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NEW SUGAR-MAKING PROCESS.

A Discovery Which is Alleged to Increase the Yield of Sugar 100 Per Cent.

If what is stated in the following article, taken from the *British Trade Review* be true, we are on the eve of better times in the business of making sugar:

During the last few weeks the attention of all interested in the growth and manufacture of sugar has been aroused by reports of a new process for the extraction of saccharine matter from cane and other vegetable substances. The subject is of such great importance that we publish at the earliest moment possible a copy of the specifications registered at the patent office. The patentees are Carl Daniel Eckman, of Bergvik, Sweden, now 57½ Old Broad street, London; William Bankroft Espeut, of Jamaica, now of 14 Southwick street, London; and George Fry, of 57½ Old Broad street, London, and their names, as "Eckman-Fry-Espeut Process."

THE SPECIFICATIONS.

These are registered under the title, "Improvements in the Extraction of Saccharine Matter from Vegetable Substances," and are as follows:

The object of this invention is to extract from sugar cane and other vegetable substances a larger proportion of the saccharine matter which they contain than is obtained by methods commonly practiced, and also to avoid (as much as possible) the inversion or degradation of crystallizable sugar during the process of extraction and subsequent manufacture.

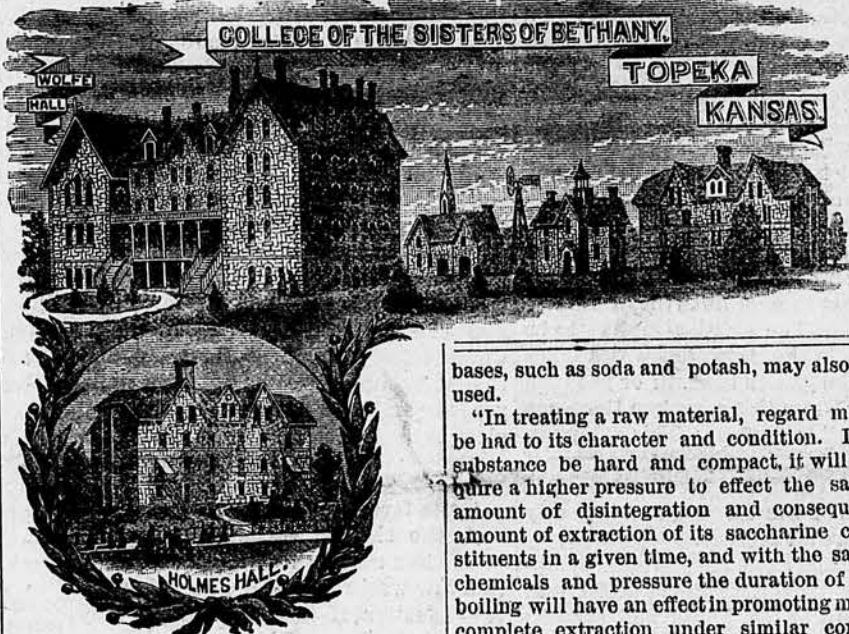
"The invention consists in boiling the raw material, under steam pressure, in a solution containing sulphurous acid, and a base of alkali.

"A method of carrying into effect this invention when applied to fresh sugar-cane is as follows: The canes, previously freed from the parts of the plants which it may be advisable to reject (on account of the small percentage of sugar which they contain) are cut in slices from about one-quarter to one-half in thickness, in order that they may be thoroughly permeated by the liquid during the boiling operation, hereafter to be described, or they may be crushed, broken, or otherwise treated, to effect the same object.

"In this state they are placed in a boiler or vessel constructed of or lined with lead or other metal alloy or substance capable of resisting the action of the chemicals employed.

This vessel or boiler must be so constructed as to be capable of being heated in a gradual and suitable manner (such as for example by means of a steam jacket) and must be of sufficient strength to resist the pressure necessary for the operation as well as of a form convenient for filling and discharging.

The pieces of cane (prepared as described) are placed in this vessel or boiler (with as little delay and exposure to the atmosphere as possible) and it is filled with them to such an extent that, when they are covered with the boiling solution, a stream still remains. The chemical agent employed consists of sulphurous acid and magnesia, in the proportions which form a salt containing one equivalent of acid, and one equivalent of base commonly called the normal or monosulphite. This salt may either be dissolved or suspended in water and this liquid used for filling the boiler, or the salt may be thrown on mixed with the pieces of cane, and then water used for filling the boiler. In some cases it may be advisable to treat the



pieces of cane with the sulphate in the form of a solution or other convenient form immediately that the canes are out, as such treatment will aid their preservation previous to their introduction into the boiler.

The quantity of sulphate of magnesia which we have found most advantageous in treating, say ordinary sugar cane, is about 1 per cent. of the weight of cane treated; but in certain cases, where the condition or quality of the cane may render it advisable, the proportion may be increased or diminished.

Sufficient liquid having been introduced into the boiler to insure the pieces of cane being covered therewith during the subsequent boiling, the boiler is closed in the usual way, and the temperature is gradually raised until a pressure of about fifteen pounds to the square inch is produced.

The pressure is maintained for about two hours. The contents of the boiler may then be discharged and the fluid separated from the solid matter by any suitable means, such as pressure or percolation.

If the operation has been properly performed, the fluid will be found to contain a very large proportion of the saccharine matter contained in the cane.

The bulk of the sulphate of magnesia will be removed when the saccharine solution is treated with lime according to the usual practice, and the solution may then be utilized in the ordinary or other suitable manner to obtain the sugar in a crystallized form, or alcohol may be obtained from it by fermentation and distillation.

"When our object has been to extract crystallizable sugar we have obtained the best results by the use of the normal sulphite of magnesia under the conditions described, but when the inversion of the sugar is unimportant, solutions containing a relatively larger proportion of sulphurous acid and pressure exceeding that above named may be used.

"Solutions containing more base than the quantity equivalent to the sulphurous acid present may also, in some cases, be used with success (for instance, when the juice of the cane or plant treated is acid.)

"The base which we have found most advantageous is magnesia, but other suitable

bases, such as soda and potash, may also be used.

"In treating a raw material, regard must be had to its character and condition. If a substance be hard and compact, it will require a higher pressure to effect the same amount of disintegration and consequent amount of extraction of its saccharine constituents in a given time, and with the same chemicals and pressure the duration of the boiling will have an effect in promoting more complete extraction under similar conditions; acid sulphites have a tendency to disintegrate plants more rapidly than normal sulphites. But, on the other hand, it must be borne in mind that high temperatures, acid solutions, and long boiling have both separately and jointly a tendency to invert, and, carried to extremes, to destroy sugar. In operating, therefore, some judgment must be exercised in order to obtain the best results. Although we have described the particular base, the quantity and proportion of chemicals, and the amount and duration of pressure with which we have obtained the best results, it will be understood that these conditions may, as we have indicated, be varied as in practice may be found requisite, but what we claim as our invention is: The manufacture of sugar from vegetable substances, by boiling under pressure, with a solution containing sulphurous acid, and a base of alkali substantially as described."

RESULTS OF THE INVENTION.

The process has been tried in this country with results which justify the most sanguine expectations, especially when it is adopted on a large scale and with fresh cane. From one ton of cane 260 pounds, or 12 per cent. of sugar—samples of which we have seen—were obtained, the yield of molasses being only seven and one-quarter pounds. Other portions of the canes which gave these results were tested by an analytical chemist, and found to possess 14 per cent. of saccharine matter. Only 2 per cent. of this was, therefore, left unextracted. By the old method of crushing between rollers, set in motion by steam power, or bullock labor, the average quantity of sugar produced is only from 6 to 8 per cent. of the weight of the canes; and if the new process can obtain 12 per cent. from stale cane, it is only reasonable to suppose that an average of from 14 to 18 per cent.—or double the usual quantity—will be obtained from ripe cane freshly cut, so far as regards quantity. The quality of the sugar made is found to surpass that produced on the old plan, for by the former the best of the saccharine matter, that close to the hard exterior of the cane, is thoroughly separated from it. The color of the sugar, too, is better, and the quantity of molasses greatly reduced. Another advantage claimed for the process is the utilization of the megasse. This is taken from the converters of

boilers in a pulpy mass, from which a residue of saccharine matter can be easily pressed, leaving the megasse clean and white and fit for the manufacture of paper. Its value for this purpose is estimated at \$12 per ton. Heretofore it has either been used as fuel or thrown away as rubbish.

The effect upon the manufacture of machinery will be considerable, though no machinery connected with the new process has been patented by its inventors. It is probable that the crushing mills will be gradually superseded by a machine which shall rapidly cut the canes into thin slices or lengths of about an inch, somewhat after the fashion of a chaff cutter, but upon a much larger scale. Power to drive this will of course be required on the larger estates. Instead of mills, however, sugar manufacturers will have to supply the huge converters or boilers, each required to hold about twenty tons of cane, and here a new field for inventive ingenuity is open. One of the largest firms of sugar-making machinery is already actively engaged in planning such converters. The difficulty met with is chiefly connected with the lining of the internal vessel, which must resist powerful chemicals, and be subject to a high steam pressure, say of 100 pounds. The enormous size of the boilers must also be taken into account, for the larger they are the more economical is the process. A diameter of eight feet and a height of twenty-four feet is spoken of as the probable size. All the machinery required in refining, such as vacuum pans, etc., will naturally remain as it is. We may add that large converters are about to be shipped to Jamaica, where Mr. Espeut will superintend trials with them on an extensive scale.

As the expense of extraction by the new process will not be greater than formerly, while the yield will be about doubled, and megasse produced worth at least £10 a ton, the results of the invention from a commercial point of view must be of the greatest importance. The use of French and German sugars will, it is believed, receive a decided check, and one from which the present government bounties will not be able to save them. The West Indian and other sugar planters, however, must rouse themselves, and not be satisfied until they have obtained the best results, both as regards quantity and quality, which the application of the new process and the best machinery places within their reach. When they send us, as they might, at least 100 per cent. more sugar, costing considerably less than that which they are now shipping, they will be able to defy French and German competition.

Perhaps the most foolish piece of symbolism ever devised is the "Wordless Book," published in England several years ago. It does not contain a word except on the title page. Two of its leaves are black, two crimson, two pure white, two pure gold. The black symbolizes the unregenerate heart of man; the crimson, the blessed redemption; the white, the purity of the soul "washed in the blood of the Lamb;" the gold, the radiant joy of eternal felicity.

In the convent of St. Sabina, at Rome, there is an orange tree said to be 600 years old, and at Nice, in 1789, there was another which usually bore between 5,000 and 6,000 oranges; its trunk took two men to encircle it, its crown was more than fifty feet from the ground, and its age was lost in antiquity.

The Stock Interest.

PUBLIC SALES OF FINE CATTLE.

Dates claimed only for sales advertised in the KANSAS FARMER.

June 6—J. H. Potts & Son, Jacksonville, Ill.
June 11 and 12—S. T. Bennett & Co., Short-horns, Sar-
ford, Kas.
June 17—T. W. Harvey, Short-horns and Aberdeen-
Angus, Burlington, Neb.
June 18—Durham Park Herd of Short-horns, Abilene,
Kas.
June 18—Stuyvesant & Foot, Short-horns and Polled,
Chicago.
June 19—Thos. Hughes, Short-horns, Chicago.
September 30—Clay Co., Mo., Short-horn Breeders' As-
sociation, Liberty, Mo.
October 9—C. S. Eichholtz, Wichita, Kas., Short-horns.
November 6—S. E. Ward & Son, Short-horns, Kansas
City, Mo.
November 20—Jos. E. Miller, Holsteins, at St. Louis,
Mo.
May 20, 1885—Powells & Bennett, Short-horns, Inde-
pendence, Mo.

Glanders and Farcy.

In view of the fact that these are dreaded, and a number of cases of glanders have been reliably reported in Kansas, our readers will be interested in anything bearing on the subject. We are indebted for part of what follows to a paper prepared by Dr. Wm. McLachlan, an educated veterinarian, published with a report on the agriculture of Manitoba, and re-published in the *London Live Stock Journal*.

Glanders is a disease of great antiquity, and is widely scattered throughout the globe, Australia being perhaps the only country in which it is not known. It appears in some countries in a more severe form than in others, and is found in its most virulent type in countries in which the laws of health are neglected or altogether ignored. The term "glanders" is applied to the disease when the nasal and respiratory tracts, together with the glands between or beneath the jaws, are affected, while "farcy" is applied when the disease manifests itself in localized spots on the skin and subcutaneous tissues, both diseases being the same. It is contagious and infectious, should be considered incurable, and in a variable period of time is always fatal. The causes which produce glanders may be said to be two-fold—viz., predisposing and active. In the first class are included all causes which produce debility and defective or perverted nutrition, these being held by the best authorities to be sufficient to produce the disease spontaneously.

Extreme fatigue and severe exertions, together with exposure in bad weather, with an insufficient supply of good food, will, in many cases, produce the disease. Confinement in low, damp, and filthy stables, and, in fact, anything which will tend to lower the health and condition, may produce the disease. It sometimes follows upon old standing cases of mange and other diseases. The second, or active cause of the disease is, however, the most important, as while all these circumstances may produce the disease, the active poison, once generated in the body of an animal, certainly will produce the disease in other health animals. What the specific poison is has not yet been satisfactorily demonstrated, but that there is such a poison in glanders and farcy is well known.

There are three essential symptoms which should always be looked for in a horse suspected of glanders. These are the discharge from the nostrils, the ulceration of the mucous membrane of the nostrils, and the enlargement and induration of the inter or sub-maxillary glands. The disease usually commences with the sign of a cold in the head, or catarrh of the nasal passages, a discharge flowing from one or both nostrils. The discharge may be at first clear and watery, but soon becomes opaque and viscid, collecting round the nostrils, flowing slowly and in strings, and collecting round the margin, or snorted out in lumpy masses. This discharge comes from the seat of the ulcers. Rarely, there may be no dis-

charge, and only the enlargement and induration of glands to indicate the disease. After a short time the discharge becomes more copious, and forms greasy-looking brown crusts around the margin of the nostrils. It is at first albuminous in composition, but later it becomes purulent. At first there may be only a slight sickly smell, but later it becomes very fetid, especially when it collects in the nasal sinuses, and is exposed to the air before being discharged.

