her guests with a feeling of confidence, and though in her heart she may be very dubious about certain important details of her dinner or dance, if she does not show her anxiety everything will pass off to a happy conclusion.

A flurried hostess or nervous host, whose countenances but illy conceal the worry they feel, can do more toward making the guests uncomfortable than if the soup were served stone cold and the salad dressing were ruined by a too bountiful quantity of vinegar. An imperturbable calm and a ready tact are the two important factors in the making of a model hostess. Secure these by hook or crook and you need never fear for the success of any of your entertainments.—Philadelphia Times.

TOILET TABLE THINGS.

Trifles Which Add to the Comfort of the Occupant of the Boudoir.

There are many things necessary nowadays for the up-to-date toilet table. One of the requisites, which, fortunately, can be procured without expense or trouble is a jar of salt—common table salt, and it is a panacea for many ills. A little of it dissolved in warm water is sure to remove the slight inflammation from eyelids reddened by a long drive in the wind. If used for a gargle it will allay any slight irritation in the throat; a little should occasionally be put in the water in which one's teeth are brushed, as it helps to harden the gums.

Tincture of camphor or tincture of myrrh dropped into water is an excellent wash for the mouth and throat when the breath is not sweet. When the latter is used the proper proportions are ten drops of myrrh to a glass of water.

Powdered alum is another important adjunct; a little should be thrown into the water in which you bathe your hands before putting on gloves for a crowded reception or ball, when there might be a tendency to perspire too freely.

It is said that a few drops of sulphuric acid in the bath water is also a preventive of the too free perspiration of either hands or feet.

An equal mixture of lemon juice and glycerine is another "aid to beauty," necessary to a toilet table—it whitens as well as softens the hands.—Detroit Free Press.

Highest of all in Leavening Power.—Latest U. S. Gov't Report

Royal Baking Powder

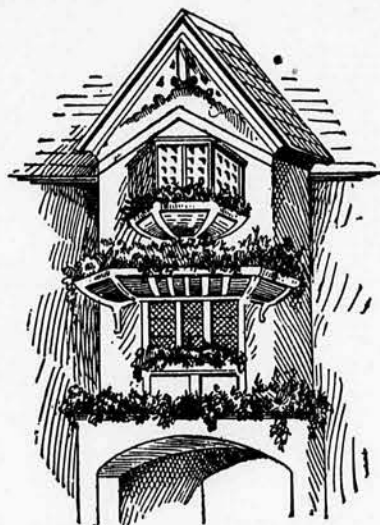
ABSOLUTELY PURE

FLOWER DECORATION.

How an Ugly and Plain Old House Can Be Made Pretty.

The fashion of decorating the outside of our town houses with growing plants has been greatly on the increase of late years, and many of the newest and handsomest residences are now being built with outside stone jardinières and balconies intended expressly for flowers and ornamental shrubs. In the country, however, the gardens and flower beds have hitherto received all the attention and only cut flowers are, as a rule, used for decorative purposes about the house itself. Many charming effects in color can be easily procured by a little clever window and roof gardening, all the care that is necessary after the first planting being to see that the plants are plentifully supplied with water. Flowers will grow and bloom in the greatest profusion in restricted quarters, always provided that they have an abundance of air and light. Even an ugly house may have an attractive exterior if windows and verandas are decorated with flowers.

A plain old farmhouse may be made quite beautiful with a very little trouble by having a shelf with wooden brackets placed under each window, on which shelf is nailed a wooden box filled with earth and planted with scarlet nasturtium seed. If the shelf and box and brackets are all painted green they will amalgamate with the foliage and be quite concealed in a very short time. Care must be taken not to fill the boxes too full with earth, on account of rains washing over the dirt, and with a painted house perhaps



it would be better to have a tin pan under each box to hold the drippings, which can easily be sponged up now and then. Mignonette grown in this way will perfume a whole room when the window is opened; and will make a lovely effect if trained on a rustic trellis work around the window. The accompanying illustration of the Elizabethan lodge gate of a big country place, decorated in the manner described, will give an idea of the possibility of decoration in this direction.—N. Y. Tribune.

How to Keep Flowers Fresh.

Girls to whom flowers are a luxury, and not a dainty surfeit, have a dozen ingenious ways of keeping them fresh. There is none better than plunging the stumps, up to the blossom, in a basin of cold water and leaving them over night. Another, almost as good, is to leave the flowers and the containing dish in the open air over night. A carnation with its stem thrust into a potato keeps fresh for several days, while the fleeting charm of the morning glory may be preserved for a late breakfast if the blossom be plucked over night and permitted to open in the shade.

How to Become Wrinkled.

If more women realized that straining the eyes produces wrinkles, more would exercise a proper care of these

valuable members. Reading by a dim or failing light, coming suddenly from a dark room to a light one, or vice versa, overworking the eyes in any way, and last, but by no means least, wearing dotted and cross-barred veils—these and more taxing of the eyesight are of valuable assistance in the wrinkle-making process.

Novel Ground for Divorce.

According to Chinese law a wife who is too talkative may be divorced.

This Sounds Good.

An excellent relish for the Sunday night tea table is made with sardines as a basis. Take four boneless sardines, rub them smooth with an ounce of butter, a teaspoonful of Worcestershire sauce and a dust of cayenne pepper; heat the mixture in a chafing dish and spread on hot buttered toast. A little grated cheese may be sprinkled over the top before serving.

Oil for Locomotive Fuel.

During a recent experiment in using coal oil as fuel for locomotives a train of twenty-six cars loaded with coal was hauled fifty-two miles in three hours and twenty minutes, including stops. The experiment required not quite forty pounds of oil per hour to the foot of grate surface.

Eggs à l'Italienne.

Boil six eggs twenty minutes. Remove the shells and cut in dice. Melt one tablespoonful of butter in a saucepan, add as much flour as it will absorb, and thin with boiling milk, stirring constantly until it is about the consistency of thick cream. Add a handful of parsley, chopped, salt and pepper and the eggs. Boil up once and serve.—Farm and Fireside.

Keep All Food Covered.

Every article of food should be kept covered until it appears on the table. Milk and butter should be kept in airtight covered vessels. They take up every odor flying in the air, and are positively harmful to the stomach after standing uncovered for an hour or two. Not only odors, but the animalcules that fill the air are attracted to milk and butter. Uncovered jelly is a menace to family health, yet in two-thirds of the pantries in the city will be found half-used dishes of jelly standing uncovered.—Good Housekeeping.

Pulmonary consumption, in its early stages, may be checked by the use of Ayer's Cherry Pectoral. It stops the distressing cough, soothes irritation of the throat and lungs, and induces much-needed repose. Hundreds have testified to the remarkable virtues of this preparation.

NOW! THE TIME TO MAKE MONEY.

Last month I cleared, after paying all expenses, \$235.88; the month before \$186.86 and have at the same time attended to my regular business. I believe any one, anywhere, can do as well, as I have not a particularly good location and not much experience. When you have an article that every family wants, it is very easy selling it. It seems strange that a good, cheap dish-washer was never before placed on the market. With the Perfection, which sells for \$5, you can wash and dry the dishes for a family in two minutes, without putting the hands in water. As soon as people see the washer work, they want one, and that is why so much money can be made so quickly. For full particulars address The Perfection Mfg. Co., 607 63d St., Englewood, Ill. I feel convinced that any lady or gentleman, in any location, can make \$5 to \$10 a day, as every family will very soon have a dish-washer. Try it and publish your experience for the benefit of others.

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It quenches your thirst
That's the best of it.

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That's the rest of it.

A 25 cent package makes 5 gallons. Sold everywhere. Made only by The Chas. E. Hires Co., Phila.

The Young Folks.

IRISH SONG.

[Air: "What shall I do with this silly old man?"]

When Carroll axed Kate for her heart and a hand
That contrived just a hundred good acres of land,
Her lovely brown eyes
Went wide with surprise,
And her lips they shot scorn at his saucy demand;
"Young Carroll Maginn,
Put the beard to your chin
And the change in your purse, if a wife you would win."

Then Carroll made Kate his most illigant bow,
And off to the Diggings lampooned from the plow;
Till the beard finely grown,
And the pockets full blown,
Says he, "Maybe Kate might be kind to me now!"
So home my lad came,
Colonel Carty by name,
To try a fresh fling at his cruel ould flame.

But when Colonel Carty in splendour steps in,
For all his grand airs and great beard to his chin,
"Och! lave me alone!"
Oried Kate with a groan,
"For my heart's in the grave with poor Carroll Maginn."

"Hush sobbin' this minute,
'Tis Carroll that's in it!
I've caged you at last, thin, my wild little linnet."
—Author of "Father O'Flynn."

A MISCHIEVOUS CROW.

He Likes to Have the Boys Throw Snowballs at Him.

Strangely enough, there was nothing of which he stood so much in fear as crows themselves. Often they would come perilously near and "caw" at him. Helter-skelter he would fly to the house, and his relief was plainly manifested when he was safe inside the kitchen. Their wild life evidently had no charm for him. He was in terror of large snakes, too, but small ones he gobbled up as fast as he could. It was a most effectual way of preventing them from frightening him when they grew bigger.

No attention was given to his education, but at last we discovered that he could repeat a word or phrase of a conversation he had just heard. He could laugh like a human being, and imitate the cackling of a hen. "Stop!" "Hello!" "Hold on!" were favorite expressions of his, and generally his use of them was intelligent. He liked to perch on top of the barn and shout out "Stop!" at the farmers who went by in their wagons. If they reined in their horses, thinking it was some person who had called them, the success of his little joke would cause Jim to burst into immoderate laughter.

He actually enjoyed being snow-balled. He would stand upon an old tree stump, and look saucily at the boys, as much as to say: "Come, now, here's a good shot! Why don't you hit me?" But Jim was always too quick for them. No boy ever could hit him. He would dodge like lightning, laughing hoarsely as the ball flew harmlessly past or broke in pieces on the other side of the stump. Then up he would hop again, with another challenge, ready for the next snowball.

He was not afraid of a gun. He would stand close by while one was being loaded, and it could be fired off a number of times without having any perceptible effect on him. But he was keenly alive to its danger, and the very moment the muzzle was pointed at him



HE ACTUALLY ENJOYED BEING SNOW-BALLED.

he lost no time in getting out of the way.

Jim was a very mischievous crow indeed. When Grace, the baby, was learning to walk, he would seize her slyly by the dress, and cause her to fall. He would peck at the toes of the bare-footed children who came for water, and laugh heartily as he drove them

dismayed from the yard. Sometimes he would steal unnoticed down into the cellar. The blows he would give with his beak had the force of a small hammer, so that it was a very easy matter for him to turn the spigot of a barrel. One was pretty apt to discover after such a visit that all the vinegar had run out on the floor.—Malcolm Douglas, in St. Nicholas.

PRANKS OF WOOD RATS.

Two of the Sociable Little Creatures Play Some Queer Tricks.

The latest narrative of the queer doings of the Florida wood-rat, the best known of them all, comes from Mrs. C. F. Latham, of Micco, Florida. Previous to the destruction by fire of the old Oak Lodge, year before last, it was often visited by a pair of very sociable and quite harmless wood-rats, who nested in a palmetto hut near by, and made it their home until some cats came into the family. The wood-rats were big-eyed, handsome creatures without the vicious look of a common rat, with fine, yellowish-gray fur, white feet and white under parts. Inasmuch as they never destroyed anything save a pair of Mrs. Latham's shoe-strings, which they had to cut in order to get them out of the eyelet-holes, they were tolerated about the premises, and here are some of the queer things they did. They carried some watermelon seeds from the lower floor and hid them up-



FLORIDA WOOD-RAT.

stairs under Mr. Baxter's pillow. In the kitchen they found some cucumber seeds, and from these they took a tablespoonful and deposited them in the pocket of Mr. Baxter's vest, which hung upstairs on a nail. In one night they took eighty-five pieces of wood from a box of beehive fixtures and laid them in a corn box. The following night they took about two quarts of corn and oats and put it into the box from which the beehive fixtures came. Once Mrs. Latham missed a handful of pecans, and they were so thoroughly hidden that she never found them. About a year later the rats realized that Mrs. Latham had "given it up," and lo! the pecans suddenly appeared one day upon her bed!—Prof. W. T. Hornaday, in St. Nicholas.

SMARTEST OF CATS.

"Mrs. Muggins" Kills Rats Just for the Glory There Is in It.

A family living out in the suburbs thinks it possesses the smartest cat in the country. The father of the family, after long hours of office work, has the habit when he gets home in the evening of walking the floor for exercise. As soon as he begins his walk "Mrs. Muggins" falls into line behind him, and, with head erect and tail waving in graceful curves, marches up and down and back and forth through the room, only varying the proceedings once in awhile by rolling over on her back as the man turns round and plays with her with his foot. When the walk is over and "Mrs. Muggins" sees her master start for his big rocking chair she makes one bound, settles herself in the chair before he can get there, and, with a countenance that speaks as plainly as words, looks up at him and says: "Did you ever get left?"

"Mrs. Muggins" is a very good mouser, and occasionally she will catch a great big rat out in the barn. Of this feat she is always very proud, and invariably brings the rat, after it is dead, to the house, where every member of the family must see it, and praise and pet her for being such a good, brave cat. The first time this occurred one of the members of the family took the rat up on a shovel and threw

it over the back fence, but in a very few minutes "Mrs. Muggins" had it back again; again and again it was thrown away, but every time it was brought back. At last the two compromised matters by allowing the rat to remain just outside the back door by the side of the step. There it stayed all day until evening, when it was found out why "Mrs. Muggins" objected to having it thrown away.

The fathor had been home only a few minutes when "Mrs. Muggins" walked proudly into the sitting-room with her head aloft and the big rat dangling from her mouth. She went up to the man and laid the rat at his feet, looked up in his face and waited to be caressed and praised. After she received the desired attention she allowed the rat to be carried away and cared nothing more about it.

Now the rats that are caught are always allowed to remain near the house until all the family have seen them.—Cincinnati Tribune.

A Small Youth's Retreat.

The pompous schoolmaster sometimes finds himself in a position which is not entirely to his taste. A great English wit, Mark Lemon, once wrote a book in which he told of a chubby-faced little urchin who passed his conceited instructor upon the street without bowing. The schoolmaster stopped and frowned.

"What has become of your manners, sir?" he roared. "It seems to me that you are better fed than taught."

"Yes, sir," replied the little boy. "That's because you teaches me; but I feeds myself, sir."

Bull Frightened by an Umbrella.

A Maine man declares he owes his life to his umbrella. He was taking a short cut across a pasture lot, when a bull came bellowing at him. He ran as fast as he could, but the bull gained on him every jump. Then he turned, in sheer despair, and suddenly opened the umbrella in the bull's face. To his delight, the furious animal paused, and as the man gave the umbrella a twirl the bull retreated and finally actually turned tail and ran away. At the same time the man does not recommend the defense as infallible.

How Dew Is Produced.

An examiner once visited a large school of some importance in the north of England. Among other questions, he asked: "What is the cause of dew?" No one could answer. "Come," said the examiner, encouragingly, "surely some one knows something about it." At last one of the pupils got up and said: "The earth turns on its axis once in every twenty-four hours with such rapidity that it perspires and produces dew." The examiner closed the proceedings right there.

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All advertising intended for the current week should reach this office not later than Monday.

Every advertiser will receive a copy of the paper free during the publication of the advertisement.

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KANSAS FARMER and Semi-Weekly *World* (N. Y.), you can have for \$1.65 one year.

We want our readers to secure for us thousands of new subscribers for the KANSAS FARMER and we will pay well for such work. If you will get up a list, write this office for liberal terms.

The lowest price for No. 2 wheat at Chicago during the last fourteen years was 48½ cents per bushel in January, 1895. The range of prices in 1894 was from 50 cents to 65½ cents. The range for 1895 is already much wider.

Any of our subscribers who are about to renew subscription will find something interesting by reading the advertisement of "Samantha at Saratoga." If you have already renewed your subscription it will tell you how to get the book at the reduced rate.

Many of our subscribers desire a daily newspaper. In renewing your subscription it is well to note the fact that we can furnish you a year's subscription to KANSAS FARMER and daily *Kansas City Star* for \$4. Or, KANSAS FARMER and daily *Leavenworth Times*

Some of the old Kansas friends of Henry Wallace, formerly editor of the *Iowa Homestead*, will doubtless like an opportunity to continue to read the emanations from his able pen. He is now editing *Wallace's Farm and Dairy*. By special arrangement we are able to send KANSAS FARMER and *Farm and Dairy* for one year for \$1.25.

The *American Wool and Cotton Reporter*, of Boston, Mass., points out that the imports of wool thus far this year have been only slightly in excess of those of the same period two years ago, while the imports of manufactured goods then were much heavier than now. "In other words, with duties reduced 50 per cent. on goods, there has been decidedly less of the latter imported than was the case two years ago, even under the high rates then prevailing."

WHEAT AND FLOUR IN SIGHT.

The Cincinnati *Price Current* says:

"From statements by the Chicago *Trade Bulletin* the following totals are obtained, showing the estimated quantities of visible flour and wheat in the United States and Canada, quantities afloat for Europe and in sight in the principal countries of Europe, for May 1:

	1895.	1894.	1893.
Flour, U. S. and Canada, bbls.	1,832,000	2,081,000	2,500,000
Wheat, U. S. and Canada, bu.	96,779,000	98,047,000	114,140,000
Wheat afloat for Europe	46,400,000	45,600,000	44,300,000
Visible in Europe	35,100,000	53,900,000	45,600,000
Afloat and in Europe	81,500,000	99,500,000	89,900,000
World's visible wheat	178,279,000	197,547,000	204,040,000
Total for Apr. 1.	190,477,000	207,473,000	211,378,000
Total for Mar. 1.	205,004,000	212,988,000	219,175,000
Total for Feb. 1.	216,958,000	223,297,000	224,410,000
Total for Jan. 1.	219,958,000	222,859,000	228,941,000

THE MARKET FOR FARM PRODUCTS.

According to the estimates of the United States Treasury, the population of this country will have passed the seventy million mark before the close of the year 1895. It has been remarked that our population is doubled every thirty years. This was a matter of congratulation and was devoid of any serious aspect thirty and sixty years ago. The public domain then appeared exhaustless. Not so to-day. The waves of attempted settlement have receded from the arid and semi-arid regions reached. The drought of last season and its threatened repetition this season are marking, with terrible emphasis, the limits of the area in this country which may be depended upon to support agriculture without irrigation. The rapid extension of the productive capacity of the country by the overflow population in rushing over, as by instinct, the last of the arable lands, and by the concurrent temporary extension of seasonable rains over much of the semi-arid country, and the consequent occupancy and cultivation of these, blinded, by their excessive productions, the eyes of the statisticians, so that they have not yet realized that the rapidly increasing population of this country is at the beginning of an era of crowding never before experienced on this continent. True, there is yet much land uncultivated and much more which is far below its limit of productiveness. True, we shall be many years in accumulating such populations as people the densely occupied countries of the old world. It is also true that the excess of our food and fabric materials have gone to feed and clothe these great populations. It is also true that these same dense populations are rapidly increasing, as are their demands for more food from America. The excessive productions of the years of the recent past have so filled the world's markets that the question of consumers for the great supplies seemed an unanswerable one. The recent course of the grain markets promises, however, to give a speedy answer.

According to the rate of increase which has heretofore prevailed we shall have, in 1925, a population of 140,000,000 people and in 1955, 280,000,000, while 1985 will find us with 560,000,000, and other parts of the world proportionately over-peopled. What improvements in methods of production will then have taken place cannot be foreseen. It is scarcely to be expected, however, that these improvements will keep pace with so great increase in population.

The last half century has seen wonderful transformations as well as rapid increase in population. The cities have grown immensely and the effort to have some part in the preparation of raw products for use has become a fierce contention. Formerly the farmer was a manufacturer in a small way. Even the milk from his cow is now hurried off to town to be churned by other hands. The wool from his sheep is carded, spun and woven and sold back to him. The cattle and hogs which he rears are slaughtered in the city and his meat is bought from a dealer in town. Long ago he ceased to grind his own corn, but paid a toll to the miller. Now he goes one step further and sells his wheat and corn to the shipper and buys his flour and meal from the dealer. His flour, his meat, his dry goods, everything he uses, is prepared for him more cheaply than he can prepare it for himself, and the contention for the privilege of doing this work is year by year becoming a closer one. Combinations are made to keep up prices; they succeed for a while and finally go down in the competition.

The land is appropriated. It will very soon be all occupied. Improved machinery makes unnecessary much increase of the laboring force on the farms. Two things seem inevitable: First, the great increase of population must go chiefly to the cities, which must therefore grow. Second, there must be greatly increased demand for farm products and therefore higher prices.

It is easy to see that these changes

must ensue if present causes continue for thirty or for sixty years. That we are at the threshold of such conditions is hard to conceive, especially in view of the unprecedentedly low prices of the last few months for leading farm staples. How great will be the present rise in prices cannot be safely predicted. There seems scarcely a possibility for reaction to the low level of the first of the current year and little probability that more than temporary fluctuations in the upward movement can take place as to wheat, at least, until after the harvest of 1896.

It may be remembered by some that several years ago Mr. C. Wood Davis wrote and published, "After the middle of the tenth decade we need not be solicitous about a market for farm products," etc. In another part of the same paper, Mr. Davis thus pictured the situation of the farmer: "To the farmer the exhaustion of the arable lands will bring changes most desirable. Not competing with the whole world for glutted foreign markets, the demand for his products will be steadier, and being quite sufficient to absorb all his commodities and divest the option dealer of much of his pernicious power over prices, which will for years advance steadily, as demand will soon and progressively outrun production, thus enabling him to discharge his debts; to build better houses, barns and granaries; provide more and better furniture and clothing, and, where it exists, to gratify a love for books and works of art, and to surround his family with the comforts and many of the elegancies of life now enjoyed by other classes, but which a meager income has placed beyond his reach."

PRICES OF FARM PRODUCTS.

The recent rapid advance in the price of wheat places the question of feeding wheat to fattening animals in the obsolete column. Last year it seemed probable that the area of the cheap production of prime beef and pork might be extended far beyond the corn belt to the Northwest, as well as into the cotton belt of the South. When wheat was worth only 50 cents per bushel in Chicago, and perhaps 30 cents where produced, to convert a bushel of it into twelve pounds of meat was good economy. The addition of 20 cents to the price of the wheat necessitates a rise of 40 per cent. in the price of meat to maintain the conditions which gave such an interest in and impetus to the feeding of wheat. With the prospect of further advances in wheat and the disposition of the prices of live stock to halt, the supply of fat stock from the great regions devoted almost exclusively to small grains will disappear.

The discovery of the rapid fattening qualities of cottonseed promises, however, an extension of the fattening industry into Texas and other Southern States which have heretofore sent their cattle north to be finished. The only check to the development of this branch of the live stock industry in the South, to the extent of consuming the increasing supply of cottonseed, is the caution necessary to be observed in feeding the seed. Doubtless the conditions necessary to the safe use of cottonseed will very soon be well known, so that this addition to the fattening foods available will have to be taken permanently into account. The curtailment of the supply of cheap grass beef, by the occupation of the ranges for agricultural purposes under irrigation, must, however, continue at an accelerated rate. The immediate and future prospects of the meat market in view of all conditions point to steady and improving prices.

This prospect applies also to grain. The upward flight of wheat has been noted. This means more extended use of corn, both for human food and for stock-feeding. Corn is now relatively high, and if present prices are maintained the prosperity of the corn-grower depends only upon the amount produced. The opening demand for the new crop will necessarily be brisk.

If you want KANSAS FARMER and Semi-Weekly *Capital*, send us \$1.50. Or, KANSAS FARMER and Topeka *Advocate*, send \$1.50.

STOCK AND GRAIN GAMBLING.

We are not aware that any readers of the KANSAS FARMER are addicted to the kind of gambling which, on the various "boards," are called "dealings in grain" or "dealings in stocks." The writer regards these transactions as demoralizing and scarcely less to be condemned than lotteries or other games of chance. The fact that they have some relation to the prices of valuable properties does not render them at all less objectionable than the forms of gambling whose pernicious influences are more restricted. Notwithstanding the fact that the "grain" and "stock" gamblers are still permitted to use the mails, as were the lottery people until recently, their methods are vicious and their snares are to be avoided. In their recent circulars frequent statements like the following occur:

NEW YORK, May 18, 1895.