The ulceration of the nostril is the next symptom to be observed, and this should always be looked for carefully where the disease is suspected. At first they commence as small nodules on the mucous membrane, and may be found on the septum, or just within the nostril; they may also be situated so high up in the nostril as to be out of sight. In two or three days they liquify in the centre, and they become white and opaque, and the membrane covering them is detached and thrown off, and a drop of pus escapes from the nodule, leaving a concave depression. At the beginning, this depression is circular, of a leaden gray color, sometimes streaked with blood, or it may be bright red or violet colored. Round this there is a hard circle, which is slightly elevated. This sore once formed, continues to discharge matter from it, displays no tendency to heal, and spreads more or less rapidly until they form one large ulcer. The third symptom to be looked for is the alteration which takes place in the glands beneath or between the jaws. From this symptom the name "glanders" is derived. This symptom is never absent in a confirmed case of glanders. These are the characteristic symptoms of the disease, and in nearly all cases are all present.

In advanced cases certain other symptoms may be observed—sarcocele and enlargement of the joints and sheaths of tendons, swelling of the legs and lameness, bleeding at the nose (epistaxis), cough, irregular breathing, and swellings of the sinuses on one side of the head from accumulation of matter—which, taken with the essential symptoms, will help in making a correct diagnosis of the disease. Accompanying these special symptoms there are certain general signs of the presence of the disease, fever, weakness, and debility, unthriftiness, diminished appetite, loss of flesh, etc., all of which precede or accompany the active symptoms. When these appear there may be a deceptive recovery; the animal improves in health and condition. This may continue for some months, when a relapse takes place, and the disease continues its ravages on the system, the animal being subject to attacks at intervals, some of which may be so severe as to kill him in a few days by an attack of acute glanders. In other cases the disease may linger on until the animal dies from exhaustion or pyemia from the formation of glanders abscesses in the lungs or other organs. Acute glanders may occur as a primary disease, or it may occur as a secondary affection, terminating an attack of chronic glanders. The symptoms are somewhat similar, but developed much more rapidly, and being much more intense in their manifestations. Complications arise; pneumonia may attack the lungs, oedema of the chest, abdomen, sheath, or mamma may appear; the discharge from the nostrils becomes very copious, emaciation is rapid, and profuse diarrhoea may set in. Death will occur in from eight to fifteen days from the appearance of fever, and will be due to exhaustion, or lung-fever as a complication of the disease.

There are also two forms of farcy—a chronic and an acute. Chronic farcy is

the least dangerous of the glanders affections, from the slow development of the disease, and from the fact that the lesions are external. There are both local and general symptoms here also. It is usually found in common-bred heavy horses which are old and worn out, and ill fed and stabled. The general symptoms are but little developed, being slight indications of fever, which may pass unobserved. The local symptoms consist in the appearance, in various parts of the body, in the skin and subcutaneous connective tissue, of a variable number of indolent tumor or "farcy buds," which soon ulcerate and become infecting chancres, being the specific feature of the disease. These tumors are isolated, and begin to form beneath the skin, which is affected when they begin to ulcerate. When the ulcers are developed they soon undergo changes which always result in ulceration; they began to soften in the centre, and from four to ten days after their appearance they will present a thin sac of pus which readily bursts, giving exit to a small quantity of thin yellow oily-looking pus, the appearance of which is characteristic of the disease. The ulcer shows no tendency to heal, unlike an ordinary sore, and extends by eating into the tissues around its margin. Large tumors will sometimes be developed in the course of the disease; but the chief characteristic of the disease, as already stated, is the farcy bud and this need never be mistaken. Chronic farcy may last for years, and the animal appear comparatively well; yet it is extremely dangerous, as every ulcer is an inflicting sore, and there is consequent danger of the disease spreading.

Acute farcy presents symptoms similar to the chronic variety, but runs its course in a much shorter space of time. In a few weeks or months they may die of exhaustion, if not killed before they reach that stage. Glanders and farcy being, to all intents and purposes, an incurable disease, it is mere folly on the part of the owner of any animal suffering from the disease to trifle with such a serious matter by attempting medicinal treatment, once the disease is so well marked as to be easily recognized. Should, therefore, any animal which is even suspected of the disease gain admittance into a stable, he should at once be isolated from contact with all other animals, and so kept until he is examined and pronounced upon by a competent veterinary surgeon, when, if the animal be declared to have glanders, he should at once be destroyed, and the carcass buried at least six feet below the surface, and a barrel of lime scattered over him. The stall, with that adjoining, if in a large stable, and the whole stable if a small one, should be thoroughly disinfected; the walls and woodwork should be scraped and washed with hot water, then white-washed with lime, to which some disinfectant, such as carbolic acid or chlorid of lime has been added, and the place should be well aired eight days (at the least) before being used again.

The utensils used—the buckets, brushes, halters, blankets brooms, etc.—will be best destroyed. The harness should be thoroughly washed in hot water, and then dried in the air for ten or twelve days before being used again. The floor, if of wood, should be well scraped and limed, and if on earth should have six inches removed and buried and replaced by new earth. To prevent glanders developing spontaneously, should be comparatively an easy thing. Stables should be built on high ground if possible, so as to secure drainage. Accumulation of manure and urine should not be allowed in and around or beneath stables; stables should be kept clean, a coat of lime-wash should be given two or three times a year; ventilation should be good, and there should be a regular supply of good food and water. Should these points be attended to, there need be no fear of a spontaneous outbreak of glanders. Once the disease has, however, broken out, suppression by the slaughter of the animal is the only method of treating the disease, which will be a benefit to all concerned.

Heaves in Horses.

A writer in the *New York Times* thinks that although this is a common disease, its nature and character, are not well understood, a statement that we believe is correctly and truthfully made. He also thinks the use of clover hay has a good deal to do with it, and in that we agree with him, but it is because of the condition of the hay. Good clover hay never injured any animal. It is a fact, however that heaves prevails most commonly in regions where clover hay is used, and is not so common in places where clover is not fed.

Heaves is called broken wind in England and in some parts of this country. On the plains it is unknown, excepting as it may be found in horses brought from the East and already affected by it. But then the change of food soon relieves the animal, which then suffers from the effects of the disorder very little, and then only when hard driven. The cause of it is supposed to be wholly mechanical at first, but this common impression is probably not wholly correct, and the alimentary effects, so to speak, of the common food of horses may have a considerable influence upon the condition of the animal, and result in disorder of the lungs, which will produce all the symptoms which are known as heaves. These are simply shortness of breath or difficulty of breathing, which is shown by the violent action of the nostrils, the heaving of the flanks, and the evident distress of the animal under unusual exertion, or when the weather is close, damp or warm. Clover hay is exceedingly dusty. The broken leaves and blossoms, and the very common moldiness produced by the unskillful curing of the clover, either by over-drying it or putting it away too green in damp weather, make the hay full of dust. This dusty hay, given loose and dry to horses, fills the air passages and lungs with an exceedingly irritating substance, which causes constant coughing and an inflammatory condition of the sensitive membrane lining these air passages. The cough produces a permanent spasmodic action, which occurs and becomes more violent upon every fresh occasion, and in time the membrane becomes thickened and so offers obstruction to the passage of the air to and from the lungs. When this has progressed to a certain stage every expansion of the lungs produces the distressing spasmodic action, as well as intense muscular action to force a sufficient supply of air through the contracted passages. Heavy feeding, too, with bulky food, by extending the stomach, causes this organ to press upon the already overburdened lungs, and adds to the trouble. The restricted respiration in time affects the general health of the animal, because there is not sufficient air inspired to purify the blood, and other diseases arising from impurity of blood weaken the constitution and shorten the animal's life.

There is but one remedy, and that is prevention. From the nature of the disease, cure is beyond the art or skill of the surgeon; and although it may be considerably eased and relieved by suitable feeding, yet the trouble will return on the first provocation. It is unnecessary to particularize the means of prevention; these suggest themselves when the causes are known. Avoiding dusty food of all kinds, musty grain or hay, or breeding from diseased horses (for the disease is easily inherited) are the chief preventive measures. Moistened food given in small quantities, and therefore of nutritious kinds, with attention to keeping the system loose and open, and care to avoid excessive exertion, will afford such relief that the trouble will wholly disappear for the time being. This subject is one well worth attention, not that popular regard is drawn to the frequency of glanders, for there is no doubt that the poisoning of the blood from long-continued difficult and restricted respiration will tend to produce this disease as a preliminary to lung consumption, or as a direct cause of death; the final effect of an insufficient supply of air to the lungs being precisely the same as that of impure air and impure air is a well known provocative of both farcy and glanders.

The Poultry Yard.

How to Feed Best.

It may seem a very simple matter to feed fowls, but no part of the management of the flocks is so difficult. True, all one has to do is to give them their feed, but it depends upon how this is done, for thereon depends the matter of procuring eggs. Every one who keeps poultry should make himself familiar with the different breeds, for unless this is done no correct method of feeding can be adopted. It is unnecessary to state that fowls should have a variety of food, should be fed regularly, be within easy access of pure, fresh water, and be provided with lime, charcoal, green food, meat, and good quarters, for that is an undisputed fact, but the breeder must remember that he has two obstacles to contend with, which are overfeeding and underfeeding.

Let us consider overfeeding. The large breeds, such as the Cochins, Brahmas, Plymouth Rocks and Langshans, grow for quite a long period before reaching maturity. While in the growing condition they do not take on fat very readily, but as soon as they arrive at the stage which is the turning point between the chick and the adult, it is a critical period with the breeder. They will then begin to fatten, and if they become too fat cannot nor will not lay. If they begin to lay before they get very fat, the service of egg production calls for nutrition, and the food is diverted in that direction, consequently the young hen will not fatten so easily after she begins to lay as though she had not commenced, but should she become over fat without laying it is a puzzling matter to the breeder how to reduce her in flesh again without injury. An overfat fowl is a nuisance, for should it lay at all the eggs rarely hatch, and if a few chicks come from them they will be weak and hard to raise. The hen herself becomes diseased, soon breaks down and is an eyesore to the whole flock. The cocks are not exempt. When too fat they are unserviceable, impotent and sterile, and might as well be cooped up for all they are worth. In fact they really do damage by injuring the hens, and in no manner are they profitable except for market.

Underfeeding is another evil, not that we mean to infer that the fowls are usually not supplied with a sufficiency of food, such as it is, but fowls may be underfed while reveling apparently in the midst of plenty. Exclusively corn is a terrible infliction to a flock, and actual physical suffering is the consequence when certain elements are lacking in the necessary requirements of the system when it is forced to produce a particular article from materials not adapted to the purposes intended. No kind of machinery is capable of weaving silk goods from hemp, nor can steam engines be built of cotton. A hen cannot produce eggs if lime is lacking, nor can she supply the growth of her own body when her product takes possession of that which should support herself. Nature gives what we call an appetite, which is only an indication of that which she requires, and we are all familiar with the habits of most fowls, and notice that when we change the food they accept the new variety readily. Feeding is the art of supplying the proper food, not so much in quantity as in quality. If we watch the fowls they will easily tell us what they desire. If you are feeding corn throw down a few handfuls of oats. If they greedily take the oats and leave the corn it indicates that they require something else. Try grass, meat, ground bone, pounded oyster shells, cooked vegetables, all of which they will accept or reject accord-

ing to their requirements. Feed regularly, and never feed more than they will eat up clean. They will walk away from the food as soon as they have enough. Never leave it on the ground. Feed early and late, and let them get hungry, that is, have regular intervals between meals. The practice of keeping feed by them all the time promotes an excess of fat. Allow as much exercise as possible. Throw hay on the floor or in the yard, place in it a few handfuls of some kind of grain that they do not receive often, and let them hunt and scratch for it. Feed growing chicks liberally, avoiding too much corn. Oats ground, and fed warm in the morning, is one of the best feeds that can be given. Always give whole grain at night. In summer give no corn except once or twice a week. Vegetables and grass is much better for them. Laying hens must have meat or milk. Eggs cannot be produced without nitrogenous material in some shape. Bones are almost absolutely essential. Above all, however, give pure, clean, fresh drinking water.—*Poultry Keeper.*

Kerosene as a Remedy.

Many, perhaps most persons who have tried it, approve the use of kerosene in some poultry ailments. Among these is the editor of the *Poultry World*. We have long known the value of kerosene oil for use among poultry, he says. At first, however, we experimented with this article chiefly in outward application. But it is very pungent, and its action is so powerful, that we have always advised its use with caution, when applied to the flesh or bodies of fowls. As a cleanser of roosts in the hen-house, it is an admirable thing. As a wash upon the bottoms and sides of setting and laying nests, it is unrivaled for the destruction of collection vermin. And we have watched the experiments of several breeders, who have resorted to its use as an internal medicine, for sick birds.

Some of these parties have given it in moderate doses to fowls afflicted with "cholera"; and in many cases quite successfully. James M. Lambing (who lives in the oil region, where this article is abundant) says that he can safely aver that either crude or rectified petroleum is "one of the greatest medicines that can be used," in certain cases of sickness among fowl stock. Its free use, he thinks, will cure poultry cholera. He administers it to his poultry in the proportion of a tablespoonful, once or twice a week, mixed in soft food, to say half a dozen hens.

Unless the fowls thus treated are very hungry, they will not voluntarily eat such a preparation—in our experience. In that case the kerosene may be mixed with their meal, rolled into pills as large as a filbert, and forced down the throat, six or eight at a feeding, and three or four times a day.

We have no doubt that the judicious use of kerosene, internally, will prove efficacious. But we again recommend due caution in applying this penetrating and powerful agent, as a medicine, lest overdosing with it prove destructive rather than curative. In extreme cases—such as attacks of cholera—it may be remedial; and these violent assaults must be met with violent treatment, as we have all learned, in recent years.

At the same time, what may be good and appropriate in such instances can not be availed of to advantage in all other cases of fowl ailment. It is, therefore, important that the fancier who undertakes to doctor his sick poultry should determine, first, what his birds are troubled with, before he commences to treat the disorder. And whenever he resolves to use petroleum, internally, he should exercise great care in its administration.

BREEDERS' DIRECTORY.

Cards of three lines or less, will be inserted in the Breeder's Directory for \$10.00 per year, or \$5.00 for six months; each additional line, \$2.00 per year. A copy of the paper will be sent the advertiser during the continuance of the card.

CATTLE.

D. R. PATTON, Hamlin, Brown Co., Kas., breeder of Broadlawn Herd of Short-horns, representing twelve popular families. Young stock for sale.

J. M. MAROY & SON, Wakarusa, Shawnee Co., Kas., breed Thoroughbred Short-horns of fashionable families. A few yearling bulls and young cows left for spring trade. Correspondence solicited.