During the past week, Wall street has had another spurt of realizing, in which London also has joined, and with the effect of a general decline in prices, especially in the lower priced stocks. And yet the effect has not been dispiriting, nor such as to cause any lack of confidence in the future. The past realizations seem to have followed the mere idea that, when prices show a considerable advance, it is the safest policy to pocket profits.

Put into plain English this means that the "operators" had secured a goodly lot of orders from "suckers" and had sold them a lot of their paper properties at a profit. That is the way the professional gamblers live. After having boomed some lines of stock which they had bought, they sell at the boom prices. If by this selling they depress the market they immediately buy again and repeat the operation. In order that they may do more than to prey upon each other, it is necessary to induce outside dealings. It is the observation of these gamblers that "country folks" are more apt to "deal" on a rising than on a falling market; they "buy for a rise" more frequently than they sell for a decline; they are more apt to be "bulls" than "bears." The trick of the "street" is to sell to these outsiders. To do this it is necessary to show probabilities of advancing prices. If any reader of KANSAS FARMER is inclined to try to play this game with these gamblers, and is not restrained therefrom by considerations of conscience, he should at least remember that the inside workings of the game are in the other fellows' hands and the chances are that he will sooner or later become their victim.

CORN AND OUT-WORMS.

The Purdue University Experiment Station reports some interesting results and observations of early and late planted corn:

AVERAGE YIELDS FROM EARLY AND LATE PLANTING OF CORN.

When planted.	Bushels per acre.
May 1.....	41.0
May 8 to 11.....	40.4
May 15 to 16.....	29.8
May 21 to 22.....	37.3
May 28 to 30.....	31.7

The earliest planting yields most, and the latest about one-fourth less. These results have been secured on ground peculiarly subject to drought, which accounts for the low average yields of both early and late planting.

When planted.	Average No. days.
May 4 to 6.....	125
May 14 to 16.....	120
May 24 to 26.....	114
June 3 to 5.....	111
June 13 to 15.....	104

The figures above give the average of three years with medium early corn, and are, therefore, approximately correct for this latitude. It appears that planting thirty or forty days later shortens the time required to mature corn respectively two or three weeks.

The ravages of the cut-worm in Indiana are so great this spring that Prof. Latta, Agriculturist of the station, suggests that "with the above facts before us, and under existing conditions, it would seem wise to delay the planting, if necessary, till about the first of June, by which time the cut-worms will have about finished their banquet on 'spring greens.' If the earlier varieties of corn grown in the north third of the State are planted the first week in June, they will mature, under average conditions, in ninety to one hundred days, with the chances decidedly in favor of a fair yield of sound corn."

ROOT CROPS FOR FEED.

(By Prof. C. C. Georgeson, in *Industrialist*.)

Several inquiries in regard to the value of roots for feed suggest the propriety of discussing the conditions which favor or are unfavorable to the growth of root crops.

In the first place, it is admitted that roots of all kinds, mangels, sugar beets, rutabagas and turnips, are excellent feed for cattle, sheep and swine in winter, when other succulent foods can not be had. Stock relish them immensely; they increase the appetite and aid in keeping the animals in good health. Another point in their favor is that they can be kept during the winter in simple pits in the field, in the basement of the barn, or similar places, so the frost is excluded. Ensilage, which is the only other succulent food available in winter, requires the construction of more or less expensive silos, the first cost of which, although not great, still deters many a farmer from raising ensilage. It is also admitted that roots are largely grown in Europe for winter feed, especially in dairy regions, and it is largely owing to the high esteem in which they are held there that spasmodic efforts are made here from time to time to make their culture more general, the advocates pointing to the immense yields which may occasionally be obtained.

Roots would be a most popular winter feed, and deservedly so, if it were not for three adverse conditions which serve to check their culture.

First, they require a large amount of hand labor, which, as we all know, is expensive and raises the cost of production in very many cases beyond the value of the product. In Europe this drawback is not so marked; farm labor there is abundant and comparatively cheap, and for that reason root-growing is much less expensive there than here.

Secondly, it is difficult to obtain a stand, especially of beets and mangels, and reseeded is frequently necessary. This is due chiefly to our dry and changeable climate, a difficulty which European farmers do not have to contend with to the same extent.

Thirdly, the heavy yields are largely illusive, as far as the actual amount of nutritive material is concerned. Although there is considerable variation between the crops above named, yet they all contain a very large amount of water, and mangels frequently contain less than nine pounds of dry matter in a hundred pounds of roots, the difference being water, which has no nutritive value. Of these three unfavorable conditions, the second and third would have but little weight with the farmer if means could only be discovered to overcome the first. The hand labor, which is so essential in thinning and weeding the crop, renders the cultivation of roots on anything like a large scale, impracticable on the average farm.

This statement of conditions is not to be construed to mean that roots cannot be grown profitably in some places. There are doubtless thousands of farms in this State where an acre or two of roots could be grown every year without materially increasing the labor force on the farm, and fifty or sixty tons of roots would be a most acceptable feed for the dairy cows in winter. Again, there are situations where the soil is moist enough, either naturally or by means of irrigation, to germinate the seed promptly, and thus obviate reseeded and transplanting of plants.

Comparatively little has been done by the experiment stations in cultivating root crops. We grow them here at the Kansas station on a small scale every year, but in not a single instance has the value of the crop repaid the cost of labor we found necessary to put upon it. I will briefly recount what has been done at some of the other stations in this line.

At Cornell, N. Y., they grew in 1889 a plot a little more than three-fourths of an acre in extent with a view to get an idea of the relation between yield and cost of production. The items stand as follows:

371.75 hours labor, man at 15 cents.....	\$54 26
76 hours labor, team at 20 cents.....	15 20
Seed, three pounds at 50 cents.....	1 50
Total.....	\$70 96
Yield from 36,853 square feet, 60,705 pounds.	
Yield in tons, 30 55.	
Cost per ton, \$2.33.	

This was a very good yield. The

average yield for a considerable number of farms would doubtless fall much below this. In the year following, 1890, the same station grew five varieties of sugar beets in comparison with the long red mangel, with the following results: Five varieties of sugar beets averaged 23.1 tons per acre; long red mangels averaged 31.4 tons per acre. These yields are somewhat less than the yield of the preceding year. This experiment was undertaken chiefly to see how mangels and sugar beets compared in yield and feeding value. Their feeding value was practically the same: "23.1 tons sugar beets, containing 13.82 per cent. dry matter, will give a yield of 3.19 tons of dry matter per acre; 31.4 tons mangels, containing 9.68 per cent. dry matter, will give a yield of 3.04 tons of dry matter per acre."

At the Michigan station two varieties of sugar beets, three varieties of mangels, four varieties of rutabagas, and four varieties of stock carrots gave the following yields per acre, respectively: Sugar beets, 11.75 tons; mangels, 13.20 tons; rutabagas, 13.25 tons; carrots, 7.95 tons. These yields, it will be noticed, are considerable less than those obtained at Cornell.

At the Maine Experiment Station roots and other crops were grown in comparison with a view to ascertain which yielded the most nutrition. I copy the following table from the report for 1891:

	Yield per acre of crops as harvested.....	Yield per acre of dry matter.....	Yield per acre of digestible dry matter.....
	Lbs.	Lbs.	Lbs.
Southern corn.....	39,645	5,590	3,850
Rutabagas.....	31,695	3,415	2,978
Hungarian grass.....	18,940	4,680	2,967
Sugar beets.....	17,645	2,590	2,447
English Flat turnips.....	25,500	2,559	2,375
Field corn (flint).....	21,690	3,110	2,208
Sweet corn.....	18,280	2,671	1,870
Mangels.....	15,375	1,613	1,266
Peas (grain).....	1,065	1,415	1,231
Timothy (assumed crop).....	4,000	3,500	2,065

This was a somewhat comprehensive experiment, and the figures give an excellent idea of the relative yield of the digestible dry matter per acre under the conditions prevailing there.

There are but few feeding experiments with roots on record in this country. One by the New York State (Geneva) Experiment Station for 1890 was planned to ascertain the relative feeding value of roots and ensilage for the production of milk. To this end two cows were fed during four periods, in two of which they were fed ensilage, and the remaining two periods roots were substituted for the ensilage, the cows being fed exactly alike as to the remainder of their rations. Without going into details of the experiment, the result was that while there was scarcely any perceptible difference in the amount of milk yielded or butter produced, the ration containing the roots cost on the average 3 cents more per day for the two cows than the ensilage ration.

At the Pennsylvania station during the same year a similar comparison of roots and ensilage was made with two dairy cows, and in this case it was shown, to quote from the report, "that more and richer milk was obtained from both animals while roots were fed, but at the same time a larger amount of digestible food was eaten. It took .20 to .33 pound more digestible matter to produce one pound of milk solids, and from .068 to 1.92 pounds more to produce one pound of milk fat during the period when roots were fed than in the period when ensilage was fed." It is evident that the roots stimulated the appetite of the cows so that they ate more than when on the silage ration, and eating more they also produced more milk. The relative cost of the two rations is not given.

For the western farmer, and especially those who can irrigate, roots have some advantage over corn. As already noted, they are readily stored in pits in the ground, which thus obviates the building of silos, the only other alternative for dairymen who would have a succulent feed for their cows in winter. Again, they do not suffer from the hot winds as corn does, and al-

though they may be stunted by a period of dry weather, yet they will grow again when rain comes, points which will carry weight with many. That roots of all kinds can be successfully grown all over the State has been abundantly proved during the past two years in the sugar beet tests reported upon in Bulletins 31 and 43 of this station. Let those who are so situated that they can take proper care of a patch of roots try one or the other of the kinds here referred to. Mangels will in most cases give the best yields, but, as the tables indicate, they contain more water and consequently less dry matter than sugar beets. Mangels grow larger than sugar beets, and should be given more room. In all cases the ground should be deeply and thoroughly pulverized, and the rows should be far enough apart to admit of horse cultivation. The seed may be sown by hand or with a drill, and at the rate of about four pounds to the acre. When the plants are about three inches high they should be thinned by hand. Those pulled up can be planted where the seed has failed to germinate, if the ground is moist enough to start the plants. This will especially be practicable under irrigation. Spots in which the seed fails should be reseeded as early as possible. It is absolutely necessary to keep the weeds down and the soil mellow throughout the growth of the crop. Weeding in the rows must be done by hand.

Rutabagas and turnips are apt to suffer more from destructive insects than do mangels or beets. On the other hand, a crop of turnips can be grown in a few weeks, late in the season, on ground from which an early crop has been removed. By all means try a root crop, but start in on a small scale.

The average per cent. of water and ash and the per cent. of digestible matter contained in several root crops, according to American analyses, is given in the following table:

	Water.	Ash.	Per cent. digestible matter.
			Crude protein.
Potatoes.....	78.9	1.0	1.4
Sweet potatoes.....	71.7	1.0	1.4
Red beets.....	88.5	1.0	1.1
Sugar beets.....	88.5	1.0	1.1
Mangels.....	90.9	1.1	1.1
Rutabagas.....	88.6	1.2	1.1
Turnips.....	90.5	1.3	1.1
Carrots.....	88.6	1.0	1.0
			Carbohydrates.
Potatoes.....	16.1	22.3	7.6
Sweet potatoes.....	16.1	22.3	7.6
Red beets.....	9.8	7.6	4.8
Sugar beets.....	9.8	7.6	4.8
Mangels.....	7.1	7.1	5.5
Rutabagas.....	7.1	7.1	5.5
Turnips.....	7.1	7.1	5.5
Carrots.....	7.1	7.1	5.5
			Fat.
Potatoes.....	1.1	1.1	1.1
Sweet potatoes.....	1.1	1.1	1.1
Red beets.....	1.1	1.1	1.1
Sugar beets.....	1.1	1.1	1.1
Mangels.....	1.1	1.1	1.1
Rutabagas.....	1.1	1.1	1.1
Turnips.....	1.1	1.1	1.1
Carrots.....	1.1	1.1	1.1

The foregoing will, I trust, give a fair idea of the advantages and disadvantages of root culture, as well as of the yields obtained under reasonably favorable conditions, and the feeding value of the several kinds of root crops. It remains to be noted how far they are likely to be profitable for Kansas farmers.

This is the season for providing feed for animals, and it is with a view to giving the most valuable information extant as to the feeds to be provided, as well as the proportions and the methods which give the best results, that we begin, this week, the publication of the most practical and common-sense presentation of the subject which has yet appeared. The farmer who would be "up to date" and make profits when others make losses, must keep well informed as to just such results of investigation and experiment as are here presented.

We have recently sent out a good many "Handy Cobbler" outfits, and shall be pleased to hear from those who have received them as to how they are pleased. If satisfactory it is a pleasure to know it, and if not satisfactory we want to be informed of the facts in detail.

Government Crop Report for May.

The May returns of the Department of Agriculture show an increase in wheat of 1.5 points from the April average, being 82.9 against 81.4 last month, and 81.4 in May, 1894.

The averages of the principal winter wheat States are: Ohio, 85; Michigan, 78; Indiana, 87; Illinois, 90; Missouri, 90; Kansas, 48; California, 97. The average of these seven States is 82.3, against 81.5 in April, being an increase of a little less than one point. In the Southern States the averages range from 55 in Texas to 93 in Alabama.

Winter wheat in Georgia suffered very much from the severe winter and the alternate freezing and thawing during the month of February. In Texas the wheat was badly winter-killed, and continued dry weather during spring has retarded its growth. In Tennessee wheat has improved, and such is the case also in Virginia and Alabama. In Arkansas, particularly the northern portion of the State, the crop is doing well, but correspondents intimate a reduction of acreage owing to low prices. The crop in Ohio and Michigan has not advanced since last report; that of Ohio, on the contrary, has lost ground. In Indiana and Illinois the advance from the April condition is quite marked, notwithstanding the dry weather prevailing at time of report. Iowa and Missouri also report favorable prospects. In Wisconsin, Minnesota, Kansas and Nebraska the prospects are poor.

Winter Rye.—Winter rye, like wheat, has advanced nearly two points since last month, its average for May being 88.7, against 87 for the same date in April. The percentage of New York is 97; Pennsylvania, 92; Michigan, 88; Illinois, 92; Kansas, 54. The prospects for rye throughout the rye belt are fair, except in the State of New York, where it is too dry, while in the States of Minnesota and Kansas the crop was considerably damaged by the severe winter and has not recovered.

Barley.—The average condition of winter barley against 94, is 62.3 in the month of May, 1894, and 88.6 in 1893. The lowest conditions are in Texas, Indiana and Iowa, and the highest in New York, California and Oregon.

Spring pastures, mowing, plowing, etc.—The condition of spring pasture is 89.7; of mowing lands, 89.4. The proportion of spring plowing done May 1 is reported as 82.8 per cent., against 83.5 last year and 73.4 in 1893.

Cotton.—The cotton report as consolidated by the Statistician of the Department of Agriculture for the month of May relates to progress of cotton planting and contemplated acreages. The amount of the proposed breadth planted prior to the 1st of May was 78.5 per cent., against 81.6 last year and 85.3 the year before, being 10 points lower than the acreage usually planted at that date. The returned estimates of area planted by States are as follows: North Carolina, 55; South Carolina, 75; Georgia, 79; Florida, 95; Alabama, 87; Mississippi, 84; Louisiana, 86; Texas, 75; Arkansas, 79; Tennessee, 79. The delay was caused principally by the cold, backward spring, while in some sections it was the result of dry weather. The indications at present point to about the usual acreage in the States of North and South Carolina, Georgia, Alabama and Arkansas, and a reduction in the States of Mississippi, Louisiana, Texas and Tennessee. The above statement is taken from reports of county and State agents. Later a special report as to acreage will be given out, made up from reports of a selected corps of correspondents on acreage.

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The through service offered the traveling public by the Union Pacific system and Chicago & Alton railroad is unsurpassed. The Perfect Passenger Service of the C. & A. with the well-known excellence of the service of the Union Pacific assures the traveling public that they "are in it" when they patronize this popular joint line from Denver to Chicago and intermediate points. Pullman Palace sleeping cars, dining cars and free reclining chair cars without change.

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A. M. FULLER,
City Agent, Topeka.

Horticulture.

Clean Culture for Strawberries.

If there is any work in which the "stitch in time saves nine," it is that applied to the extermination of weeds; and nowhere is the timely stitch or the "ounce of prevention" more needed than on the spot devoted to strawberries.

It is a very easy matter to grow a big crop of weeds; not so very difficult to grow a big crop of strawberries; but almost impossible to grow them both on the same spot at the same time. It is a good thing to instill the mind with the importance of clean culture, for its accomplishment is not so easy as to need no stimulus in its execution.

When the bed is first set out, and for some two months afterwards, it is little else than fun to keep it free of weeds; for the work may be done almost entirely with a sulky cultivator, while the operator rides along smilingly inspecting the growing plants and figuring up the fat income in store. But just wait a bit until the rows fill up and widen out, and the cultivator (its rider too) has to do some uncomfortable straddling to keep from tearing up new plants. Then there will be a wide strip of row that can only be reached by direct manual labor. If the surface soil of this space be filled with seed and no hand work be done, there will straightway commence a struggle for supremacy between weeds and plants; and the outcome will not be a "survival of the fittest" in any sense pleasing to the grower. The magnitude of this extra hand work will be measured by the amount and nature of the seed in the soil when the bed was set. It would seem to be the part of a wise forethought, then, to have the soil as free from weed germs as possible before devoting it to strawberries. This means that we must be on the war-path in a pretty thorough campaign against weeds during the management of several previous crops.

I always plan the location of the bed at least two years in advance. The first year I plant potatoes and give them extra care, allowing no weeds to drop their seed. The next spring I plant corn, giving the ground a heavy coat of fine manure and working it well into the surface. This gives the seed in the manure a chance to germinate and be destroyed, while a large portion of the plant food will be held in reserve for the following year. Again the most thorough cultivation is practiced. The next year the ground is in shape for a strawberry bed. On my garden soil there is no need of extra fertilizing. It has an abundance of plant food for the intended crop, if no thieves are allowed to creep in and steal it.

Where the soil is poor and a great deal of barnyard manure is used, the matter of weed extermination is made more difficult. All such manure has more or less of seed in it, whose vitality is too strong to be killed by any process of heating which will not spoil the manure. Hence the advisability of doing most of the manuring in advance. Commercial fertilizers here have an item to their credit.

The beauty of a soil free of weed seed is most clearly seen in the bearing season of the bed. Its condition then does not permit of much work among the plants, and if many weeds appear they do much harm. Just when the plants are in blossom comes a critical period when much depends on the conditions surrounding them. In the formation of the berries an abundance of moisture is needed, and the time of year is one likely to be visited by drought. Then the weeds do as much harm in using up the limited supply of moisture as in any other way. It is not a very pleasant sight when picking inferior, half-filled berries to notice how fat and thriving are the weeds among them. Still less pleasing is the thought that these intruders used up the very material that might have filled the berries with delicious, juicy pulp.

In order to have weedless strawberry beds one must not undertake too large an area. This is a common fault.

Better put the right quantity of work on one acre than to scatter it over five acres.—C. L. Hill, in *Country Gentleman*.

Subsoiling and Other Matters.

EDITOR KANSAS FARMER:—I have just been reading the article by Mr. Norton, on the advantage of subsoiling, and in the adjoining column a paper from "Conservative," where he would warn other farmers not to try such delusive experiments as subsoiling to hold the moisture in the soil. He writes as if he thought Mr. C. J. Norton wrote his articles in a splendidly furnished office in some city. From what I have read of Mr. N.'s writings in the FARMER I would say he was an eminently practical farmer, enthusiastic on the subject of subsoiling; and why shouldn't he be, if by so doing he can increase his crop from 30 to 50 per cent.? I shall get a subsoil plow and use it as soon as I am able. I tried something of the same kind last season, on a very small scale, to be sure, but it convinced me of its utility. I had a new patch of Gregg raspberries, planted nine feet apart, that I thought I might grow one row of late potatoes between the rows (the piece had been set two years and the canes quite large). I threw out a dead furrow in the center as deep as I could run a twelve-inch plow. I had one of my children, who was cultivating in an adjoining piece with a five-tooth cultivator, to run back and forth in that dead furrow till it was half full or more of perfectly mellow, moist soil. I then planted Michigan Cherryblow and Excelsior potatoes, covering with a hoe. Now for the result: These potatoes came up quick, grew right along through the long dry weather of last fall, and at digging I had a nice crop of tubers from the five rows; of course not what I would have had if we had had more rain. Frost came on early, too, and cut off further growth. This was enough to convince me that if we could plow our land in the fall and subsoil it we would raise much better crops than we do.

I am much interested in the articles on irrigation, potato-raising, and, in fact, there are so many good things in the FARMER it is hard to discriminate.

The weather was very cold here this morning—slight traces of frost, but no damage done. My raspberries and blackberries promise fairly well. The canes were injured, I think, by the anthracnose. Will some of your readers that have had trouble with this insect, please let us know through the FARMER what they have done for it? My late and early Snyder blackberries are full of bloom; the Harvest and Brunton's Early injured some by the winter. At some future time will let you know the results of smoking my plum trees for the curculio and of spraying my apple trees.

A. H. LOTHROP.

Ferndale Fruit Farm, Vinland, Kas.

It is a fortunate day for a man when he first discovers the value of Ayer's Sarsaparilla as a blood-purifier. With this medicine, he knows he has found a remedy upon which he may rely, and that his lifelong malady is at last conquered. Has cured others, will cure you.

\$100 Reward \$100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in all its stages, and that is catarrh. Hall's Catarrh Cure is the only positive cure known to the medical fraternity. Catarrh being a constitutional disease, requires a constitutional treatment. Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system, thereby destroying the foundation of the disease, and giving the patient strength by building up the constitution and assisting nature in doing its work. The proprietors have so much faith in its curative powers, that they offer one hundred dollars for any case that it fails to cure. Send for list of testimonials.

Address, F. J. CHENEY & CO., Toledo, O.

Sold by Druggists, 75 cents.

A new dining car service between Chicago and Buffalo via the Nickel Plate Road, has recently been placed at the disposal of the traveling public, which will enable patrons of this favorite low-rate line to obtain all meals on trains when traveling on through trains between Chicago, New York and Boston. For reservations of sleeping car space and further information, see your local ticket agent or address J. Y. Calahan, General Agent, Chicago.

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barytes if you want White Lead. Pure White Lead is the best paint—barytes is the poorest, is worthless. Barytes is often sold under the brand of White Lead, Pure White Lead, &c. Be careful about the brand (see list of genuine brands). Don't take what is said to be "just as good."

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AN ATTRACTIVE ADVERTISEMENT.—The average run of farm machinery advertising is of necessity rather conventional, and when an innovation appears it is refreshing. The unique jingle below, together with the well-known McCormick catch-phrase, "What We Say We Do We Do Do," are by Mr. Geo. B. Adams, the advertising man of the McCormick Harvesting Machine Co.:

... If a man should
come and tell you he'd a right
good thing to sell you—it cuts no special
figure as to what the thing might be—you would
naturally compare it with some article of merit, and
then, if all were favorable, you'd possibly agree. Let's
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you to understand is just the best one ever built; you will
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Fair trials, he failed to take a tilt; he will "hem" and "haw" and
stutter, and most probably will mutter something in the nature of a
very thin excuse; but hold him to the query, and when
his talk gets "leery," just ask him to rest up and see
if anything's got loose. He will next show up his print-
ing, and with a peculiar squinting, will point you to some
"figgers" of the biggest sort of size, all the time a-talking
louder than a burst of giant powder—and of course you will
not fancy for a moment that he lies; still, there'll be no harm
in saying, that as you're to do the paying, you'd like to ask
"a thing or two"—and would like to have replies. "Now, for
instance," you'd begin it, "if your great machine could win
it—if your draft is so extremely light that others have
no show, please give me a shade of reason for your
coughin' and your wheezin', when the trials offered you a great
big chance to crow. I recall the whole transaction, how you
fact had made (in spots), watched McCormick's action, quite
these World's Fair tests determined to be "in it," if you tho't
would have found me, with that they'd stay out; but on learning
my 'specialties' around me, they would be there, then, says you,
just prepared to take those 'em lots—lots of points
judges and to simply teach they'd never heard of—
things they'd never known a word of—I'd have made
'old competition' just stand still and 'bung his
eye'—but you didn't go
and risk it, and by all the
buns and biscuits! I'd
thank you if you'd only
tell me, Why! Why! Why?"