WALNUT PARK FARM, Frank Playter, Prop'r. Walnut, Crawford Co., Kas. The largest herd of Short-horn cattle in Southern Kansas. Stock for sale. Correspondence invited.

A. HAMILTON, Butler, Mo., Thoroughbred Galloway cattle, and calves out of Short-horn cows by Galloway bulls, for sale.

W. M. D. WARREN & CO., Maple Hill, Kas., importers and breeders of Red Polled Cattle. Stock for sale. Correspondence solicited. R. R. station St. Marys, Kas.

HOLSTEIN CATTLE AND SHROPSHIRE SHEEP bred and imported by Jos. E. Miller, Ellwood Stock Farms, Belleville, Ill.

J. W. LILLARD, Nevada, Mo., Breeder of THOROUGHBRED SHORT-HORNS. A Young Mary bull at head of herd. Young stock for sale. Satisfaction guaranteed.

W. M. P. HIGINBOTHAM, Manhattan, Riley Co., Kas., Proprietor of the Blue Valley Herd of Recorded Short-horn Cattle of the best families, and choice colors. Also High Grade Cattle. Offers some choice bargains in Bulls, Cows and Heifers. The growing of grade bulls for the Southern and Western trade a specialty. Correspondence and a call at the Blue Valley Bank is respectfully solicited.

PLEASANT VIEW FARM, Wm. Brown, Lawrence, Kas., Breeder of JERSEY CATTLE of the best strains.

OAK WOOD HERD, C. S. Eichholtz, Wichita, Kas. Live Stock Auctioneer and breeder of Thoroughbred Short-horn Cattle.

Hereford Cattle.

E. S. SHOKEY, Lawrence, Kansas, breeder of Hereford Hereford Cattle. Three cows and 11 bulls for sale. Also Grade bulls and heifers for sale.

W. C. MCGAVOCK, Franklin, Howard Co., Mo., Breeder of Thoroughbred and High-grade Hereford and Short-horn cattle. 100 head of High-grade Short-horn Heifers for sale.

F. W. SMITH, Woodlandville, Mo., Breeder of Thoroughbred Hereford Cattle. Dictator 1889 heads the herd. 50 Grade Bulls for sale.

GUDGELL & SIMPSON, Independence, Mo., Importers and Breeders of Hereford and Aberdeen Angus cattle, invite correspondence and an inspection of their herds.

CATTLE AND SWINE.

WOODSIDE STOCK FARM, F. M. Neal, Pleasant Run, Pottawatomie Co., Kas., breeder of Thoroughbred Short-horn cattle, Cotswold sheep, Poland-China and Berkshire hogs. Young stock for sale.

J. E. GUILD, CAPITAL VIEW STOCK FARM, Silver Lake, Kansas, Breeder of THOROUGHBRED SHORT-HORN CATTLE and POLAND-CHINA SWINE. Correspondence solicited.

D. A. M. EIDSON, Reading, Lyon Co., Kas., makes a specialty of the breeding and sale of the thoroughbred and high-grade Short-horn Cattle, Hambletonian Horses of the most fashionable strain, pure-bred Jersey Red Hogs and Jersey Cattle.

H. B. SCOTT, Sedalia, Mo., breeder of SHORT-HORN CATTLE, POLAND-CHINA HOGS, COTSWOLD and SHROPSHIRE SHEEP. Send for catalogue.

W. H. & T. O. EVANS, Sedalia, Mo., Breeders of Short-horn Cattle, Berkshire Hogs, Bronze Turkeys, Plymouth Rock Chickens and Pekin Ducks.

SMALL BROS., Hoyt, Jackson Co., Kansas, Breeders of Short-horn Cattle and Chester White Swine. Correspondence solicited.

SHEEP.



E. COPLAND & SON, DOUGLASS, KANSAS, Breeders of Improved American Merino Sheep. The flock is remarkable for size, constitution and length of staple. Bucks a specialty.

MERINO SHEEP, Berkshire hogs and fifteen varieties of high-class poultry of the best strains. Bucks a specialty. Harry McCullough, Fayette, Mo.

C. F. HARDICK & SON, Louisville, Kansas, breeders of REGISTERED AMERICAN MERINO SHEEP. Having good constitution and an even fleece of fine, dense wool. Fine wool a specialty. Come and see our flocks or write us.

R. HOFFMAN, Wichita, Kas., breeder of SPANISH MERINO SHEEP. Bargains in registered Rams.

D. W. MCQUITTY, Hughesville, Pettis Co., Mo., breeder of SPANISH MERINO SHEEP, Berkshire Swine, and eight varieties of Poultry. Eggs, \$1.50 per setting.

G. B. BOWWELL, Breckenridge, Mo., has 1,100 Merino rams for sale. 250 of them are registered. His seven best stock rams shear from 27 lbs. to 33 lbs., weigh from 145 lbs to 180 lbs.

PURE-BRED Registered Vermont Spanish Merino Sheep and Light Brahms fowls for sale. Satisfaction guaranteed. R. T. McCulley & Bro., Lee's Summit, Mo.

SWINE.

CATALPA GROVE STOCK FARM, J. W. Arnold, Louisville, Kansas, breeds Recorded

POLAND-CHINA SWINE AND MERINO SHEEP. The swine are of the Gibe or Tabe, Perfection, and other fashionable strains. Stock for sale in pairs or related. Invite correspondence or inspection of stock.

SWINE.

A. J. CARPENTER, Milford, Kansas, breeder of Thoroughbred Poland-China Swine. Stock for sale. Inspection and correspondence invited.

W. M. PLUMMER, Osage City, Kansas, breeder of Recorded Poland-China Swine. Young stock for sale at reasonable rates.

L. WHIPPLE, Ottawa, Kas., breeder of Recorded Poland-China and Red Berkshire swine. Stock for sale at all seasons. Correspondence solicited.

L. W. ASHBY, Calhoun, Mo., Pure English Berkshire. Imported Royal Toronto 4577 at head of herd. Inspection solicited.

R. B. BALDRIDGE, Parsons, Kas., breeder of THOROUGHBRED RECORDED POLAND-CHINA Swine. Stock for sale. Inspection of herd or correspondence inv.

ROBERT COOK, Iola, Allen county, Kansas, importer and breeder of Poland-China Hogs. Pigs warranted first-class. Write.

POULTRY.

ONE DOLLAR per 13 for Plymouth Rock eggs; Pekin Duck eggs the same. Three sittings for \$2.50. Mark S. Salisbury, P. O. box 931, Kansas City, Mo.

N. R. NYE, breeder of the leading varieties of Choice Poultry, Leavenworth, Kansas. Send for circular.

PEARBODY POULTRY YARDS, Weidlein & Byrum, proprietors. Light and Dark Brahmas, W. and B. Leghorns, Buff and Part. and Black Cochins, B. B. R. G. Bantams, W. F. B. Spanish, LeFleche B. B. R. Game, S. S. Hamburg, Blk. Javas, W. E. B. Polish, Houdans, P. Rocks, Langshans. Eggs now for sale; \$2 per setting. Chickens Sept. 15th.

NEOSHO VALLEY POULTRY YARDS.—Established 1870. Pure-bred Light Brahmas, Partridge Cochins, Plymouth Rocks. Eggs in season. Stock in fall. Send for circular. Wm. Hammond, box 190, Emporia, Kas.

W. M. WIGHTMAN, Ottawa, Kansas, breeder of high-class poultry—White and Brown Leghorns and Buff Cochins. Eggs, \$2.00 for thirteen.

RIVERSIDE POULTRY YARDS, Oricket Randolph Prop'r., Emporia, Kas. Plymouth Rock, Partridge Cochins, Light Brahmas, or Brown Leghorn eggs, \$2.00 for 13.

WAVELAND POULTRY YARDS, Waveland, Shawnee county, Kansas. W. J. McColm, breeder of Light Brahmas, Plymouth Rocks, and Pekin Ducks. Stock for sale now. Eggs for hatching in season; also Buff Cochins eggs.

PLYMOUTH ROCKS—Corbin's Improved strain—\$5.00 per trio; eggs in season. Also Pekin Duck eggs. Address M. J. Hunter, Concordia, Kas.

G. W. PLEASANT, Wright City, Mo., breeds the very best L. Brahmas, P. Cochins, P. Rocks, W. Leghorns, Aylesbury Ducks, etc. Established in 1871. Write for circular.

MISCELLANEOUS

STOCK FARM FOR SALE.—640 acres, together with stock and farm implements. Address J. H. Reints, Odin, Barton Co., Kas.

J. G. D. CAMPBELL, Junction City, Kansas, Live Stock Auctioneer. Sales made in any part of the United States. Satisfactory reference given.

STRONG CITY STOCK SALES will be held the fourth Saturday in each month at Strong City. Address G. O. HILDEBRAND, Secretary.

S. A. SAWYER, Manhattan, Kas., Live Stock Auctioneer. Sales made in all the States and Canada. Good reference. Have full sets of Herd Books. Compiles catalogues.

TOPEKA TRANSPORTATION OFFICE.

No. 130 Kansas Ave., Topeka. All orders promptly filled. Also storage for all kinds of goods at reasonable charges. Orders taken for hacks. Moving families a specialty. A. G. DRAKE, Manager.

FRANK CRANE,

Formerly of the firm of A. A. Crane & Son, Osco, Ill.,

COMMISSION AGENT

—For the Sale of—

HEREFORD, POLLED ANGUS, GALLOWAYS, SHORT-HORN,

And Thoroughbred and Grade Cattle of all breeds. Carload Lots a Specialty.

Stables, Riverview Park. Address F. P. CRANE, Stock Yards, Kansas City, Mo.

THE LINWOOD HERD

SHORT-HORN CATTLE



W. A. HARRIS, Linwood, Kansas,

The herd is composed of VICTORIAS, VIOLETS, LAYENDERS, BEAUFITH BUDS, SECRETS, and others from the celebrated herd of A. Cruickshank, Sittion, Aberdeenshire, Scotland. GOLDEN DROPS, and UNYS, descended from the renowned herd of S. Campbell, Kinellar, Aberdeenshire, Scotland. Also Young MARYS, YOUNG PHYLISES, LADY ELIZABETHS, etc. Imp. BARON VICTOR 4324, bred by Cruickshank, and Imp. DOUBIE GLOSTER head the herd. Linwood, Leavenworth Co., Kas., is on the U. P. R., 27 miles west of Kansas City. Farm joins state. Catalogues on application. Inspection invited.

Short-horn Sales.

Special correspondence KANSAS FARMER.

On Tuesday, May 27, J. C. Stone, Jr., Leavenworth, Kas., sold a large draft of good Short-horns from the Fairholme herd. The sale was highly successful, and everything considered was one of the best sales made in the State this season. Col. Muir, the auctioneer, did himself credit, and the bidding was unusually spirited. Forty-three females were disposed of at an average of \$206, and nine bulls sold at about \$130 each; also seven other bulls, taken on a trade, were sold at an average of \$104. Exquisite, nineteen months, a Vellum, was the highest priced bull, and sold to W. R. Baxter, Circleville, Kas., for \$505. The highest priced female was \$480 for Scottish Lady 3d, four years, a Vellum, bought by Theo. Huston, Blandinsville, Ill. The condition of the stock was good and the attendance was very large. The dinner given by Mr. Stone and served by the ladies was superb, and on the whole the sale was quite satisfactory. The following are a list of the purchasers: Theo. Huston, Blandinsville, Ill.; G. Y. Johnson, Willis, Kas.; C. Moore, Tonganoxie, Kas.; S. A. Dyer, R. Orton and J. P. Fenlon, Leavenworth; J. L. Bennett, Savannah, Mo.; J. B. McAfee, Topeka; J. C. Hyde, Sunny Dale, Kas.; J. C. Greenwalt, Atchison; C. J. Buckingham, Reno, Kas.; W. R. Baxter, Circleville, Kas.; M. McMillan, Centropolis, Kas.; H. H. Lackey & Son, Peabody, Kas.; J. S. Lemon, St. Joseph, Mo.; A. W. Brewerton, Marion, Kas.; John Carson, Winchester, Kas.; H. Erwin, Hogue, Kas.; W. H. Ralston, Wm. Zule and G. B. Coffin, Leavenworth; Johnson & Williams, Silver Lake, Kas.; W. T. Nicholson, Nebraska City, Neb.; Will Kearney, Great Bend, Kas.

Thursday, May 28, Ross & McConnell, Bucyrus, Ohio, held a Short horn sale at Manhattan, Kas., with Col. S. A. Sawyer as auctioneer. The attendance was good, yet the prices realized were small. The cattle were mainly plain-bred and in very poor condition and not acclimated. The females sold brought prices ranging from \$35 to \$165, the average for nineteen head being \$90. The bulls ranged in prices from \$55 to \$130, making an average for seventeen bulls of \$76. Thirty-six Short-horns sold for \$3,005, making an average of about \$82.50.

On the same date Theodore Huston & Co. made a sale of eighty-eight young Short-horn bulls. Owing to the poor condition of the bulls, having been gathered up from various localities, the prices realized were low, about \$80.

On May 29, W. T. Hearne, Lee's Summit, Mo., had one of the best attended sales of the season. It was one of the best advertised sales of the season. The sale was held at his fine blue grass farm adjoining the town. Col. Muir did the selling and disposed of 106 head of Short-horn cattle during the afternoon, making an average of \$126. Eighty-one females sold at an average of \$142.50, and twenty-five bulls \$72.60. While the prices realized were not as high as was expected by Mr. Hearne, yet breeders present considered the prices as representative; the females brought good prices while the bulls sold low. Rose of Edgewood, a four-year-old Rose of Sharon, sold for \$425, to Theo. Huston, of Illinois, and Fannie Reed 5th, a two-year-old Adelaide, sold for \$345 to A. C. Briant, Belton, Mo. Mr. Hearne, at the close of this sale announced another sale next year on the last Thursday in May.

Care and Feed of Farm Horses.

A contemporary cautions its readers the wear of work on horses now comes most heavily on the muscles, and the feed should not only be sufficient, but rich in nitrogenous or muscle producing elements. Corn is very generally used as the concentrated feed for horses in the West. This is a mistake, since corn is largely a fat and heat producing food. Oats, peas and barley mixed with some corn should constitute the grain feed for farm or carriage horses, especially in warm weather. Every one familiar with the tough, spirited "French horses" of Canada, knows their grain feed is chiefly oats and peas. Hence they are strong and enduring, and are generally preferred above all others by city street-railway companies. Mr. Stuart says a good summer ration for work horses is sixteen pounds of oats and corn in equal quantities, ground together, with twelve pounds of cut hay. Some English and other

European authorities make a ration of ten to twelve quarts of oats, six to eight pounds of hay, with straw and steamed chaff. The chaff can be fed in cities or on farms having steaming appliances, while good clean straw, finely cut, can be fed on any farm, though not to work horses. The writer's feed for farm horses would be plenty of dry oats, unground, if the animal's teeth are in good condition and he did not bolt his food, with a moderate feeding of good timothy or moistened cut clover. We have seen farm teams fed for years wholly on early gathered and carefully cured clover fed dry, though they ran in the pasture during the summer.

The care of the team is as important as its feed. When the farmer comes in from his days work all perspiration and dirt, he feels greatly refreshed by "washing up." He needs his supper all the same, but the washing refreshes him, opens the pores and contributes to his bodily health. A horse is benefited by like treatment. A wise and humane driver will always give his team a careful grooming at close of a day's work; they will not only enjoy it, but will eat better, be less inclined to rub themselves in the stable, and lie down more quietly at night, rest better, and be stronger for the next day's toil.

The "scratches" are often the result of working in the dirt and damp. As a rule this can be prevented by washing and rubbing the exposed parts dry. We never yet failed of curing scratches on a well-fed and properly cared for horse, with warm water and a dry cloth. By a little daily care, washing in cold water, galled shoulders or back can be cured or prevented. We have done the work of a 200-acre farm with one pair of horses that were always in good condition, free from scratches or any other disease, but they had plenty of good feed and the best care, and were stabled twelve months in the year.

Working the Corn Field.

Farming, like every other calling, needs attention and study. The man is foolish that does not try to profit by experience of others as well as by his own. Working corn is very particular work. We have frequently called attention to certain fundamental ideas concerning it. We have just read a sensible article on the subject in the *Farmer's Review*.

Very great improvements have been made in the last few years in the implements for and methods of working the corn-fields, enabling the farmer by doing more rapid work and dispensing with hand labor to cultivate much larger areas, the writer says; but it is far from certain that our implements for this work now in most common use, or our methods of culture, are in all or in many respects what they should be. The smoothing or slanting tooth harrow has come into general use as the first implement employed in cultivating the crop, and is used till the corn is several inches in height, going over the ground rapidly, thoroughly stirring the surface, destroying the weeds before they have time to grow, and putting the ground in the best possible condition for the development of the young plant. If such a stirring of the entire surface not occupied by the plants could be kept up during the entire working season, it would seem to furnish just the conditions required. The soil, whether fall or spring plowed, does not require deep stirring; only that the surface shall be kept fine and mellow and free from weeds. About the time we discontinue the use of the harrow and substitute the cultivator, the plant is sending out its roots in search of food. As the season and growth progress these spread out more and more, extending not downward, but laterally, until the whole space of the soil a little below the surface is filled with a fine network of rootlets, each with its mouth taking up the plant food from the soil and conveying it through the circulatory system of the plant to build up the stalk and finally the ear. Just at the time when this building up the plant is going on, and is most important, we go into the field with our cultivator, whose deep-running teeth reach below this net-work of roots, and which tear and rend them, bringing a portion to the surface, and exposing them to the action of the atmosphere. The effect can but be a check to the growth, although nature at once sets about repairing the injury. Scarcely is this accomplished when along comes the cultivator the other way of the field, disturbing those roots which escaped in the first

working, and so on through the entire season of working. If the season is one of drouth, the deep stirring is an injury, as it promotes the evaporation of the moisture of the soil, as was shown last season by Prof. Sanborn, of the Missouri State Agricultural College, in his experiments on the College farm. A superficial stirring of the surface simply has the opposite effect of conserving the moisture, thus aiding instead of injuring plant growth. The writer last year, during a dry time in the last of July, tried the experiment of using the ordinary deep-running cultivator in his corn field, cultivating four rows and leaving four alternately. The effect was marked. The leaves on those rows cultivated drooped and wilted, and it was several days before they seemed fully to have recovered. Not having any shallow-running implement, he was unable to test in the same connection the effect of a shallow stirring of the surface, but believes it would have shown an improvement over that deeply stirred or not stirred at all. It seems clear to the mind of the writer that our implements for the later stages of cultivation in the corn field should, in the character of their work, more nearly approximate that done by the harrow in its earlier stages. In order to do this there need not be an entire revolution in the cultivator implement business, and a discarding of those now in use. They can be easily changed to meet the required conditions, and we note with pleasure that some of the manufacturers of cultivators have brought out "harrow attachments," which can quickly be substituted for the shovels on the ordinary two-horse cultivator, though we have seen none that fully come up to our idea of what is needed. There are also one or more styles of cultivators manufactured in the West, especially designed for shallow work and which are spoken of in the highest terms by those who have used them. With the right kind of an implement, which will aid instead of checking plant growth, it is a question yet to be determined how long cultivation in the corn field can be profitably kept up. The crowning effort of the plant is the production of the ear. But our cultivation ceases before this time is reached. Whether nature can be aided in its effort by a continual stirring of the surface without disturbing the roots up to the time the ear is well developed is a problem worthy of solution by practical test.

Charity to All, Ill Will to None.

A. D. Robbins & Co., Real Estate Exchange Office, 193 Kansas Avenue, are now prepared to take your property on sale—either county or city. We have some very choice farms and stock ranches on sale, some good bargains on lands and city property. Place your property before we issue our big circular, specially made of farms and lands, in all parts of the State. We have in our employ Thos. L. Ross, one of the best real estate men in the country.

Money.—We have money to loan on good improved City or Country Real Estate in Eastern or Middle Kansas, at as low rates and large amounts as any other parties. When you want to borrow give us a call. We also loan on Chattels in Shawnee county.

A. D. ROBBINS & CO.,
193 Kansas Ave., Topeka, Kas.

A crop of corn is essential on all farms upon which stock is kept. Being extremely rich in carbon, it not only provides nourishment for growth but produces heat and fat above all other cereals.

Awards.

The supply contract of the various charitable institutions of our State was again awarded to the Leis' Chemical Manufacturing Co., of Lawrence, Kansas, on their *German Baking Powder* and *Concentrated Fruit Flavoring Extracts*, also their pure *Ground Ginger* and *Liquid Blueing*, all of which have a great reputation among the trade, as well as the consumers who value pure and reliable goods. The State is indeed proud of such an institution as the Leis' Chemical Manufacturing Co.

One member of the KANSAS FARMER company has tested Mr. Leis' Dandelion Tonic and Baking Powder and knows them all he represents them to be.

A Connecticut sheep man is out with the assertion that poor fences have had more influence in causing the decline in sheep husbandry in New England than the dogs.

Save Your animals much suffering from accidents, cuts and open sores, by using Stewart's Healing Powder.

The English shire horse dealers and importers in this country are agitating the formation of an American stud book.

KITCHEN ECONOMY.

Interesting Tests Made by the Government Chemist.

Dr. Edward G. Love, the Analytical Chemist for the U. S. Government, has made some interesting experiments as to the comparative value of baking powders. Dr. Love's tests were made to determine what brands are the most economical to use, and as their capacity lies in their leavening power, tests were directed solely to ascertain the available gas of each powder. Dr. Love's report gives the following:

Name of the Baking Powder.	Strength: Cubic Inches Gas per each ounce of Powder.
"Royal" (absolutely pure).....	137.4
"Patapoco" (alum powder).....	125.2*
"Rumford's" (phosphate) fresh.....	122.5*
"Rumford's" (phosphate) old.....	82.7*
"Hauford's None Such" fresh.....	121.6
"Hauford's None Such" old.....	84.35
"Redhead's".....	117.0
"Charm" (alum powder).....	116.9*
"Amazon" (alum powder).....	111.9*
"Cleveland's" (short weight 3/4 oz).....	110.8
"Sea Foam".....	107.9
"Czar".....	106.8
"Dr. Price's".....	102.6
"Snow Flake" (Goff's, St. Paul).....	101.88
"Lewis's" Condensed.....	98.2
"Congress" yeast.....	97.5
"C. E. Andrews & Co.'s" (contains alum).....	78.17*
"Hecker's".....	92.5
"Gillett's".....	81.2
"Bulk".....	80.5

*In his report, the Government Chemist says: "I regard all alum powders as very unwholesome. Phosphate and Tartaric Acid powders liberate their gas too freely in process of baking, or under varying climatic changes suffer deterioration."

Dr. H. A. Mott, the former Government Chemist, after a careful and elaborate examination of the various Baking Powders of Commerce, reported to the Government in favor of the Royal Brand.

Weeds are the curse of all farms. Every weed that secures a growth, even of but a few inches, deprives the growing plant of just that proportion of nutritive matter.

Gen. D. E. Cornell, of the Union Pacific railroad, states that he has used Leis' Dandelion Tonic and bears cheerful testimony to its value for persons engaged in office work, and that many of his friends have been greatly benefitted by its use.

Fat pigs suffer greatly from the heat in summer. When yarded and access to water in which to roll in is denied, their yard should be partially shaded by trees.

PHENOL SODIQU is peculiarly the remedy for those living in the country, at a distance from physicians or druggists; the farmer especially, who has more or less stock, cannot do better than to keep a bottle on hand.—*Presbyterian Journal*.

The statement often made, that young grasses and clovers need the shade and protection of some larger plants, has no proof to sustain it.

If you are threatened with malarial fever, chills, ague or any of the diseases caused by malarial poisoning, take a few doses of Leis' Dandelion Tonic, and you will be surprised and delighted with the result.

Queen Elizabeth spelled the word sovereign in seven different ways in her letters.

Consumptives, call on your druggist and get a free Trial Bottle of Dr. King's New Discovery.

A HOME DRUGGIST TESTIFIES.

Popularity at home is not always the best test of merit, but we point proudly to the fact that no other medicine has won for itself such universal approbation in its own city, state, and country, and among all people, as

Ayer's Sarsaparilla.

The following letter from one of our best-known Massachusetts Druggists should be of interest to every sufferer:—

RHEUMATISM. "Eight years ago I had an attack of Rheumatism, so severe that I could not move from the bed, or dress, without help. I tried several remedies without much if any relief, until I took AYER'S SARSAPARILLA, by the use of two bottles of which I was completely cured. Have sold large quantities of your SARSAPARILLA, and it still retains its wonderful popularity. The many notable cures it has effected in this vicinity convince me that it is the best blood medicine ever offered to the public."
E. F. HARRIS,
River St., Buckland, Mass., May 13, 1882.

SALT RHEUM. GEORGE ANDREWS, overseer in the Lowell Carpet Corporation, was for over twenty years before his removal to Lowell afflicted with Salt Rheum in its worst form. Its ulcerations actually covered more than half the surface of his body and limbs. He was entirely cured by AYER'S SARSAPARILLA. See certificate in Ayer's Almanac for 1883.

PREPARED BY

Dr. J. C. Ayer & Co., Lowell, Mass.
Sold by all Druggists; \$1, six bottles for \$5.

The Busy Bee.

Improvement in Management.

Mr. J. B. Mason writes to the *Maine Farmer* that under the old box hive and brimstone form the management, it was necessary to destroy a colony of bees in order to obtain its honey, and the nectar when obtained, was necessarily of poor quality, and not very desirable. To get this honey such as it was, the best stocks were taken in the fall, after the yield of stores from natural sources had ceased; every crack and crevice in hives tightly closed, and the hives sat after dark over a hole in the ground, in which a quantity of burning brimstone was placed. In a short time the fumes of the brimstone suffocated every member of the colony; then the comb, with brood, pollen and dead bees, were taken from the hive, the honey pressed out and strained, and put in as merchantable shape as it was possible to make it, with that style of extracting. The honey thus obtained, was of course very poor in quality, being mixed as it necessarily was to a greater or less extent, with the brood and bee-bread contained in the comb. The price obtained for an article of this class was naturally low, in order to correspond with the quality of the goods, while the bees were a total loss to the owner.

This merciless method of obtaining honey, I am happy to say, is entirely done away with, except in some uncivilized portions of the globe, where fingers are used instead of forks. To-day every particle of comb, bees and all, can be taken from one hive and placed in another without injuring a single bee, and with no danger of exciting the colony so that it will have cause to offer to sting. The surplus honey is obtained for marketing in two forms; either in the comb in little boxes, weighing from one to three pounds, or in liquid state in kegs, pails or barrels, while hardly a single bee is destroyed in the operation of obtaining it. The boxes, or sections, as they are called, are put in a case, through the bottom of which the bees can easily pass, and then set on top the hive over the frames. The instinct of the bee teaches it to store its honey above its brood, consequently, if a yield of honey is being found in the fields, these boxes are immediately occupied, and the honey stored in them as it is gathered from day to day. When filled, the boxes are taken off, empty ones put in their place, the bees driven out of them, and they are ready for market.

If it is desired to secure a crop of extracted honey, so that it may be marketed in a liquid form in bulk, it can be removed from the frames without injuring a single cell of the beautiful honeycomb, which the bees have taken so much time and trouble to build. This is done by means of the extractor; a machine of recent origin, the invention of which has done much to make honey easy to obtain, and put it within the means of all, poor as well as rich, to purchase. The honey is extracted from the comb by this machine, by the aid of centrifugal force. It is simple in construction, easily made, and cheap in price, and no apiarist of to-day, can afford to be without one. It consists of a tin can about 3 feet high, of a diameter sufficient to take a frame of the size used in the apiary. Inside this can is a box composed of wire cloth which revolves by means of gearing, affixed to the brace which the inner box revolves. A faucet is arranged at the bottom of the can through which the honey can be drawn off as it is extracted. To use it, the full frames of comb honey are taken from the hive, the cappings of the honey

cells shaved off with a knife made for the purpose; then two of these frames of comb are placed inside the box, in the can, one on each side to equalize the weight, and the frames are then revolved rapidly by the geared crank, until all the honey in one side is thrown out. After the honey is extracted from one side, the frame is taken out, the cappings shaved from the other, and then the honey is extracted as before. This honey is as pure as that sold in the comb, and can be barrelled and sent any distance by freight without possible chance of injury.