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SAY WE DO
WE DO DO

"Among the Ozarks,"

the Land of Big Red Apples, is an attractive and interesting book, handsomely illustrated with views of south Missouri scenery including the famous Olden fruit farm of 8,000 acres in Howell county. It pertains to fruit-raising in that great fruit belt of America, the southern slope of the Ozarks and will prove of great value, not only to fruit-growers, but to every farmer and home-seeker looking for a farm and a home. Mailed free. Address,
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UR invited to send for my latest price list of small fruits. Half million strawberry plants, 300,000 Progress, Kansas and Queen of West raspberry plants. B. F. Smith, Box 6, Lawrence, Kas. Mention this paper.

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I have excellent farms in Rooks county, Kansas, for sale, way down below their value. Will sell on contract for one-tenth down and one-tenth yearly, or will give deed if one-fourth or more is paid down. Write for particulars and state how much you can pay down and how you want the balance of payments. I also have several unimproved farms in central Nebraska and one large body of over 7,000 acres. I have a finely improved ranch of 1,440 acres in Rooks county, Kas. Any or all of above will be sold very low, or might exchange part or all of it for good improved property in Chicago or vicinity. Address

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601 Masonic Temple, CHICAGO, ILL.

In the Dairy.

Conducted by A. E. JONES, of Oakland Dairy Farm. Address all communications Topeka, Kas.

World's Fair Dairy Test No. 1.

CHEESE AND BY-PRODUCTS.

This test extended from May 12, 1893, to May 26, both inclusive, fifteen days. The competing cows were twenty-five Jerseys, twenty-five Guernseys and twenty-five Short-horns. This and all other tests were conducted under rules formulated by Chief Buchanan, of the Agricultural Department, and assented to by the representatives of the competing breeds and members of the Testing committee, which was composed of Prof. M. A. Scovell, Kentucky Experiment Station, Chairman; Prof. S. M. Babcock, Wisconsin Experiment Station; I. P. Roberts, Cornell University, New York; H. P. Armsby, State College of Pennsylvania (representing the Association of Agricultural Colleges and Experiment Stations); Prof. W. H. Caldwell, Superintendent for the American Guernsey Cattle Club; H. H. Hinds, Superintendent for the American Short-horn Association, and V. E. Fuller, Superintendent for the American Jersey Cattle Club.

By the rules, all cows were milked out twelve hours before the test began. All milkings of each herd were done in the presence of a representative of the Testing committee. Samples of the milk at each milking were taken for analysis, and analyzed in the laboratory under the immediate supervision of Prof. E. M. Farrington, of the University of Illinois.

The feed was all weighed out by a representative of the Testing committee, and was fed in his presence. Columbian guards were stationed in the barns to see that no feed was given the cows except in the presence of a representative of the Testing committee. The value of the cheese was fixed by the representatives of the breeds and the Testing committee, the price being regulated by the scoring of the cheese, which was made by experts appointed by Chief Buchanan. The schedule of prices for feed was fixed by Chief Buchanan, and all feed was charged to each cow, and an accurate ledger account was kept of the product of each cow and of each herd.

The price of cheese varied from 11 cents to 14 cents per pound. The whey was credited at the rate of 8 cents per hundred pounds, and the increase or decrease in the weight of the cows between the beginning and the ending of the test was credited or debited at 4 cents per pound. The awards were based upon the net profit made by the cows and herds during the test. This was a signal and triumphant victory for the Jerseys in every respect. They not only gave the most milk, exceeding the Guernseys by 2,357.8 pounds, and the Short-horns by 1,109.5 pounds, in fifteen days, but the quantity of cheese exceeded that of the Guernseys by 321.14 pounds, and the Short-horns by 374.16 pounds. The net profit of the Jersey herd exceeded that of the Guernseys by \$31.52, equal to an excess net profit per cow per day of 8.16 cents, and exceeded the Short-horn herd by \$38.46, equal to an excess net profit per cow per day of 10.24 cents.

The following are the net profits of the five best cows in each breed: Jerseys—first, \$6.97; second, \$6.56; third, \$6.34; fourth, \$6.34; fifth, \$6.12. Guernseys—first, \$5.27; second, \$5.06; third, \$4.82; fourth, \$4.79; fifth, \$4.66. Short-horns—first, \$6.27; second, \$5.63; third, \$5.28; fourth, \$4.25; fifth, \$4.07.

The herd of five best cows in any breed competing, yielding the greatest net profit during the test, which received the award, was composed as follows: First, second, third and fourth, Jerseys; fifth, Short-horn.

The leading Guernsey stood fourteenth in order of merit in the seventy-five competing cows, the second seventeenth, and the other three eighteenth, nineteenth and twenty-first, respectively. The best five cows of the Short-horns stood in the following order of merit among the seventy-five: Fifth, tenth, thirteenth, twenty-

fourth, twenty-seventh. Out of the seventy-five competing cows the Jerseys had fourteen in the first twenty-five, with an average net profit per cow of \$5.75 2/7, the Guernseys seven, with an average net profit per cow of \$4.79, and the Short-horns four, with an average net profit per cow of \$5.42 1/2. The lowest Jersey in profit out of the seventy-five was fifty-third, with a net profit of \$3.11. The Guernseys had eight lower, ranging down to a net profit of \$1.91, and the Short-horns fourteen lower, ranging down to a net profit of \$1.08.

The average net profit per head per day was as follows: Jerseys, 31.9; Guernseys, 23.6; Short-horns, 21.7.

The Jerseys not only gave the most milk and the most cheese, but the quantity of milk required to make a pound of cheese was as follows: Jerseys, 9.16 pounds; Guernseys, 9.67 pounds; Short-horns, 11.31 pounds.

The quality of the Jersey cheese surpassed that of the other breeds, as is shown by the average price per pound, which was based on the scoring of the experts, and which was as follows: Jersey cheese, 13.36 cents per pound; Short-horn, 13.01 cents; Guernsey, 11.96 cents. The average milk given by each cow per day was: Jerseys, 35.4 pounds; Short-horns, 32.5 pounds; Guernseys, 29.2. While the feed given the Jerseys was in excess of that fed to the Guernseys, it showed an uncommonly good net increased profit.

In the award for the breed that showed "the greatest net profit" the Jerseys were declared to be the winners.

Dairy Notes.

As a condenser of values the dairy cow stands first.

Iowa is a stickler and a hard fighter for pure food in dairy matters.

The dairy cow is modest; she always puts her best foot "backward."

Slipshod methods in the dairy are out of date and they will no longer win.

The manufacturer of filled cheese is an enemy to the dairy cow and to mankind.

Provide a soiling crop for the milk cows and let the pasture rest when it is hot and dry.

It is the habit of looking well after the little things in the dairy that brings success.

Farmers, while butter is so low and cheese high in price, why not send \$1 to C. E. Kittinger, Powell, S. D., for his rennets and instructions for making cheese at home without other apparatus than you now have. Any woman can make cheese while attending to household work. The process is very simple and success certain. Mr. K. offers to refund the dollar to all who fail while following his instructions, and says no one has ever yet asked to have it refunded.

The "P" Ranch.

EDITOR KANSAS FARMER:—Mr. French owns an immense cattle ranch in southeast Oregon. From one extreme to the other is about sixty-five miles. It lies along the Blitzen river and tributaries, and contains about 150,000 acres, mostly fenced with barbed wire and the natural "rim rock." The valleys are extensive and are unsurpassed for hay and grain. Along the east side is Stein's mountain, snow-capped and rugged, a natural boundary. The foothills slope twenty-five miles to the Blitzen, and constitute the summer range, the ever-receding snow line insuring green grass all summer. Many bands of deer and antelope range here with the cattle and horses. The streams, snow-fed and unfailing, are richly stocked with trout. To the north are Lakes Harney and Malheur, which receive the water from these streams and have no outlet. Rich hay lands border these lakes. Lying along the west side of the ranch is the Oregon desert, from forty to seventy miles wide. This is the winter range and is covered with sage brush. The little snow that falls in winter, with the light spring rains, starts the bunch grass and rye grass and the warm, sandy soil pushes it rapidly. From the surrounding mountains water flows, but it sinks in the sand when warm weather comes and stock must then be removed to the summer range, and the grasses then cure for the following winter. Occasionally, however, the snows fall deep on this desert, which is about 4,000 feet above sea level. Then the gates are opened in the "rim rock" and wire fences, and the cattle drift

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into the valley, where hay has been prepared, and such hay! Bright and green—it is fully equal to clover and timothy. Mr. French puts up but a small portion of his hay, as there is no market for surplus.

There are extensive corrals and ranch buildings at convenient locations. The property is said to be farther from the railroad than any other point in the United States, and mails are delivered there but once each week, and the route is one never forgotten if once traveled.

You ask how the ranch is stocked. Well, that is a leading question to put to an Oregon cattleman. You can whisper it ever so softly and then get an evasive answer, for the assessor and tax-collector are persistent eavesdroppers, and a poor ranchman must keep expenses down. But Mr. French pleads guilty to owning a thousand, "or more," good horses and mules, and "several thousand cattle," well graded with Short-horn and Hereford. His neighbors—living forty to seventy-five miles away—are better informed about his brands, or less reticent about his business, and they assert that he sells about 3,000 matured steers each year, and occasionally a few barren cows.

So much for the ranch, now for the man. Mr. French has been married but is now single and about 40 years of age. Educated, quiet, gentlemanly, a courteous host, a good entertainer, and necessarily an excellent business man. His residence, apart from the other buildings, is furnished tastefully and with a view to comfort. Couches strewn with native furs and walls showing pictures of native game. His pictures of lady friends, not always shown, evidence his good taste and refinement. He chose his location when quite a young man and has grown up with the business, adding to the property year by year. More than once the Indians attempted to dispossess him, but he could never gain his own consent to abandon such a range. Once the improvements were all burned and several men were killed, but when the ashes cooled work was resumed, and to-day he has a kingdom of his own and his property is the best of its kind in the country.

S. E. TRUE.

Balanced Rations Best for Swine.

EDITOR KANSAS FARMER:—In your issue of May 1, "How to Compute a Ration," is of much interest to progressive farmers. This nutritive ratio or complete food, if studied more closely, would result in fewer cases of sickness, especially in hogs. Hogs confined on a ration of corn can't get the amount of protein necessary for rapid growth.

Most every one has heard of and read about oil meal, while others have used it. If used judiciously with other foods rich in starch, much benefit is derived.

In this article the reference is to clover hay as 1 to 4. All my authorities state about 1 to 6, available to digestion, which makes it a complete

food. Otherwise, some food rich in starch would be required to complete the nutritive ratio.

Foster, Mo. ELMER LAUGHLIN.



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There is more money in Butter than Wheat. Send for Catalogues.

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For further particulars address, PERINE'S PLOW WORKS, Topeka, Kas.

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Sun burned hay does not bring top price; nor is it as good for your own feeding. The

"KEYSTONE CHIEF" Side Delivery Rake

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save time and help, make prime hay, gather no dirt, are light draft, simple and durable. Get our pamphlet, "Quick Haying."

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Please say you saw this ad. in this paper.

Are They Alfalfa Worms?

About two weeks ago Mr. McCarter, who has a fine field of alfalfa a few miles east of Topeka, brought to this office a stalk of this valuable forage plant, on a leaf of which was a cluster of small eggs. The specimen was sent for examination to Prof. Popenoe, of the Agricultural college, who, under date May 18, made the following report:

"The interesting batch of eggs on the leaf of an alfalfa plant have been duly studied. They hatched a day or two after receipt and the young worms took kindly to the alfalfa furnished them for food. They have grown to an inch in length, passing through several moults, and prove to be a species of *noctuid*, or cut-worm, the exact determination of which must be deferred at least until the worms are full grown and probably until the moth is given out. The cluster of eggs numbered over two hundred, closely set in lines, the eggs being nearly spherical, ridged with radiating lines, and, under the magnifier, of a pearly pinkish gray color. At their present stage the young worms are a dark color with a yellowish line along the side and a darker dash above. A row of yellow spots along the middle of the back is flanked on each side by darker shades. The head is brown with a dark brown 'V' inverted on the front. The worms will be carried through their transformations and a report of the result will follow."