Till within a few years, it was necessary to hive our swarms on frames entirely empty and the comb had to be built entirely in the frames. Many times, owing to this state of things, the comb was not built in the frames, but directly across them, thus defeating the idea of movable frames, for which purpose they were intended; again at times the comb while built within the frames, was put there so wavy and crooked, that it became next to impossible to remove them after they were filled. Many inventions operated with greater or less success, but at no time could positively be relied upon to fulfill the purpose for which they were intended, till at last, foundation so called was originated. This foundation if formed of thin sheets of pure bees-wax on each side of which is made an imprint of the exact size and shape of the bottom of the cells, of honeycomb.

This foundation is made by taking these sheets of wax, and running through a pair of rolls, on the face of which, indentations in the form of wax cells have been made; these rolls leave their impress on each side of the sheets of wax, and directly opposite to each other also, exactly as is found in the natural comb. The sheets of foundation after being securely fastened in the frames, and set in the hive, are drawn up the regular size by the bees, perfectly straight and true in the frames. They are accepted as readily by bees, as would so many sheets of natural comb, and they are at once worked upon and filled with brood and stores.

These inventions that I have mentioned have not been the results of immediate investigation and thought; nor were they the offspring of some one man's brain alone, but they were created step by step during a period of years. A need of them was felt years ago, and many different minds set themselves at work independently of each other, to solve the problems. Crude machines were made at first, as a matter of course on which from time to time improvements were made, till at last the perfected machines and appliances of to-day are in constant use, and have done much toward making apiculture profitable and pleasant. Perfection in apiculture is as far from being attained. A big field is open before us all, and an interesting field for study and investigation it is too. Its growth has been slow, if we go back to the beginning, but during the last thirty years, it has outstripped in the race for success, nearly every business of which the world has any knowledge. So immense has been its progress, that while thirty or forty years ago, few were engaged in it, and they only as an auxiliary to some other business, to-day hundreds make it their sole occupation, and are making fortunes out of it, while forty or fifty years ago, it was considered so hazardous an occupation in which to engage, that none but the most venturesome, dared keep more than a dozen colonies, to-day it is fixed on so sure a basis, that hundreds have bought and fitted up apiaries, of from one hundred to one thousand colonies, and insure themselves against loss.

One reason why it has advanced so

rapidly is, that many of our best educated and most refined men have found it a pleasant means of recreative exercise, which gives them a chance not only to labor physically, but to give their minds a chance to operate in a different direction from its daily labor, but in a manner which caused deep thought and earnest investigation, and we may expect the next generation to see advances made such as we now scarcely dream of.

Summer Pork-Packing in the West.

In reviewing the pork-packing in the West, the *Cincinnati Price Current* of May 29, says:

"For some weeks past there has been a moderate gain in the Western supply of hogs, but the returns for the past week show that there has been a small decrease in packing operations, compared with corresponding week last year, the aggregate being 130,000, against 135,000 last year. There is now an increase of 125,000 hogs in the packing since March 1, the total showing 1,235,000, against 1,110,000 last year. Prices of hogs are about the same as a week ago at Chicago, but here at Cincinnati are somewhat lower. Current Prices of meats and lard are on the basis of about \$5.80 for hogs, and manufacturers are realizing a fair profit on current operations. Parties at Chicago have been promulgating information for a week past to the effect that the summer supply of hogs will be 750,000 short of last year, but this has not had so much to do, if anything, with the upward course of values, as the trained hand of a masterly operator, who can manipulate mess pork, because of its lessened production and the fixed quantity of the article. It is not so easy to manage sides, but this article also is receiving similar attention. It is useless, therefore to discuss the outlook as to questions bearing on prices of hog products, otherwise than to guess as to what manipulation may do. There is a fairly healthy but not large movement of products on orders from consuming districts, and the exports continue larger than at the corresponding time last year, thus steadily lessening the deficiency in the comparison since November 1. The March returns to the *Cincinnati Price Current* as to summer supply of hogs indicated a shortage of something over 600,000 for the season, and we regard the chances more in favor of a smaller shortage than a greater one than this. Against the shortage, whatever there may be of it, there will be a large decrease in the export movement after June, compared with last year.

Special reports to the *Cincinnati Price Current* show the number of hogs packed from March 1 to date and latest mail dates, at the undermentioned places, with comparisons, as follows:

	1884.	1883.
March 1 to May 28—		
Chicago.....	570,000	535,000
Kansas City.....	193,689	203,000
Cincinnati.....	54,500	41,500
St. Louis.....	125,000	98,000
Indianapolis.....	55,700	47,000
Milwaukee.....	54,000	37,000
Cedar Rapids.....	58,814	45,440
Cleveland.....	38,207	36,000
Sioux City, Iowa.....	19,080	17,738
Ottumwa, Iowa.....	32,850	9,092

Col. H. C. St. Clair, Sumner county, keeps a record of rainfall and weather. He gives the following figures showing how much rain fell in his locality: 1881, 9.3 inches; 1882, 8.5 inches; 1883, 8.2 inches; and thus far in 1884, 3.3.

Boston and New England passengers should bear in mind that THE WABASH is the only line running a through sleeper from St. Louis to Boston.

An old and experienced Illinois gardener says that lime is good as an in-

secticide in case of cabbage. He says: Mix lime thoroughly with the soil where you grow your cabbage and you will not be troubled with the cabbage worm.

The Wool Market.

Wool is still in fashion, and when we get around to it will be worth having. We have the circular letter of W. C. Houston, Jr. & Co., Philadelphia, dated May 31, and it starts out with—

General business remains dull, and the tone throughout is conservative. Confidence has been badly shaken by the recent failures and it will take some time to restore it. The situation, however, is improving, for the fears of a panic are passing away, and this must be followed by a conviction that the trade of the country is on a sound basis to have stood so severe a strain. The fact is, that prices have been declining for so long a time that hard-pan has about been reached, and this saved us from wide-spread disaster; had the crash come when prices were inflated there would have been a commercial panic such as in 1857 and 1873. So strong an evidence that prices are low will, in itself, do much toward restoring confidence and paving the way for a resumption of activity.

Wool has been dull and prices weak. Manufacturers do not find ready sale for their goods, and are inclined to decrease production; this, in addition to the general conservatism, restricts trade. Still, there is a fair business doing, and, when sales are compared with the same period of other years, it will be seen that this is usually a very dull period anyhow. Buyers are naturally holding back until prices become established; but as soon as shearing is general, we look for more trade, as it will then be apparent at what figures the new clip can be had. Wool is not going out of fashion, and if proper attention is paid to getting good wool, and eastern quotations are followed, there will be more money made this season by shippers than during the years when the outlook was brighter.

Unwashed Kansas wools range from 17a 19c for Fine to 20a22c for Medium. Extra fine lots 5 to 6 cents higher.

Book Notices.

"Superior Fishing;" or the Striped Bass, Trout, Black Bass, and Blue-fish of the Northern States. Embracing full directions for dressing artificial flies with the feathers of American birds; an account of a sporting visit to Lake Superior, etc., by Robert Barnwell Roosevelt, President of the New York Fishery Commission; President of the New York Association for the Protection of Game; author of "The Game Fish of North America;" "Florida, and the Game Water-Birds;" "Five Acres Too Much," etc. Illustrated. Cloth, 12mo. Price, post-paid, \$2. Orange Judd Company, 751 Broadway, New York.

Persons who have been bitten by a cobra can feel the influence of the poison extend from the bite, and can even point out the spot which it has reached, the parts becoming numb as the venom does its work. There is absolutely no pain, but a gathering drowsiness, amidst which, after a long sigh or two, life suddenly ceases.

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The Home Circle.

To

BY AGNES WIER.

'Tis vain to try and comfort thy great grief.
God and the suffering ones alone can know
How the fierce waves of bitterness o'erflow
The soul, from which seem no relief.

I know how empty words of sympathy do come

To the quick ears of grief.

How vain my wish to bring relief

To thy tried heart with its great sorrow wrung.

Yet, O my friend, through all the distance long

My heart yearns toward thee with its pity dumb.

I fold my arms about thee; I would come
E'en in my weakness to help thee to be strong.

'Tis said "the soul by sorrow taught can teach;"

And so I try some words of balm to bring,
Something to teach thy heart again to sing
And the stirred depth of thy sad life to reach.

I think the dear Lord wills us happiness,
Yet happiness is not the grandest aim of life.

The deepest peace comes after fiercest strife,
And after longest yearning the most perfect tenderness.

Life comes to us as such a sacred gift,
And truest joy comes only when we learn
Our sorrowing face unto Him to turn
And say unto the Giver of this gift:

"Help us to lift and bear it on in steadfast trust

Through thy dear days so full of human love,

And through life's valleys where the damp mists move,

And through hot noons that cover us with dust.

"Let not mere circumstance of earthly pain or loss

Turn us from life's most lofty aim—

Weighing the weight of all its truest gain
Against the burden of our bitter cross.

* * * * *

"But let the golden plummet of Thy will

Drop down through all our length of weary days,

And let it measure all our gladsome ways
And run through all life's common good and ill."

Hot Weather Bread--Baked Beans.

Let me give you my way of making bread in hot weather, when the making of yeast is a bother. I buy a bunch of National yeast, which costs but little, and while getting dinner soak one-half cake in a half cup of warm water, boil with my dinner three good sized potatoes, mash fine, and mix with it two spoonfuls flour, pour over it one pint boiling water, add one spoonful salt, one of sugar, set away till milk warm, add yeast, and let rise. About 4 o'clock I take three pints water—though the whey from heated butter-milk is much better, spoonful salt, my yeast (that is now light and sparkling), and flour to make a thin batter; set away till bedtime, then knead up hard, cover well, let stand till morning, when it will be away up. Knead down and let stand till once more light, cut up and form into nice smooth loaves, let rise till very light, bake one hour in not too hot an oven.

This may seem like considerable fussing, but I do not knead only enough to make a good firm dough at any time, so it takes but very few minutes to do any one of these things, while letting it rise so much makes fine even grains. Try it. This makes five loaves.

Again: Try my baked beans, by the side of which stewed beans are flat, and which many western families never tasted, though all New Englanders know how to cook. Take three pints of beans, for family of five or six; if old, soak over night, if new wash, and put over the fire in a kettle with nearly twice as much cold water; let boil for fifteen or twenty minutes; then add a teaspoonful cooking soda; let boil ten minutes or longer; then pour off all this water, add more water and let boil till nearly soft; add one and a half or two pounds pork, if streaked with lean all the better; cut through the rind as for slicing; when soft enough to mash easily, taste, and if not salt enough, add some more salt, and a cup of sugar or one-half cup

molasses, stirring it in well; put your pork in the middle of the top, cover well and bake all day, the longer the better, if the fire is moderate and beans do not get too dry. Look at them occasionally, but don't have them sloppy. I leave mine in the oven all night and let them warm up by the morning fire. They are good hot or cold, with a little vinegar over them, and they won't sour on your stomach if you use the soda. With nice corn bread they are delicious and good for breakfast, dinner, supper, and for lunch.

Respectfully, CLARIBEL.

Care of Babies.

Not long ago I read of a young housekeeper who had a great deal of work to do and a young baby to care for, who was cutting teeth and of course was fretful. Now she either had to neglect her work or the baby, and she made up her mind to let the work go, take better care of baby and to be good natured herself. Don't you think that was better than to try and do both and then get so tired that she could not help being cross? Of course it is hard to let the work get so far behind and it cannot help making a good housekeeper worry; but you must try and not give up to it, and be sure and meet your husband with smiles and pleasant words when he comes home. He will stay at home more if you are good natured and not always complaining; and above all don't quarrel; keep your temper; don't let it get away from you, and I am sure you will be a great deal happier.

And now a few more words about the babies. Give them a bath every day, or as often as you can. It makes them feel so much better in warm weather. The water should be just warm, and a little soda in it is of great benefit. Don't let them eat everything that you do. One cannot be too careful of them when they are teething. If you feed them, let it be bread and fresh milk. Oat-meal is good, also, corn-starch once in a while.

BRAMBLE USH.

Good Language.

As soon as a child begins to slip its first broken sentences its education should begin. Habits are formed which will exist to a greater or less degree throughout life. Such being the case, the conversation of the older members of the family should be carefully guarded, lest the little ones learn ungrammatical expressions and slang, which, sad to say, is so rife among our young people of the present day. The servants with whom children spend much of their time, should be chosen with reference to this matter. A mother should feel it her duty to point out any grammatical mistakes made by them, and insist upon their language being correct, respectful and void of slang at all times. It is exceedingly difficult to break children of habits once formed, and care in this direction will save much trouble and annoyance. One way to cultivate the use of language and at the same time to learn of the occupations and companions of her children is for the mother to encourage the daily narration of what they have seen, heard and enjoyed, and the telling of their little experiences. The study of pictures, moreover, in which every child delights, may be used as a provocation of language. Children always love to look at pictures, and can almost always be induced to talk about them. This study teaches them observation, and how accurately to describe what they see. When stories are read to children, they should be obliged to reproduce them, using as far as possible the language of the book. The memory is strengthened in this way, a habit of attention is formed, and the power of expression increased. If such plans as these are systematically carried out, they will prove a wonderful help in the thorough education of a child.—Current.

Recipes.

BROWN BREAD.—Two and one-half cups sour milk, half cup of molasses, heaping teaspoon soda, two cups corn-meal, one cup graham flour, one teaspoon salt; use coffee cups. Steam three hours and afterward brown in oven.

NUT CAKE.—Two eggs, one-half cup of butter, one cup of sugar, one-half cup of cold water, one and one-half cup of prepared flour, one cupful of nut-kernels freed from bits of shell, and rolled in flour. If almonds be used, blanch them, let them get cold and cut small with a sharp knife. White or English walnuts must be cut each into sev-

eral pieces. Mix as with cup cake, the water taking the place of milk, and the nuts going in last. Bake in small tins or in one loaf in a steady oven.

Forbearance at Home.

The smoothness of home life is often affected by the spirit of haste, or a lack of forbearance. It does not always follow that where scolding and even quarreling occur there is a lack of affection. It often means that a failure to control violent impulses, or morbid feelings leads to family jars. This may be true, and often is of both parents and children. With some parents scolding is a habit. It is carried on thoughtlessly. The slightest occasion for reproof brings out harsh and severe scoldings, which, if deliberately and seriously intended, would indicate great faults in the children. But it is only a habit, that has been allowed to grow until it has become chronic. It indicates a lack of self-control on the part of the parents more than anything else.