Doctoring Chickens.

EDITOR KANSAS FARMER:—Some six week ago we noticed one of our hens had a swelling on the ball of her foot, but thought she had just got something in it, but as she got no better killed and buried her. Since, three more have been afflicted in the same way, only the swelling is chiefly on their toes. The swellings are nearly as large as an egg and very hard. What is the cause and what the cure? JENNIE NEEDHAM, Lane, Kas.

In general it will not pay to doctor a chicken except in a surgical way with a sharp hatchet applied vigorously across the neck. The sanitary conditions of the chicken-house and the yard or runs should, of course, be well looked after, but the value of a single chicken, except in the case of high-priced fancy-bred fowls, will not justify the use of either the time or medicine necessary to doctor it. On this, J. H. Davis, in "The A. B. C. of Poultry Culture," says: "Doctoring fowls is time and money wasted. If I ever cured a fowl of any affliction I do not know it. Of course, a few got well, but they might have got well if I had let them alone. And I believe that I have killed scores of good birds by 'doctoring' them," etc.

In our correspondent's case the best way is to separate the afflicted fowls from the others. The fact that others are taking the disease suggests that it may be contagious or it may be that it results from an infection of the yards. In either case, it will be well to disinfect the yards and poultry-houses. This may be done by dissolving three pounds of copperas in five gallons of water and adding a pint of crude carbolic acid. Sprinkle about the house and yard with a common watering-pot.

Gossip About Stock.

W. B. McCoy, of Valley Falls, Kas., reports a lively trade in fancy poultry. He has twenty-five varieties and is prepared to furnish eggs of any strain needed. Those desiring to improve their poultry yards will do well to write him for information and prices.

Col. S. A. Sawyer, the live stock auctioneer, of Manhattan, Kas., is receiving numerous letters from swine-breeders who are contemplating public sales in September and October. He writes: "I already have booked a goodly number of sales. Kansas now has as good swine-breeders as can be found in America, and I look for a veritable 'boom' in Kansas hogs this season."

Among the late sales made at Shannon Hill stock farm, the property of ex-Governor George W. Glick, was the young ten-months bull, Royal Bates, to Mr. Peter Sim, of Wakarusa, Shawnee county, Kansas. Mr. Sim, who is well and favorably known to the central United States breeders as a first-class judge of cattle, both foreign and American-bred, had looked through several of the most prominent Short-horn herds and finally, after careful investigation, concluded that the young fellow in the Shannon Hill herd was the

one that suited him best because of his royal breeding and individuality. The youngster was sired by Winsome Duke 11th 115187, he by Wild Eyes Duke 6th 89943, and out of Imp. Wild Eyes Winsome 2d (Vol. 20). His dam was 2d Lady Bates of Shannon Hill (Vol. 33, p. 580), that was got by Baron Bates 13th 54616 and out of 3d Miss Bates of Durham Park (Vol. 30, p. 536). The reader will at once recognize the wealth of royal blue Short-horn blood in both his paternal and maternal lines, while the individual conformation of both the young fellow and his sire have but few equals, as they belong to the deep-bodied, mellow, easy-keeping kind, just the thing sought for by all experienced and successful cattle breeders the world over. The FARMER congratulates both the breeder and new master on the exchange, and will now give notice that that yearling bull of Sim's will worry some of the more pretentious Short-horn breeders in future show ring contests.

The Wool Market.

Silberman Bros., the wool commission merchants, of Chicago, in their circular make the point that by shipping wool to Chicago, where it does not have to compete with foreign stock, wool will realize from 1 to 1½ cents more per pound than if shipped to any other market.

Speaking of the market since their last circular, they say: "Wool of medium and fine quality and sound staple has sold especially well, on a scored basis of 81 to 83 cents per pound for fine, and 27 to 29 cents per pound for medium. These prices are somewhat better than could be realized for old wools some time ago."

"Commercially, the future appears much brighter. We notice a steady and gradual improvement in all commodities. Raw materials of all kinds, such as wheat, iron, cotton, oil, hides, etc., have advanced considerably in price recently, and why should not wool follow the same course. For further information regarding this question, write us and we will cheerfully reply."

"Bright wools, such as come from Indiana, Missouri, Wisconsin, Michigan and Iowa have only arrived in small quantities, therefore the real value is not yet established. However, we look for good receipts the latter part of this month, when we expect to realize quoted prices, and perhaps more, for good staple and desirable lots."

Publishers' Paragraphs.

Send 25 cents to the Currency Publishing House, 178 Michigan street, Chicago, for a copy of the "Financial School at Farmerville." Everybody is reading it.

We can furnish you KANSAS FARMER and Peterson's Magazine, each one year, for \$1.75. Or KANSAS FARMER and Arthur's Home Magazine for \$1.65. Send to this office amounts above named.

The "Sunny Southland" is attracting much attention lately among many of our Northwestern farmers, investors and home-seekers and quite a large number of our good people have located there and others will follow. To those who are seeking the best and most reliable information about that country we would refer them to the advertisement of the Southern Immigration and Improvement Co., of Atlanta, Ga., a responsible and trustworthy company, whose officers are Jas. P. Day, President, formerly from Ohio; J. Mark Bishop, Secretary and Treasurer, late from Michigan, and J. H. Mountain, Manager, from Chicago and early connected with immigration department of the Rock Island road in Kansas and with the Northwestern in Nebraska and Iowa. They have out a valuable book on the Piedmont region, which, with their property list will be mailed free on application, when this journal is mentioned. Send for it and see what the "Sunny Southland" has to offer to investors and home-seekers.

A USEFUL CATALOGUE OF MACHINERY.—We acknowledge receipt of a very handsome and complete catalogue issued by the Kansas City Hay Press Co., of Kansas City, Mo. It is full of illustrations of goods of their manufacture, and special space is devoted to their "Lightning Hay Press" with which many of our readers are familiar, as it is well known among most grass producers as a very superior machine. Among the goods manufactured by this well-known firm are: Hay presses, rakes and stackers, stump pullers, oil cake grinders, corn harvesters, centrifugal and irrigation pumps, as well as great bars for any kind of steam plant. Special care seemed to be taken by this company to give thorough explanations of each article and its construction and material used in construction for benefit of applicants. Any of our readers interested in any of these goods will do well to write for one of these catalogues, together with prices and terms on any article desired. This firm is just now commencing the manufacture of windmills designed for heavy work. They will be stronger and simpler than any mill heretofore on the market and are expected to stand up and work in a Kansas gale.

Haylett's Coming Sale—Hereford Cattle and Roadster Horses.

The greatest closing-out sale of high-class live stock announced so far this year in the West is that of Mr. S. B. Haylett, of Graham, Nodaway county, in northwest Missouri. Elsewhere in this issue of the KANSAS FARMER the reader will find his sale announcement, stating that on Wednesday and Thursday, June 5 and 6, he will offer to the highest bidder, without reserve or by-bid, his entire herd of pedigreed Hereford cattle, consisting of 150 head, all ages. Among them will be forty cows with calves at side, six three-year-old bred heifers, twelve choice two-year-olds, twelve yearlings and twenty young bulls averaging 1 year old and ready for service. The cows belong to the Lord Wilton, Grove 3d, Archibald, Spartan and Anxiety strains, while the youngsters were sired by the very excellent sire Duke 5th 37208, he by Don Carlos 33784, that won second in class, bull 3 years old or over, at the World's Fair. Ancient Briton (15034) stood first, followed by Don Carlos 33784, Earl of Shadeland 30th 30725, Vincent 2d 42942, Wildy 29th 45945 and Commodore 32948. He also won third in class for herds graded by ages. His grandsire, Anxiety 4th 9904, needs no introduction to the modern Hereford breeder. The visitor finds the sons and daughters of Duke 5th a grand lot of broad-backed, deep-flanked individuals, and the reader, if he consult the sale catalogue, that the entire herd is of the best Hereford blood. The cattle industry began an upward tendency last year, while the horse breeding industry has taken on a new impetus and is now on the road to prosperity and better prices. The foundation of the fifty head of trotting and roadster horses that will be offered was the best of thoroughbred stock and since strongly re-enforced by the best in track horse history. A major portion of those that will go in the sale were sired by Jove 3758 by Onward and Clark Street 9197 by Red Wilkes. Mr. Haylett, having sold one-half of his 2,000 acre breeding farm, concluded to close out the entire herd of Herefords and a major portion of the horse stock in the stud. An excellent training track is found on the farm where the horses are worked, hence as drivers the intending buyer can select to suit his fancy those that best suit his wants. More later on will be given concerning both cattle and horses, but in the meantime send for a free copy of the sale catalogue.

"The Farmer's Ready Reference, or Hand-Book of Diseases of Horses and Cattle." Descriptive circular free. Address S. C. Orr, V. S., Manhattan, Kas.

Union Pacific Route.

What you want is the through car service offered between Denver and Chicago via the Union Pacific and Chicago & Alton railroads, which is unexcelled by any other line. Magnificent Pullman sleepers, dining cars and chair cars, run through daily without change, Denver to Chicago via Kansas City.

Half Rate.

May 21 and June 11 the Missouri, Kansas & Texas Railway Company will sell tickets at one fare for the round trip, to points in Texas, Lake Charles, La., and Eddy and Roswell, N. M., tickets good returning twenty days from date of sale. For further information address

G. A. McNUTT,
1044 Union Ave., Kansas City, Mo.

In Effect May 19.

Remember, the new service on the Nickel Plate Road goes into effect May 19. Afternoon train will leave Chicago at 1:30 p. m., arrive in Cleveland 11:30 p. m., Buffalo 6 a. m.; evening train will leave Chicago 9:20 p. m., arrive Cleveland 9:50 a. m., affording business men an excellent train service to those cities. Through trains between Chicago, New York and Boston without change. Superb dining cars. City ticket office, 111 Adams street, Chicago. Telephone main 389.

DR. ORR'S BOOK.—Readers of the KANSAS FARMER will be pleased to know that arrangements have been made whereby they can obtain this concise and well nigh invaluable "Farmer's Ready Reference or Hand-Book of Diseases of Horses and Cattle" in combination with this paper at a slight saving in cost.

The separate prices of these are:

Dr. Orr's Book.....\$1.25
KANSAS FARMER, one year.....1.00

Total.....\$2.25

Two dollars sent either to the Kansas Farmer Co., Topeka, or to Dr. S. C. Orr, Manhattan, will secure both, making a saving of 25 cents.

VETERINARY SURGEON.

DR. U. B. MCGURDY, Veterinary Surgeon. Graduate Ontario Veterinary college, Toronto, Canada. Can be consulted on all diseases of domestic animals at office or by mail. Office: 114 West Fifth Street, Topeka, Kas.

DOGS.

HIGHLAND KENNELS, TOPEKA, KAS.—Great Danes and Fox Terriers. The first prize and sweepstakes winner, Great Dane King William, in stud. Dogs boarded and treated for all diseases; also, remedies by mail. Correspondence solicited.



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Brooders only \$5. Best & Cheapest for raising chicks. 401st Premiums 4000 Testimonials. Send for Cat'lg. G. S. SINGER, Box Z Cardington, O.

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Instantly and positively prevents flies, gnats and insects of every description from annoying horses and cattle. It improves the appearance of the coat, dispelling with fly-nets. Applied to cows it will give them perfect rest, thereby increasing the quantity of milk. It is also a positive insecticide for plants. We guarantee it pure, harmless and effective. Recommended by thousands using it. One gallon lasts four head an entire season. Price, including brush, quart cans, \$1.00; half-gallon, \$1.75, and one gallon, \$2.50. Beware of imitations. Made only by The Crescent Manufacturing Co., 2109 Indiana Avenue, Philadelphia.

The Greatest Railroad on Earth—Santa Fe Route!

Teachers and others going to National Educational Association meeting at Denver, in July, should remember that the Santa Fe offers as low rates as anybody else, with better service. Special inducements to small or large parties.