It is so perfectly easy to glide into habits of scolding, that it is the one thing to be specially guarded at home. Parents' authority is usually supreme. They can scold and punish, within certain bounds, at pleasure. Because of this, they are apt to be unrestrained. And if the propensity to find fault has not been controlled, it may have grown into a serious evil. Yet it does little good when constantly and injudiciously exercised. It is soon estimated at its real worth and disregarded, or it produces a fretful, irritable disposition in the children, which results in a jangling household. Either is bad. The loss of proper control in a family is in itself a serious evil. To produce a contentious, quarrelsome spirit is equally as bad.

Self-control in parents is essential to the inculcation of the same spirit in the children. A stream will not rise above its source, and children are not apt to improve on the home influence of parents unless a better force is exerted outside. Hence the lack of judicious management at home is apt to be followed by a contentious spirit between the children. This may grow into a positive evil. It is at all events, dependent on circumstances. And in exercising this spirit it is well not to see all the real faults of children. Many of these are self-corrective, and time will bring the remedy. A gentle, firm, kindly hand, needs to be over the family, rather to direct the habits that are being formed into right channels, than to punish and repress on the slightest occasions, and such a policy will work the best results.

There are also real faults that can be cured better by reason and kindness than by severity and force. It is not well always to appear to realize that certain faults exist. It is not necessary for the physician to tell the patient exactly what is the matter. A judicious physician will often conceal, in order that the patient may not be alarmed or discouraged. So it is the best to give children as favorable and kindly views as possible, while setting before them high ideals to be attained. These can be realized as well without continually referring to the faults that need to be corrected. Improvement of the soil will free it of obnoxious weeds; and so the gradual elevation of a child, in character and purpose, will eradicate faults. Thus forbearance of faults may be the agency for their removal.—Emporia News.

Destroying Moths.

The destruction of moths is one of the greatest vexations which careful housekeepers have to contend with, and their depredations are not to be remedied after they have once made inroads. Houses heated by furnaces are especially predisposed to have moths, but every housekeeper must be on the watch for them, for, from the time that the windows begin to be left open the trouble begins. Heavy carpets sometimes do not require taking up every year, unless in constant use. Take out the tacks from these, fold the carpet back, wash the floor in strong suds with a tablespoonful of borax dissolved in them. Dash with insect powder or lay with tobacco leaves along the edge and re-tack. All moths can be kept away and the eggs destroyed by this means. Ingrain or other carpets, after shaking, are brightened by sprinkling a pound of salt over the surface and sweeping carefully and thoroughly. It is also an excellent plan to wipe off the carpet with borax water, using a thick flannel cloth wrung tightly, taking care not to

wet it, but only to dampen. Open the windows and dry the carpet before replacing the furniture. Other woollens, including blankets and wearing apparel, must be beaten and brushed and folded smooth. Be careful to clean every grease spot with ammonia and water, not too strong, and a dark woolen cloth. Tie pieces of camphor into little bundles and put one in each article. Wrap the article in newspaper, as printer's ink is a great preventive of moths, and sew them up in strong sheeting bags, labeled, so that it will not be necessary to open them during the summer except for use. This is a good way for those who do not possess cedar boxes, and the articles need have no other care if every spot is treated as directed and the garments are not left hanging in the closet too long before putting away for the season.—Providence Star.

Fomentations.

The application of fomentations is a very serious problem with many nurses, who neither wish to scald their hands nor to thwart the doctor's intentions by applying luke-warm water, and these persons may be glad of the following directions: "Take a strong towel or cloth, or a piece of ticking, and pin or tack a deep hem in each end. Into these run two short, strong sticks, we say sticks, but anything will serve. We have seen a couple of iron spoons used, and even a small poker, such as is called 'a curate,' though the last is rather long for choice. Lay the towel, or 'wringer,' as it is technically called, over a large basin, so that the sticks hang outside; place the folded flannel in the middle, and pour boiling water over. The flannel can be easily squeezed dry by one pair of hands, and if it is not made by the bedside, it can be carried there without fear of cooling in the wringer. Sometimes opium or turpentine is to be added. The quantity of ether to be used will be prescribed by the doctor, and it should be sprinkled on the side of the flannel that is to go next the skin, immediately before applying it to the patient. The flannel should be covered with wool and oil-silk, just as a poultice is covered. Fomentations are, in many cases, as efficacious as poultices, and they possess, besides, the advantage of being easier to make, and of costing practically nothing, since the flannels can be used repeatedly. For the very poor the cost of linseed for poultices is often a serious item. There is no danger of scalding if the flannel is squeezed so dry that it cannot drip nor wet the palm of the hand."

Ironing Collars.

Now that the wearing of linen collars is once more universal, a few lines on the proper way of ironing them may be acceptable. The best means to insure success is to use raw starch, mixing it to a smooth paste first, and then adding as much water as needed for the articles without its being too thin. Do not merely pass them through the starch, but with very clean hands rub them as if washing them, but not too hard, so that the starch is well soaked in. Wring them or rather squeeze them out, not too tightly, allowing no powder of the starch to be seen on the surface. Have ready a clean cloth folded double and long enough to let the collars lie flat. These should be placed singly, and the cloth folded down once on it, then another collar, then the cloth folded down again, and so on till they are all done. Fold the long roll then in half and give it a sharp twist, in which shape it must be left for some hours. If not left long enough they will not iron so well. But they must on no account be allowed to dry. Have ready some irons very hot, only just not to scorch. And let there be enough irons not to have to wait for a second when the first is cool. These must be very clean and with a good polish. To insure the latter have a piece of beeswax, and when the iron is taken off the fire rub it over with the beeswax, and then rub the iron on some crushed salt and it will run smoothly. Now on the ironing sheet lay a clean thin cloth, a handkerchief will do. Lay a collar on this, fold over part of the handkerchief, and iron quickly from one end to the other two or three times to dry it a little. While still steaming take off the handkerchief, stretch the collar with the hands, and iron briskly on the right side straight across. If the iron is not hot enough, or the collar too dry, the starch will stick. When the right side is smooth, without creases, turn it on the other side and iron more slowly so as to dry it thoroughly. The irons require constant renewing, as the damp cools them quickly. If any starch appears on the iron it must be scraped off with a knife before going back to the fire. They heat better on a stove or kitchener than in front of the fire, as often they are blackened by jets of flame or smoke caused by a draught.

The Young Folks.

Beautiful hands are those that do
Work that is earnest, and brave, and true,
Moment by moment the long day through.

Beautiful feet are those that go
On kindly ministries to and fro—
Down lowliest ways, if God wills it so.

Beautiful shoulders are those that bear
Ceaseless burdens of homely care
With patient grace and daily prayer.

Interesting Information.

A florist in Chambersburg, Pa., has a remarkable rose bush. During the last three years and including the present time, over 10,000 buds were plucked from its numerous branches. Some idea may be had of the value of this vine when we state that these buds sold during the winter at \$15 a hundred. At this time not less than 2,000 buds can be counted on the vine. It is believed that, with two exceptions, it is the largest and most prolific Marechal Niel vine in the United States.

It has been stated by Capt. Galton, in his work on "Healthy Dwellings," that a new house, containing 100,000 bricks, (each brick sucking up from 7 to 10 per cent. of its weight of water), contains, at a reasonable calculation, 10,000 gallons of water in it. All this quantity of water has to be removed by evaporation, and the rapidity of this process will depend on the tension of the vapor at a given temperature. The rate of transmission of heat through building materials depends upon their texture and composition.

One of the smallest men in the United States lives at Cedar Key. His name is Abecham Livingston Sawyer. He is 22 years old, 40½ inches high, weighs 29 pounds, and the Captain he came over with from Key West says he can eat more than any two men in the State. The midget was born and reared in Key West. He is built in perfect proportion, is very bright, and can make an eloquent speech, and has a clear, high voice, which sounds like a child's. He was at one time a reporter on the Key West Democrat. At present he is clerking in a grocery store. He has a sister who is just a quarter of an inch taller than he is and is just 17 years old.

The durability of English oak is well illustrated in a recent discovery of an old corduroy road crossing the vale of the Ancholme and Coal Dike End, near Brigg, Lincolnshire. It has been found about seven feet below the surface of the land in excavating clay for brick-making. It consists of massive beams of oak laid transversely and fastened into the soil below by oak pins or stakes in the ends. The age of this work in timber is enormous, for the present surface of the land has undergone but little change since Roman times. Archaeologists who have examined this roadway associate it with neolithic man, in other words, with a period beyond historical data.

San Francisco Chronicle: At the Risdon Iron Works experiments are being daily made with the new compressed-air motor, recently designed to take the place of horse cars on the Omnibus Railroad company's line. The machinery is almost in a state of completion, and only a few minor details in simplifying the mechanical devices in the engine remain to be perfected. Thus far no set-back has occurred to discourage the projectors, and everything points to an unqualified success. The new compressed-air motor is an original application of several old inventions. Several heavy capitalists are watching the experiments with great interest, with a view of introducing the motor on several contemplated lines in the different suburbs of the city.

Sixteen of the statues erected at Government expense in different parts of Washington have cost \$550,000, and it is probable that the Washington monument, on which work is now progressing, will add \$1,000,000 to the total. Chief Justice Marshall's bronze statue, recently unveiled, cost \$40,000; Greenough's Washington, at the front of the Capitol, cost \$43,000, and the two statues facing it \$24,000 each; the naval monument, on Pennsylvania avenue, \$25,000; the statue of Freedom, on the Capitol dome, \$23,000; the Emancipation group, \$17,000; Gen. McPherson's statue, \$15,000; Admiral Farragut's, \$20,000; Gen. Scott's, \$73,000; Gen. Thomas', \$65,000; Andrew Jackson's, \$50,000; Gen. Greene's, \$50,000; Gen. Rawlins', \$10,000, and \$50,000 for the equestrian statue of Washington.

UP THE HIMALAYAS.

Some Very Risky Curves on the Mountain Side--Remarkable Change of Temperature--Scenes and Incidents.

[India Cor. Inter-Ocean.]

Eight o'clock in the morning brought our train into Siliguri, and here we embarked in a narrow-gauge train that was a narrow-gauge with a vengeance—the Darjeeling-Himalayan road. The width was two feet. The cars and engine were of almost microscopical proportions. In fact, the cars could scarcely be called cars. There was one rude coach, with cushioned seats, which was labeled "first-class," but the rest of the train was made up of half a dozen platform cars, with seats facing each other and canvas canopies overhead, a baggage van, and a mail box on four wheels at the end. This sounds like a pretty respectable train so far as length is concerned, but the reader has yet to take into consideration the fact that each car or trolley was only about four feet wide by seven long—possibly five by eight in its very extreme measurement. Thus our whole train, inclusive of the engine, could not have been more than fifty feet in length—about as long as a good respectable passenger car in America, I should judge.

There was no distinction in quality among the trolleys, but the conductor, or guard, sandwiched us in according to our tickets, so that each grade was by itself.

Then commenced such a ride. Our little, but powerful locomotive, coughed its way heroically up the steepest inclines at a speed of from seven to nine miles an hour, only slowing up as we rounded the sharpest curves; but the exercise consumed steam, and every few miles we had to stop to take on water, and this operation usually took about twenty minutes. Then there were two half-hour stops for meals, I believe. When we were fully under way it seemed as if we were going a mile a minute. This effect was due to the extreme smallness of our wheels, at least half of which projected up into the trolley, leaving us only about six inches above the rails. Of course the ground seemed to fly under us, and the agonizing of the locomotive, together with the festive rocking of the cars, called to mind Horace Greeley's memorable stage-coach ride.

I thought I had seen considerable narrow-gauging in the Rocky mountains, and remembered a trip of about 1,000 miles on the Denver & Rio Grande railway with pride, but although I ascended to greater heights in Colorado, and by gradients quite as steep, the journey was a sober and dignified affair compared with this wild Himalayan experience.

On the Rio Grande road, two thirty-ton locomotives would handle our train, while we passengers reposed comfortably in the upholstered cars, and we felt that, however slender our footing, there was granite under us. Here a single ten-ton locomotive struggled and labored with us. We had to hold on to our wooden seats with both hands, and there were scores of ledges upon which we moved, the material of which was soft and rotten. Cape Horn, in California, is a pigmy affair unworthy of mention in this connection.

Of course the trip included all sorts of experiences, such as loops, zigzags, and all the modern improvements in the way of harrowing and perilous engineering.

For eight or nine miles our course was reasonably straight and level, for we were still on the plains. Then we reached the foot of the mountains and at once began the long, laborious climb. Perhaps you can imagine what can be accomplished by a slender ribbon two feet wide, such as our track; but I much doubt it.

After we had reached the first station I left the trolley and went out to examine the locomotive.

"Jump on," said the engineer, cordially—a well-informed gentleman of some 60 years, I should judge.

In a moment of temporary mental aberration I accepted the invitation. The locomotive was a queer-looking affair, so small that there were no seats in the cab, and I was obliged to compress myself to the dimensions of a case-knife and hang on to an iron rod. On the top of the locomotive, which was flat, were some bags of cargo; and the nature of the ride may be hinted at in the statement that the native firemen shifted these bags from side to side as we rounded many of these curves.

"This is not the engine for this sort of

work," said the engineer; "this is one of the old ones, and really not trustworthy. You see that engine following close behind us in charge of the goods train? Well, that is the proper style to have. See, the boiler is right over the track behind the cow-catcher, being a broad, flat, shallow tank. That throws the center of gravity forward and down. Now, in the case of this locomotive you can see that the bulk of the weight is too high up. Disturb our balance a little, and over we go."

At this point we rounded a loop that would make the famous one on the Los Angeles road in California blue for very envy.

"The radius of that loop," said the engineer, "is just fifty feet. We have two others, the radius of which is about one chain. Many of the gradients are being constantly eased, the curves enlarged, and the reversing stations modified, so that the mutability of the road is somewhat of a by-word."

I can believe that it ought to be. I look upon the road somehow as if it were an elongated hair-snake, wringing and writhing on the mountain sides. After several hours of this perilous railroading the engineer pointed off up a hillside and said:

"Around yonder is the sharpest curve in the whole line. It is always giving us trouble, and men are now at work laying out a new route which shall have a little longer radius. The land is such just there that they experience great difficulty. We are now going to mount up to the place by a grade of one in seventeen, a climb which requires all the reserve energy of the engine."

So saying he gave free rein to the saucy little upstart of an iron horse (I scarcely feel justified in dignifying it by the name of locomotive), and soon we were groaning, rocking and puffing our way up the incline. I confess the experience was as exhilarating as any I ever enjoyed, in fact there is a limit to the amount of exhilaration which I am capable of enjoying, and I have a suspicion that we passed that limit. Now we neared the bug-bear of a curve referred to; and easing his machine as much as he had goaded it before the engineer remarked:

"This curve is the critical point in the whole journey. Engines have jumped the track here a good many times, and we have to run very slow since only three wheels are able to grip the rails at once. Perhaps you think I am drawing a pretty long bow, but—"

Just at this juncture we reached the sharpest point in the curve, and the gallant little engine, which had been quivering and struggling in a truly pitiable way, reared like a worn-out horse, poised a moment in the air, and then plunged over the curve.

The moment I heard the grating sound I calculated the distance and made a jump to the verge of the embankment. The slow speed at which we were going made the danger more apparent than real; but as I measured the distance of the front wheels from the precipice by means of a walking-stick, and found it to be just two feet, I concluded that the trolley was good enough for me, and politely declined further overtures to ride on that engine. Well, we passengers tossed the locomotive back upon the track. Perhaps "tossed" is a little strong in this connection, but it was surprising how quick the thing was lifted back to its place. Then we coaxed and pushed till we had got the train safely around the curve and resumed our seats.

As we went higher and higher the atmosphere changed perceptibly, and we had recourse to the overcoats we had brought along. Occasionally a cloud came floating lazily past us, and the sun went off somewhere and didn't come back. Presently the clouds were thick about and below us. The air was rare and stinging cold. Now we could see nothing but an ocean of cloud below us, and the wind whistled about us as if it gloated over making the contrast with the heat of Calcutta as great as possible.

50,000 Children in Line.

The New York Sun two weeks ago gave the following brief sketch of the annual May excursion of the Sunday school children of Brooklyn:

The fifty-fifth anniversary of the Sunday School Union was to be celebrated with the annual May march. Juvenile thralldom had asserted itself for days, and thousands of households had been thrown into excitement in the effort to make the procession as brilliant as possible. The various processions consisted of long lines of pretty juvenile hu-

manity, dressed in gay outfits, in which every color of the rainbow was blended, led by grown-up Sunday school workers, while waving overhead were silken banners with mottoes.

The weather was all that the most anxious mother could desire. The citizens were profuse in their display of flags and bunting. The 162 schools participating were distributed in eight divisions, whose movements were arranged with military precision by Grand Marshal Israel A. Barker and his aides. The divisions and estimated numbers in each were:

Prospect Park Division, 10,000; Heights Division, 8,000; Clinton Avenue Division, 7,000; Carroll Park Division, 7,000; Tompkins Avenue Division, 5,500; Bedford Avenue Division, 5,500; Eastern Division, 4,500; New York Avenue Division, 4,500.

The city hall and church bells were rung at 11 o'clock, and soon after 2 o'clock the children began to assemble at the different churches to which they were assigned, and after a brief delay the superintendents and assistant marshals got them into marching order. The exercises included singing and brief addresses.

The Prospect Park Division, representing twenty-four schools, was marshaled on the soft green meadow, and their evolutions afforded a bewitching spectacle to a great throng of spectators, who were massed outside the reviewing space. A grand stand was at one end of the long meadow, and around this the children were massed about half-past three o'clock. Music was furnished by several bands, the strains of which were drowned by the voices of the children. It was the biggest chorus ever heard in Brooklyn. When the exercises were concluded line was formed, and the children paraded round the meadow and passed in review before Mayor Low, G. A. Bell, president of the Sunday School Union, and the Grand Marshal. Many of the schools remained on the grass afterward, and were served with refreshments.

As each of the other divisions was broken up each school returned to its own church, where it was provided with ice cream, candies and other delicacies. The festival was the most complete and satisfactory that has ever taken place in Brooklyn.

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THE KANSAS FARMER

Published Every Wednesday, by the
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KANSAS FARMER CO.,
Office, 273 Kansas Avenue, Topeka.

NEW ADVERTISEMENTS.

Topeka Mfg. Co.	Farm machinery.
U. P. Bennett & Son	Breeder's card.
W. A. Powell	Breeder's card.
Dr. R. Patton	Breeder's card.
Carey R. Smith	Stock for sale.
J. O. Young	Bulls for sale.
Jas. C. Bethard	Jersey bull for sale.
Powell Bros.	Breeder's card.
C. S. Smith	A stray.
Harry McCullough	Breeder's card.
Florida Rural Home	Rural Home—a paper.
Peter C. Kellogg & Co.	Jersey cattle.

The Nebraska State fair is to be held September 5 to 12 at Omaha.

Indiana holds her State fair at Indianapolis September 29 to October 4.

Horseradish sells for 5 to 10 cents a pound. Three tons is a fair growth per acre.

The summer meeting of the Missouri State Horticultural Society will be held at Springfield, Missouri, June 10 and 11, 1884.

The manufacture of chemicals not including salt, is fourth in amount of capital invested—iron, cotton, wool, chemicals.

The maple sugar production of the country is, according to the census reports, steadily increasing, and grew from 28,443,000 pounds in 1870, to 36,576,000 in 1880.

The Western National Fair Association proposes to hold a fair at Bismarck Grove, September 1 to 7, and promises to beat anything in that line heretofore attempted in Kansas.

Subscription Agents, Publishers, and Postmasters, please preserve the cards, we send you, and encourage the FARMER by sending us a large number of subscribers each for one year.

From reports recently made from all parts of the country and by upwards of a thousand correspondents, the prospect for apples is better than in any former year. [This may be modified by the frosts which have since occurred.]

Persons young in the business of grape-growing should remember that the wood of this year's growth will be the portion to bear next year, and enough of it should be left on the vine for that purpose. The object of trimming is to remove only the superfluous wood, and the vine should not be cut too close.

Here is another bit of Kansas pluck, copied from Marshall county News: "One year ago, John Smith, of St. Bridget, bought 150 four year old apple trees from John Moshiskey, of the Marysville nursery, and if nothing happens them between now and fruit gathering time, over fifty of them will bear fruit this year.

General Grant's Oase.

It now appears that Ferdinand Ward was the residing genius that wrecked the Grant family. He first took in Col. Fred Grant, and then a bank president named Fish. After that General Grant and his youngest son Ulysses. Fish says he put in one hundred thousand dollars upon Ward's representations, and he says Ward told him that he, Ward, and Fred Grant each put in a hundred thousand dollars, and that afterwards the General and his youngest son each put in fifty thousand dollars. Ward run things and paid large dividends. It now appears that he represented the business and firm as under special guardianship of General Grant and worked the General's name and influence for all it was worth. He is now in prison unable to give bond for appearance. Fish is under \$30,000 bonds. The Grant boys are clerking in business houses on clerk salaries and the General is all broken down on account of this cloud on his name. He knows absolutely nothing about the business, having full faith in Ward's professions and business ability. Ex-Senator Conkling has charge of the General's affairs, but nobody can get anything out of the wreck. The indebtedness is said to be about fourteen million dollars. But Mr. Conkling can and will render great service to General Grant and the country by preventing the villain in his efforts to shield himself from involving the honor of our most distinguished citizen. It would be a personal matter with every one of our fifty-five millions of people should that great name be tarnished.

To show the clean manliness of the man, we again call attention to his borrowing one hundred and fifty thousand dollars on his own word to help Ward bridge over a few days on his representation that he needed that much a day or two, and that would relieve him. Now, the confiding dupe has this additional loss thrust upon him by the scoundrel that took advantage of his staunch friendship.

Things Political.

Five political parties are announced—Republican, Democratic, Anti-monopoly, Greenback-Labor and Prohibition. Two of them, Anti-monopoly and Greenback, held their conventions and nominated Gen. Butler for the Presidency. Republicans are now in convention assembled. Democrats and Prohibitionists meet in July.

So many divisions of the people will operate to give zest to the campaign if nothing more. The great battle, however, will be fought as usual between the two leading parties. What will divide them chiefly is the tariff. Republicans will speak out in favor of a protective policy, and the Democrats will either wholly ignore the subject or mouth it so that every vote may suit himself as to meaning. That party is so much divided on this subject that neither free trade nor protection, nor revenue only, will hold the membership. At least one-fourth of the party are protectionists. The other three-fourths are divided between revenue-only men and out-and-out free traders.

Greenbackers are divided on the subject, and so are Anti-monopolists. Republicans are nearly solid in favor of protection. A free trade Republican is a rare bird. Prohibitionists are after the dramshop; they care nothing about the tariff.

The Chicago Tribune notes the presence of India wheat in that city. It says "the wheat is certainly fine, though apparently not equal in value to our No. 2 red, but good enough to indicate that those who decry it do so without any

good acquaintance with the subject. If India has much of that wheat to offer at low prices she will be a powerful competitor with the United States." There were several varieties or grades, chiefly that classed as Bombay.

Cold Weather.

May 28 to 30, 1884, will long be remembered in some parts of the country because of the cold and frost. We have reports from New Hampshire to Wisconsin, and in many places vegetables and corn were destroyed by frost. In parts of New England snow fell and ice an inch thick was frozen. Snow fell along the line of the Lake Shore railroad, and a few flakes dropped in Buffalo.

This is not good news, but as discouraging events occurred before. The writer of this remembers that once when he was a boy the harvest hands wore overcoats into the rye fields. That was in July and in Southern Pennsylvania. He also remembers several instances of corn and early vegetables being frozen. One instance in particular was that of 1859 when corn four to six inches high in Northern Indiana was killed. But it came again and made a fair crop. There is time enough yet for crops if farmers will but think so, and govern themselves accordingly.

Topeka Manufacturing Company.

By reference to our advertising columns it will be seen that this company again swings its sign out to the breeze. Some needed improvements have been made to the Roller Attachment; such changes as experience had shown to be important, and the company now think they have it about perfect. Excellent results are reported by persons that used the Attachment last year, in every case where less than half a bushel of seed wheat was used to the acre.

This company has added a good deal to its facilities for manufacturing in its special departments. They warrant all their work. What they turn out they aim to stand on its own merits.

Last year was their first one, and this is the record: They made and sold 557 Roller Attachments, 200 Meadow King Hay stackers and Hay Rakes.

They now have 25 orders booked for their new Topeka Swivel Tower Wind Mills.

Persons needing any of the kind of machinery which this company makes would do well to open correspondence with them.

Some Wheat Figures.

According to statistics of the British Board of Trade, the United States supplied four years ago 75 per cent of all the wheat and flour imports into Great Britain; in 1881 this import decreased to 69, in 1882 to 55, and in 1883 to 46 per cent; in other words, the import of 93,000,000 bushels in 1881 diminished to 74,000,000 bushels in 1883. The decrease is not due to a reduced consumption, for the total import has increased from 136,000,000 bushels in 1881 to 160,000,000 bushels in 1883.

While we thus see a constant diminution in Great Britain's imports from the United States, we find an increase from other countries, especially Russia and India. Russian grain shipments to England have, for instance, increased from 8,000,000 bushels in 1881 to 27,000,000 bushels in 1883, and the import from India, which consisted of 15,000,000 bushels in 1881, has risen to 23,000,000 bushels in 1883.

In addition to this, Australia produced in 1883 not less than 31,000,000 bushels of wheat, of which a large part was taken to England and sold at prices refused by America speculators.

Kerosene and Soap as Insecticides.

An eastern exchange, referring to kerosene emulsions as insecticides calls attention to Prof. Hubbard's latest formula. Earlier experiments were made with kerosene and milk churned together. More recent experiments have shown that common bar soap, and whale oil soap, may be used for making the kerosene emulsion, and the following formula is given for the benefit of orchardists and gardeners: Kerosene, two gallons; common soap, or whale oil soap, half pound; water, one gallon. Heat the solution of soap, and add it boiling hot to the kerosene. Churn the mixture by means of a force-pump and spray-nozzle for five or ten minutes. The emulsion, if perfect, forms a cream which thickens on cooling, and should adhere without oiliness to the surface of glass. Dilute before using, one part of the emulsion with nine parts of cold water. The above formula gives three gallons of emulsion, and makes when diluted, thirty gallons of wash. The percentage of kerosene may be increased somewhat without danger, and stronger washes may be needed for some kinds of insects.

Prof. Hubbard, who gives the above formula, says: "There seems no longer any reason to doubt that in kerosene properly emulsified and diluted, we have a nearly perfect remedy, more effective than any other insecticide in destroying scale insects, and having as slight an effect upon the plant as can probably be expected from any remedy with sufficient penetrating power to reach and kill the eggs of these insects." The cost of such a wash per gallon, after being diluted, need not be over a cent and a half. Large trees may require ten cents' worth of the wash for making the work of destruction complete.

Recent Invention.

We learn that Charles H. Bacon, Springfield, Ohio, has invented and patented a device to prevent stock from being injured by barbed wire fences. As claimed by the inventor this invention has for its object to provide barbed fences with devices that not only serve as visible signals to warn animals, but also as projecting guards to prevent an animal running or passing sideways along the fence from being seriously injured or lacerated by the barbs, such combined signals and guards being visible from all avenues of approach, and permitting the barbs to perform their usual function should a direct attempt be made by an animal to break the fence.

If this is as described, we do not see what good the barbs do. The new invention is intended to attract animals' attention by showing the fence to them, and even if they get so close as to rub against it the device operates as a bender. Then why not use plain wire for the fence if we use the new invention?

Agents of a secret society have undertaken to blow up enough buildings in England and Ireland to compel legislation favorable to Ireland. Last Saturday a number of buildings were blown to pieces in London with dynamite and some persons killed. This is horrible business. Every man connected with it as an aider and abettor ought to be hanged. The villains care nothing that innocent people are crushed and mangled, and that honestly owned property is blown to atoms. The men to free Ireland are the men who teach the people better things, not they who slay as cowards. We are for the freedom of Ireland, but we would have every one of these assassins hanged.

Long sentences don't tire a reader half as much as they do a criminal.

About Curing Hay.

The object in curing hay is to save as much as possible of the good there is in the grass. If cut too soon most of the grass evaporates and what is left is very light; if not cut until after it is dead ripe, most of the grass has already gone out and what is left is heavy. The hay in either case is not worth much. Then, if grass is cut at the proper time, if it is not cured well, it is damaged. In this respect some varieties are more easily spoiled than others, and such varieties when not well cured are more injurious to stock than other varieties. Clover is easily spoiled in curing, and when it is so spoiled, coughs, heaves and other lung diseases are apt to follow. Timothy and red top will bear more careless handling, but no grass will make good hay if it is not well cured.