Santa Fe Route.

Through Pullman Sleepers and free Chair Cars—Chicago, St. Louis and Kansas City to Denver. One hundred miles' superb view of Rocky Mountains between Pueblo and Denver.

Privilege of attending Summer School, Colorado Springs, on return trip. Low-rate excursions into the mountains after meeting is over.

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Ten sets Americanized Encyclopedia Britannica, full cloth, latest edition, ten volumes; regular price \$21.50, now.....	\$11 25
Ten sets same, half morocco, regular price \$30, now.....	19 00
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One Mulhall's Dictionary of Statistics, 632 pages, valuable reference book.....	8 25
Seven White House Cook Book, large 8vo, white oil cover.....	1 50
Eleven Napheys' Physical Life of Women, cloth, 426 pages, a valuable home book.....	1 00
Fourteen Napheys' Transmission of Life, 362 pages of information for women.....	1 00
Thirteen sets Works of Abraham Lincoln, two volumes, cloth, Nicolay and Hay edition, regular price \$10, now.....	6 25

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Who will secure the above prizes? When this lot is sold we cannot fill orders. Send money with order—we will pay the freight. Correspondence asked.

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603 KANSAS AVENUE, TOPEKA, KANSAS.

The Veterinarian.

We cordially invite our readers to consult us whenever they desire any information in regard to sick or lame animals, and thus assist us in making this department one of the interesting features of the KANSAS FARMER. Give age, color and sex of animal, stating symptoms accurately, of how long standing, and what treatment, if any, has been resorted to. All replies through this column are free. Sometimes parties write us requesting a reply by mail, and then it ceases to be a public benefit. Such requests must be accompanied by a fee of one dollar. In order to receive a prompt reply, all letters for this department should be addressed direct to our Veterinary Editor, Dr. S. C. ORR, Manhattan, Kas.

IRRITATION FROM TOOTH.—I have a horse, 3 years old, that has just lately got a large lump on the side of his head, between the eye and nostril. It is sore to pressure, but shows no sign of breaking. S. M. MC.

Hawley, O. T.

Answer.—The lump may be due to some external injury, but is more likely caused by the root of a tooth. Bathe it every day with cold water and if it continues to grow worse have the tooth extracted.

THIN IN FLESH.—I have a gelding, 11 years old, that was poor when I got him and he will not put on flesh. He has a good appetite, seems to feel well and shed his hair all right, but will not fatten. What can I do with him? Syracuse, Kas. J. A. H.

Answer.—If your horse is in good health and has a good appetite there is nothing more to do than to give him plenty to eat. Some horses are so constituted that they will not get fat while kept up, no matter how well they are fed, but such cases will generally get fat if allowed to run idle on grass. Your humble servant unfortunately became the possessor of just such an animal, some time ago, and the best of treatment with both feed and drugs could not persuade it to remain fat while at work, so I just traded it to a fellow who thought he knew more than I did. "Go thou and do likewise."

BRUISED SHOULDER.—I have a mare that has a soft lump on her shoulder near the lower part. I used her in the plow two weeks ago, then turned her out. What can I do for it? Green, Kas. W. C. M.

Answer.—Apply a cantharidine blister to the lump, and if it does not go away in a month go to your local veterinarian and have it opened.

Don't Tobacco Spit or Smoke Your Life Away

is the truthful, startling title of a book about No-To-Bac, the harmless, guaranteed tobacco habit cure that braces up nicotine nerves, eliminates the nicotine poison, makes weak men gain strength, vigor and manhood. You run no physical or financial risk, as No-To-Bac is sold by druggists everywhere, under a guarantee to cure or money refunded. Book free. Address Sterling Remedy Co., New York or Chicago.

Homes for the Homeless.

The opening of two Indian reservations in northeastern Utah to settlers opens up over three and one-half million acres of fine agricultural and stock-raising land for home-seekers.

The Uintah and Uncompahgre reservations are reached by the only direct route, the Union Pacific system, via Echo and Park City. E. L. LOMAX, G. P. & T. A., U. P. system, Omaha, Neb.

Important Change of Time.

The new service on the Nickel Plate Road goes into effect on Sunday, May 19. Three trains will be run in each direction, leaving Chicago going east at 8:05 a. m. daily except Sunday, 1:30 and 9:20 p. m. daily. No change of cars between Chicago and New York in either direction. Also through sleepers between Chicago and Boston. Superb dining cars are a feature of the new service. Rates always the lowest. City ticket office, 111 Adams street, Chicago. Telephone main 389.

Half-Rate Excursions to South Missouri, Arkansas and the Southeast.

On May 21 and June 11, round-trip tickets to south Missouri, Arkansas and the South and Southeast, via the Memphis Route, Kansas City, Ft. Scott & Memphis railroad, will be sold at rate of one fare, with minimum rate of \$7. Tickets available for stop-off at intermediate stations. For detailed information, time schedules, and printed matter descriptive of the great stock-raising and fruit-growing sections of Missouri and Arkansas, address

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Ask your neighbor to subscribe for the KANSAS FARMER.

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

FRUIT EVAPORATORS and CIDER MILLS. BEST, CHEAPEST and Most Reliable on the market. Catalogue free. WM. STAHL EVAPORATOR CO., QUINCY, ILL.

MARKET REPORTS.

Kansas City Live Stock.

KANSAS CITY, May 20.—Cattle—Receipts since Saturday, 3,359; calves, 41; snipped Saturday, 594 cattle; 91 calves. The market was strong to 10c higher all around. The following are representative sales:

DRESSED BEEF AND SHIPPING STEERS.			
16.....	1.545	\$5.50	22.....1,413 \$5.35
57.....	1.315	5.30	17.....1,432 5.30
9.....	1.328	5.00	28.....1,108 5.00
2.....	1.375	5.00	21.....1,090 4.85
1.....	1.310	4.35	1.....1,210 4.25
1.....	1.290	4.25	1.....1,012 4.25
1.....	780	4.00	1.....1,180 4.00
2.....	975	4.00	1.....930 3.95

TEXAS AND INDIAN STEERS.

48 I. T.....	1.151	\$4.70	71.....1,003 \$4.35
94 me'l.....	894	4.15	5 me'l..... 873 4.15
25 me'l.....	916	4.05	23.....984 4.00
36.....	718	4.00	49.....925 3.90

ARKANSAS STEERS.

61.....	629	\$3.70	
SOUTHWESTERN STEERS.			
58.....	893	\$4.10	20.....901 \$4.00
21.....	1,010	3.90	4.....823 3.90
32.....	767	3.75	

COLORADO STEERS.

10.....	1,470	\$3.50	79.....1,377 5.05
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TEXAS AND INDIAN COWS.

72 heif.....	573	\$2.75	7.....408 \$2.50
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COWS AND HEIFERS.

42 sp.....	1,047	\$4.90	51 sp.....1,061 \$4.90
15.....	630	4.35	38.....700 4.35
4.....	1,163	4.00	1.....770 4.00
3.....	1,070	4.00	3.....1,163 3.85
12.....	1,108	3.85	1.....1,170 3.85
1.....	1,100	3.00	1.....1,160 3.00
1.....	1,140	2.75	1.....1,130 2.75
6.....	901	2.40	1.....460 2.30
2.....	1,055	2.25	9.....971 2.25
1.....	400	2.25	2.....930 2.00

STOCKERS AND FEEDERS.

21.....	1,084	\$4.40	1.....1,140 \$4.00
29.....	996	3.85	1.....540 3.50
1.....	930	3.25	

Hogs—Receipts since Saturday, 5,433; shipped Saturday, 187. The market was strong to 5c higher. The following are representative sales:

67.....	313	\$4.60	77.....268 \$4.50	3.....220 \$4.50
42.....	236	4.50	64.....289 4.50	69.....251 4.50
13.....	213	4.45	66.....218 4.45	88.....217 4.45
23.....	218	4.45	80.....211 4.45	40.....203 4.45
81.....	210	4.45	47.....246 4.45	78.....220 4.45
83.....	219	4.40	62.....224 4.40	72.....209 4.40
50.....	209	4.40	42.....190 4.40	71.....193 4.40
42.....	216	4.40	60.....225 4.40	60.....202 4.40
61.....	222	4.40	86.....211 4.40	69.....236 4.40
10.....	236	4.40	88.....197 4.37½	69.....210 4.35
60.....	208	4.35	72.....199 4.35	61.....225 4.35
16.....	187	4.35	30.....197 4.35	62.....181 4.32½
65.....	199	4.32½	94.....185 4.30	65.....186 4.30
79.....	169	4.25	67.....193 4.25	63.....190 4.25
109.....	163	4.25	113.....155 4.25	66.....151 4.20
5.....	220	4.20	30.....138 4.20	15.....150 4.20
112.....	154	4.15	25.....147 4.10	22.....148 4.10
8.....	131	4.05	99.....145 3.95	37.....127 3.90

Sheep—Receipts since Saturday, 9,226; shipped Saturday, none. The market was active and 10c higher. The following are representative sales:

10 native.....	129	\$4.60	247 Tex..... 79 \$3.75
54.....	81	3.45	20.....76 3.25

The market was unusually quiet at the horse and mule market. The supply, however, is good and the outlook for a good market tomorrow is splendid. Buyers are drifting back into town and some have given out that they will fill several orders this week.

Chicago Grain and Provisions.

	May 20.	Opened	High'st	Low'st	Closing
Wh't—May....	72	73	72	72½	72½
July.....	72½	74½	71½	73½	73½
Sept.....	72½	74½	72	73½	73½
Corn—May....	54½	54½	53	53	53
July.....	54½	55	53½	53½	53½
Sept.....	53½	56	54½	54½	54½
Oats—May....	29½	29½	29	29	29
July.....	29½	30	29½	29½	29½
Sept.....	28½	29	28½	28½	28½
Pork—May....	12 61	12 72½	12 60	12 72½	12 72½
July.....	12 55	13 10	12 55	12 82½	12 82½
Sept.....	12 80	13 42½	12 77½	13 10	13 10
Lard—May....	6 77½	6 77½	6 77½	6 77½	6 77½
July.....	6 90	7 00	6 85	6 90	6 90
Sept.....	7 05	7 15	7 00	7 05	7 05
Ribs—May....	6 35	6 35	6 35	6 35	6 35
July.....	6 40	6 55	6 40	6 45	6 45
Sept.....	6 50	6 75	6 50	6 62½	6 62½

Kansas City Grain.

KANSAS CITY, May 20.—Soft wheat by sample sold at 81c here to-day to go to Ottawa, Kan., and soft wheat out of store sold at 80c and 80½c. Prices were up about 3c all around from Saturday's best prices. Some hard wheat was sold at 78c to go to Ottawa. There were a good many mill orders from outside points and buyers were willing to pay almost any price asked—so anxious were they for wheat.

The demand for wheat is entirely local now, so that quotations on the basis of Mississippi river are not practicable.

Receipts of wheat to-day, 47 cars; a year ago, 48 cars.

Sales of car lots by sample on track. Kansas City: No. 2 hard wheat, 3 cars 78c; No. 3 hard, 1 car 75c; No. 4 hard, nominally, 73c; No. 2 red,

2 cars 81c, 2 cars 80c, 1 car 78c, 2 cars early 77c, 10,000 bushels out of store 80c, 5,000 bushels out of store 80½c; No. 3 red, 2 cars 79c; No. 4 red, 1 car 74c; rejected, 2 cars 70c.

Corn was about a cent higher. The small offerings were very firmly held. The demand seemed not very urgent.

Receipts of corn to-day, 47 cars; a year ago, 43 cars.

Sales by sample on track, Kansas City: No. 2 mixed corn, 2 cars 49c; No. 3 mixed, 1 car 48½c; No. 4 mixed, nominally, 47c; No. 2 white, 5 cars 51c, 2 cars 50½c; No. 3 white, nominally, 49½c.

Oats were a little higher. There were few samples on sale and not much demand.

Receipts of oats to-day, 3 cars; a year ago, 12 cars.

Sales by sample on track, Kansas City: No. 2 mixed oats, 1 car 29c, 1 car 28½c; No. 3 oats, nominally, 28c; No. 4, nominally, 27c; No. 2 white oats, nominally, 32c; No. 3 white oats, nominally, 30c.

Hay—Receipts, 38 cars; the market is steady. Timothy, choice, \$9.00@9.50; No. 1, \$8.25@8.75; No. 2, \$7.00@7.50; fancy prairie, \$8.50, choice \$7.50@8.00; No. 1, \$8.00@8.75; No. 2, \$4.00@6.00; packing hay, \$3.00@3.50.

St. Louis Grain.

St. LOUIS, May 20.—Wheat—Cash, 75½c; May, 76c; July, 73½c; September, 72½c. Corn—Cash, 52½c; May, 52½c; July, 53½c; September, 54½c. Oats—May, 29c; July, 28c; September, 28½c.

Kansas City Produce.

KANSAS CITY, May 20.—Eggs—Eggs that are not clean sell at a discount. The market is quoted at 9½c for candled stock.

Poultry—Market steady. Hens, 6½c; springs, small, less than a pound, \$2.50 per doz.; 1½ to 1½ pounds, \$4.00; 1½ to 2 pounds, \$3.00@5.50 per doz.; roosters, 1c. Turkeys sell slowly; gobblers, 6½c; hens, 7½c. Ducks, 5½c. Geese, dull and not wanted; alive, 4c@4½c. Pigeons, firm; \$1.00 per doz.

Butter—Supply good and market slow. Extra fancy separator, 15c; fair, 13c; dairy, fancy, firm, 13c; fair, 8c@10c; store packed, best, 10c; fair, sweet packed, 7½c; packing, old, 4c@5c; stale butter finds no sale.

Strawberries—The supply was moderate. There seemed to be a slightly firmer feeling, but the values remained the same. The bulk on sale were Missouri and Kansas berries. Only a few tall end Arkansas berries were on sale. Missouri and Illinois, extra fancy, \$2.00 @2.50; Indian territory and Arkansas fresh, extra choice stock, \$1.50@2.00; fair to good, 75c@1.50 per case; holdover stock, from 50c up, according to quality.

Fruit—Apples, supply moderate; market steady on good apples; best fancy stand, \$3.00 @7.00; common to choice varieties, \$2.00@4.00.

Vegetables—Potatoes, market weak; new, \$4.50 per barrel; ordinary kinds, 30c@40c per bu.; sweet potatoes, red, supply good, market slow, 25c@30c per bu.; yellow, 2c@3c per bu.; Colorado, market fair; choice mammoth pearl, white, best, 60c@70c; No. 2, 45c@55c; Utah, 40c @50c per bu.

Hessian Fly Damaging Wheat.

GREENUP, Ill., May 20.—The Hessian fly is devastating the wheat in Cumberland and adjoining counties. The cut worm and chinch bug are also at work, but the damage done by them is small compared with the havoc of the Hessian fly. During the past week some wheat fields were rendered a total loss, the stock being sapless and dry as stubble, and have been plowed under and planted in corn.

THE STRAY LIST.

FOR WEEK ENDING MAY 8, 1895.

Rush county—W. J. Hayes, clerk.

MARE—Taken up by P. A. Wright, in Belle Prairie tp., six miles southwest of Flavius, April 30, 1895, one sorrel mare, 3 years old, a heavy scar on right shoulder, left hind foot white, no brands; valued at \$25.

Osage county—E. C. Murphy, clerk.

MARE—Taken up by S. C. Peterson, in Olivet tp., P. O. Osage City, April 18, 1895, one roan mare, four feet four inches high, branded with a key on left shoulder; valued at \$11.

Morris county—June Baxter, clerk.

PONY—Taken up by C. F. Anderson, in Four Mile tp., one sorrel mare pony, about 6 years old, white spot in forehead, white hind feet; valued at \$20.

MARE—By same, one bay mare, about 5 years old, white spot in forehead, right feet white, branded on right hip with figure 4; valued at \$25.

Cherokee county—P. M. Humphrey, clerk.

MARE AND MULE COLT—Taken up by Joseph Harwell, in Spring Valley tp., one sorrel mare and mule colt, mare weighs 700 pounds, hind feet white, star in forehead; valued at \$20.

COLT—Taken up by J. R. Hodson, in Garden tp., one dark bay horse colt, fourteen and a half hands high, 3 years old.

FOR WEEK ENDING MAY 15, 1895.

Labette county—J. F. Thompson, clerk.

MARE—Taken up by John Blackerby, in Moun Pleasant tp., April 20, 1895, one sorrel mare, 2 years old.

MARE—By same, one bay mare, 2 years old, bell and halter on.

MULE—By same, one mare mule, 1 year old, with headstall on.

Crawford county—Peter McDonnell, clerk.

MARE—Taken up by Ezra Babcock, in Sherman tp., P. O. Farlington, April 22, 1895, one sorrel mare, 5 years old, fifteen hands high, star in forehead, white speckled on hip and back.

MARE—By same, one bay mare, 4 years old, fifteen hands high, star in forehead; two animals valued at \$50.

Neosho county—W. P. Wright, clerk.

MARE—Taken up by M. C. Rice, in Erie tp., one roan mare, fourteen hands high, branded on left shoulder and hip with A. D. B. and on right shoulder A. 15 years old.

FILLY—By same, one black mare colt, 3 years old, fourteen and a half hands high.

Phillips county—I. D. Thornton, clerk.

MARE—Taken up by Levi Mullican, in Arcade tp., April 30, 1895, one brown mare, fifteen hands high; valued at \$25.

Rawlins county—A. K. Bone, clerk.

MARE—Taken up by George W. Davis, of Atwood, April 22, 1895, one light gray mare, sixteen hands high, weight 1,000 pounds, no marks or brands; valued at \$30.

FOR WEEK ENDING MAY 22, 1895.

Cheyenne county—G. Beukelman, clerk.

MARE—Taken up by John Lindholm, in Jefferson tp., April 20, 1895, one dark bay mare, 4 years old, white star in face; valued at \$17.50.

GELDING—By same, one light bay gelding, 3 years old, large star in face, no marks or brands; valued at \$17.50.

MARE—Taken up by Daniel Rapp, in Lawn Ridge tp. (P. O. Lawn Ridge), May 3, 1895, one iron-gray mare, five feet two inches high, weight about 850 pounds, light scar on inside of right hind leg; valued at \$25.

HORSE—By same, one bay gelding, five feet three inches high, white spot in forehead and on nose, weight about 900 pounds; valued at \$25.

Pottawatomie county—Frank Davis, clerk.

STEER—Taken up by Peter Noll, in Cottonwood tp., April 29, 1895, one black hornless steer, right ear cut straight off, 3 years old; valued at \$25.

Allen county—James Wakefield, clerk.

MARE—Taken up by John Laster, in Elm tp., one sorrel mare, about 12 years old, white spot on forehead, about fifteen hands high, no marks or brands other than the above; valued at \$20.

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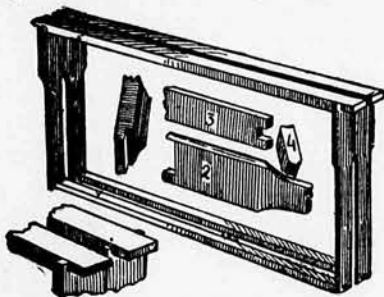
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COMMISSION MERCHANTS,

The Apiary.

ABOUT BROOD FRAMES.

How to Put Together Some Which Have Always Given Satisfaction.

There are frames and frames for brood; in the old days of box hives and homemade furniture, almost as many different "favorite styles" as there were beekeepers. But with something like a uniformity of hives a standard frame, in size, became necessary. Even then many apiaries were innocent of any further improvement in the frame, which consisted of four strips of thin wood sawed the proper lengths and nailed together. Then came the factory makes with their morticed joints and a thin wooden tongue beneath the top-bar, just where the foundation or "starter" should be fastened. A great many still use this frame on account of its cheapness. They may be purchased of almost any dealer, all cut and nicely morticed, ready to put together, for about \$1.25 per 100. The main objection to them is their liability to sag when weighted down by a full comb of brood and honey, and the tendency of the bees to build burr combs, that is, combs running across from one frame to another instead of lengthways of a



BROOD FRAME.

single frame. When this occurs the usefulness of the movable frame vanishes or rather the frames are no longer capable of being moved, and one might as well resort to the old box hive and cross-sticks in the first place.

Both of these objections are remedied by the thick top frame, the top bar of which is beveled from 7-8 of an inch thick at the center of the bar down to 5-8 at the sides, in other words like the roof of a house inverted. This makes a frame strong enough to be proof against sagging, and from the peak or apex of this prism the bees start their comb, almost always following it from end to end, and thus insuring a straight comb. These frames properly spaced, about 1 1/2 inch from center to center, almost never produce burr combs. Perhaps the handiest frame of all for the amateur is the self-spacing pattern shown in the illustration. As will be seen by referring to the cut, the end bars touch for 2 1/2 inches at the top, making it impossible to crowd too closely together. The diagonal opposite corners of each frame are dressed to a V along this space where the bars come in contact with each other; the other corners being dressed square. This brings a V edge resting against a square one when the frames are properly arranged in the hive, and leaves the least chance for the bees to glue them together. Of course these are considerably more difficult to make than the plainer sorts, yet by a careful study of the parts in the illustration one should be able to construct at least a passable substitute. Nevertheless it is undoubtedly cheaper in the end to buy them "in flat" and then put them together, as one gets a much more satisfactory result, and saves much valuable time. These frames come about 50 cents per hundred higher than those first described.—American Gardening.

Bees in Cold Weather.

Bees will come out of their hives if the weather becomes warm for a day or two. They then clean out the hives and remove the dead bees. The animal heat in the hives when the outside temperature is high causes greater activity in a strong colony than may be desirable. Should the temperature fall slightly while the bees are working many of them will be overcome with cold and perish. The hive should be in some place where it is protected from sudden changes of temperature.

Interesting circulars sent to farmers. Send name to Bureau of Immigration, Spokane, Wash.



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Put a little of it out of sight yourself, and see how good it is. It's

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JONES' PIC FORCEPS.



By mail, postpaid, \$1.50. Agents wanted. Send for circular and terms. D. M. Jones, Wichita, Kas.

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McGORMICK

light-running steel binders and mowers not only have the honest look, but they have something better—reputation—character. This they have earned by long years of public service. There's stability in the very name "McCormick" and machines having that name can not be sold as cheaply as others, because they have other and more intrinsic value than "an honest look."

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WHAT WE SAY WE DO WE DO DO

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It will pay you to buy a Saw with "DISSTON" on it. It will hold the set longer, and do more work without filing than other saws, thereby saving in labor and cost of files. They are made of the best quality crucible cast steel, and are

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For Sale by all Dealers.

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RAW HIDE ROOFING

\$1.25 Per 100 Sq. Ft. [COVERS 10-10 FT.] Complete with nails and caps. Ready to put on. Anyone can lay it. Absolutely water-proof. Strong and durable. Put up in rolls of 250 and 500 square feet each.

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Free from lice and vermin, by lining your buildings with CARBONIZED TARRED FELT. \$1.50 per roll, 400 Sq. Ft. each. For Wood and Shingle Roofs, Barns, Out-Houses, Etc., Etc. In barrels, 45c.; 1/2 barrels, 50c.; 5 and 10 gallon cans, 60c. per gallon. Will outlast any cheap paint made. Write for circulars and samples, and mention this paper. **WE PAY THE FREIGHT!** CAMPE'S SUPPLY CO., Kansas City, Mo.

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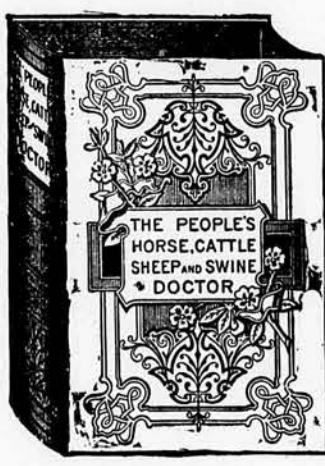

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(Continued from page 1.)

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Slaughtered in Kansas City.....	959,046	2,050,784	387,570		
Sold to feeders.....	308,181	11,496	60,816		
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Total sold in Kansas City, 1894.....	1,677,792	2,530,896	503,116	28,903	

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