Every experienced farmer has a rule for cutting his grass, and his rule is based on experience of himself or that of somebody else. But there are a great many farmers in Kansas that are not experienced in the matter of making hay. And then, there is such a thing as the same kind of grass having different qualities in different climates and in different soils. But there are some general characteristics of grass that may be regarded as common in all localities, and one of these is that the plant is at its best when the seed is young. But there are many varying circumstances, as weather, state of farm work, peculiar characteristics of grass, etc., that will modify the best plans sometimes. Some plants are more brittle when dried than others. This applies to red clover and alfalfa. The dry leaves and small branches of these two grasses are easily broken, and a little handling of them creates a great deal of dust. Red top may be twisted into ropes of great strength even when very dry.

We have had a good deal of experience with grass and hay, and our best success with cutting both timothy and clover was when they were well matured but still green. That takes them a few days beyond bloom. Experiments show that there is gain both in weight and nutriment after bloom on to a certain stage, after which nutriment diminishes. In New York experiments were made with timothy two years and with clover one year.

The facts concerning the cutting of grass were obtained in the following ways: From one to two acres of grass, especially uniform to character and growth, were selected each year for each experiment. These carefully measured areas were divided into two or more equal plats, one or more plats being cut at each stage of growth. The grass was carefully cured, and the hay weighed when stored in the barn. After lying in the barn for five or six months, each lot of hay was re-weighed, in order to determine the amount of "dry" hay from each cutting. Samples of each cutting have in every case been subjected to chemical analysis. Experiments were conducted with timothy in 1881 and 1882, and with clover in 1882.

A summary of results is, briefly—(1) The average growth of timothy after the period of bloom in the four experiments recorded was 546 pounds of dry hay per acre, or 18.5 per cent increase. (2) This increased growth was entirely of the non-nitrogenous constituents of the timothy. (3) The yield of hay from clover in full bloom was greater than at any succeeding stage of growth. (4) The composition of the clover hay from each period of growth indicates a constant decrease in the nutritive value after the grass passed the period of full bloom. (5) The loss in weight after storing the hay in the barn varied with

the timothy from 15 per cent to 38.6 per cent, averaging 22.2 per cent; and with the clover it varied from 25.7 per cent to 44.2 per cent, averaging 36.3 per cent.

This report was forwarded to Prof. Sanborn, of the Missouri Agricultural college for his information. He takes a practical view of the matter and bases his opinion on results of actual feeding, which will somewhat modify the conclusions in the New York experiments. "I began careful experiments," he says, "with timothy and clover, regarding the proper time for cutting them, and continued these trials four years. Regarding the points covered by the article or by Prof. Gardner's trial. I will say but a word, preferring to cover the question of feeding value, as this was not considered in the trial above related, and is a question upon which there is a conflict of opinion among our farmers.

"I found a more marked growth of grass subsequent to bloom than that related above. In one case in bloom, I received 3,585 lbs., and 21 days after bloom, or July 19th 4,555 lbs. In no case have I failed to find a heavy growth subsequent to bloom of timothy hay. One season I found clover to make no growth subsequent to bloom, when tested at harvest. Winter weight revealed, however, a greater shrinkage on the part of the early cut clover and a less net weight of clover per acre, of 107 lbs. A trial afterwards, with clover, revealed a notable gain subsequent to bloom. It is passing strange to me that anyone, especially a student of agriculture, a scientific enquirer, if you please, should have ever held that part of a plant which we house or harvest makes no growth after bloom. A very rapid growth is made from bloom to seed formation in most of our farm crops.

At the Sheep Breeders' Association, held at Sedalia during the spring, those present were mainly advocates of early cut hay, or hay cut in bloom, assuming it to have higher feeding value than when later cut. Seven years ago I was radical enough for the advocates of early cut hay; but after asking the opinion of the steer for four years and having received but one answer from him, I have come to vote with him. In short, experimental feeding has shown me that timothy cut 10 to 16 days after bloom contains as much or more nutrition than when cut in bloom, pound against pound, and of course more per acre. Nor have I found as in the article above, that the acre yield of albuminoids decreased between bloom and seed formation. There is much scientific literature covering the changes of plants from bloom to maturity. These changes have been heretofore considered as mainly adverse to the nutritive value of foods. Without discussion I affirm that science is as yet unable to measure the value or nutritive importance of these changes. The past of investigation has shown errors in former conclusions. Hence, I fall back upon feeding trials as the only means at present of measuring the sum of the effects of these changes in nutritive value. The result I find, 8 to 10 trials, to favor cutting after bloom for the steer.

"Common experience," my farmer friends say, almost universally favor early cut hay. Common error is the blame for this view. Common error consists in feeding early cut hay one week, noting the yield of milk or fullness of steer, and then changing to later cut hay and again noting the result. Such a system of testing can only show one result, and that in favor of early cut hay. Early cut hay is more palatable than later cut. The result is that after change to later cut hay the animal refuses to eat for a time a nor-

mal or full food ration. Nor will he often return to a full food ration for 20 days. A short food ration means a short milk flow. Palatableness is a valuable quality of food, but we must not mistake it for actual nutrition.

"By no means do I advocate, in late cutting of hay, cutting at the late date that a heavy proportion of the hay of Missouri was cut during the past season or past seasons. It is improvidence to cut hay so late as maturity. A large proportion of the nutrition of plants is contained in the seeds. These seeds shatter at maturity in handling. Those that do not shatter go through the system partially digested. When the seeds are forming seems to me to be the right time, or about what we term the milk stage in other crops, perhaps a day or two before.

Gossip About Stock.

The Holstein cow Mink lays claim to being the best milk and butter cow yet heard from. Imported as a yearling and calving when 2 years old, she gave when 3 in ten days in August 532½ pounds of milk, from which was made 23 lbs. 3 oz. of butter. As a four-year-old best daily yield was 91 lbs., best ten days 849 lbs., best month 2,499½, yearly yield 10,628½ lbs. She gave in ten days 29 lbs. 6 oz. of butter. Last year she made 3 lbs. 9 oz. in one day. She is now giving 80 to 90 lbs. of milk per day. All this time she has taken her chances with a large herd and had ordinary dairy care. No crowding, no forcing. Mink with four of her calves, two bulls and two heifers, are to be sold, with many other Holsteins of almost equal merit at public sale, by Carey R. Smith, at Iowa City, Iowa, June 19. See ad.

Kansas has frequently been the recipient of good representative pure-bred stock from the vicinity of Lee's Summit, Jackson county, Mo., that a representative of the FARMER, while at Hearne's Short-horn sale, resolved to visit some of these establishments and see for himself. The first place was Rosewood farm, owned by U. P. Bennett & Son. They have a fine farm and a goodly number of Shorthorns, Cotswold sheep and Berkshire swine. The Short-horns are made the specialty, having about fifty females of the Rose of Sharon, Lady Jane and Bonnyface families, headed by the 3d Airdrie of Sharon 4141, bred by Abe Renick. They have the finest lot of young stock I have yet seen.

Poverty Hill herd of Short-horns, owned by William A. Powell, was next visited. He has fifty first-class breeding cows and no better lot of cows can be found in the State. The herd consists of but three families, the Rose of Sharon, Young Mary and Bonnyface, headed by the Rose of Sharon bull, the Royal Duke of Clark.

The next establishment was the Powell Bros., who have a good herd of Short-horns, mainly of the Rose of Sharon tribe, headed by Rosebud's Airdrie. They also have a nice herd of Poland China swine, of the World Beater strain, and recorded in the Ohio Poland China Record. Their stock boars, Surety was bred by H. B. Scott, Sedalia, Mo., and Salm, of the World Beater strain, was bred by Jasper Rose, Butler county, Ohio. A large number of pure-bred Poland Chinas are for sale this season at very reasonable prices.

The Powell's and Bennett's are safe and reliable breeders, and their customers can do business with them with all confidence. Look up their cards in the Breeders' Directory.

At the Republic county Horticultural Society meeting held recently, Mr. O. A. Gardner gave the philosophy of cold injuring peach trees. He said: "It has generally been thought that 16 degrees of cold below zero would kill the peach buds, but this is not always the case. It is owing to the condition and ripeness of the wood in the fall. Last fall it was very late when frost came, yet peaches were mostly killed in December at a temperature of only 14 below zero. If we have a good growing season and then a dry fall so the buds ripen and harden up before frost, they will stand any average winter, but on the contrary if we have a wet fall late

growth is stimulated and though frost may not come until very late, as last fall, yet the buds are immature and the trees go into winter quarters in a damaged condition and the fruit buds are liable to be killed at a less degree of cold than 16 below zero. Last fall was a peculiar season, such as has seldom been known. Trees did not ripen good and farmers can well remember how slow corn was to ripen and dry up. From this cause our peaches were mostly killed in December with a temperature of only 14 below zero."

THE MARKETS.

By Telegraph, June 2, 1884.

STOCK MARKETS.

Kansas City.

The Live Stock Indicator Reports:

CATTLE Receipts since Saturday 2,249 head. The market to-day was steady for shipping grades, but for butchers' stuff the feeling was not quite so strong as on Saturday. Sales ranged at 5 20 for stockers to 6 60 for shipping steers.

HOGS Receipts since Saturday 7,988 head. The market to-day was weak and rather slow at a decline of 10a15c from Saturday's prices. Sales ranged 4 75a5 10; bulk at 4 80a4 95.

Chicago.

The Drovers' Journal reports:

HOGS Receipts 22,000, shipments 3,500. Market weak at 10a15 lower. Rough packing 4 75a5 70, packing and shipping 5 00a5 45, light 4 75a5 35, skips 3 75a4 75.

CATTLE Receipts 6,000, shipments 900. Market active, 10c higher. Exports 6 65a7 00.

New York.

CATTLE Receipts 4,200. Market opened firm, closing lower and slow. Poor to prime steers 6 20a7 50, tops 7 65, fat bulls 4 90a5 25, dry cows 5 25a6 00.

SHEEP Receipts 12,000. Market active, closing lower. Poor to good sheep 4 00a6 00, prime and extra 6 25a6 50.

HOGS Receipts 11,000. Nominally 5 20a5 80.

St. Louis.

CATTLE Receipts 1,900, shipments 2,200. Market active and firm, generally held higher. Exports 6 50a6 75, good to choice shipping 6 00a6 50, common to medium 5 40a5 90, corn fed Texas 5 25a6 00, grass fed do. 4 25a5 00.

SHEEP Receipts 4,400, shipments none. Supply liberal and prices of a weak nature. Clipped 5 75a6 00, Texas clipped 2 50a4 50.

PRODUCE MARKETS.

Kansas City.

The Daily Indicator reports:

WHEAT The market was still quiet on 'change to day, yet there was some trading. June No. 2 red having sold at 82½a82¾c against 82½c bid Saturday; cash July and August were nominal.

CORN There was some demand for cash No. 2 mixed to-day on 'change, which opened with sales at 44½a45c.

OATS No. 2 cash 1 car 29¼c; June 28¾c bid, 29¼c asked; July no bids nor offerings.

RYE No. 2 cash, no bids nor offerings; June 50c bid, 55c asked.

Price Current Reports:

BUTTER The supply continues large and largely in excess of the city demand. There is some motion of low grade and seconds at 5c. We note the sale of thirty tubs selected out of forty-five arrived at 8c. Creamery is made dull by the plenty of storepacked of choice quality.

We quote packed:
Creamery, fancy..... 18a19
Creamery, choice..... 15a16
Choice dairy..... 18a15
Fair to good dairy..... 10a12

EGGS Market some stronger. We quote firm at 10½c.

NEW POTATOES We quote new southern consignments @ bbl 3 25a3 50.

BROOM CORN Common 2a2¼c per lb; Missouri evergreen 4a5c; hurl 6a7c.

SORGHUM We quote consignments in car loads: Dark 18a20c, bright 22c.

Chicago.

WHEAT Quiet and steady. Sales ranged June 89a90c.

CORN Steady considering liberal arrivals, prices fluctuated within range of ½c. Cash 55a 55½c.

RYE Quiet and steady at 62c.

BARLEY Dull at 62c.

FLAXSEED Quiet at 1 69a1 70.

St. Louis.

WHEAT Slow and unsettled. No. 2 red 1 06a 1 06½, cash and June 96a96½c.

CORN Market inactive and not notably changed, 52a53c cash.

New York.

WHEAT Cash lower, closing weak. Receipts 171,000 bus, exports 117,000. No. 2 Chicago 96½a 97½c, ungraded red 97ca1 12, No. 3 red 98c, No. 2 red 1 01a1 03 do.

CORN Lower, closing weak. Receipts 83,000 bushels, exports 32,000. No. 3 62a63c, No. 2 62½c.

In the Dairy.

The Cow, the Calf and the Pig.

Read before the Northwestern Dairymen's Association at Mankato, Minn., by H. B. Gurler, of DeKalb, Ill.:

I have taken these animals in connection, for the reason that they naturally go together in dairying. I have named them in the order of their importance in the new parts of the West. If I were talking before Illinois dairymen, I should change the order to read the cow, the pig and the calf.

The cow, if properly cared for, is the most profitable animal on the farm, but if left day and night around the straw stack, and is compelled to go 40 to 80 rods for ice cold water or go without, she will not be profitable.

When I commenced dairying, my cows would average only 150 pounds of butter to the cow annually, which I could not figure in a way to satisfy me, and I commenced to test my cows by weighting the milk and testing it for cream, by setting some of each cow's milk in test tubes or per cent. glasses. I found the weight of milk to range from 18 to 40 pounds per cow, and the percentage of cream to range from 7 per cent. to 20 per cent.

I learned that the cow which produced 40 pounds of milk per day produced 1 pound of butter per day. She was the 7 per cent. cow.

I learned that the cow which gave 18 pounds of milk per day produced more butter than the cow that gave 40 pounds of milk per day.

This butter test I applied to all the cows in my dairy, and I think it is the only reliable butter test. If a farmer is selling cream by the gauge, the weight of milk and the percentage of cream would be a sufficient test. But I predict that cream will soon be bought mostly by its butter value, and there is a great difference in the butter value of cream.

But I must return to my dairy. I commenced to weed out the unprofitable cows, and I found that I had some that would not more than pay for the feed they consumed, and that I had others that would pay \$60 per year after paying for their feed. How does that compare—nothing against \$60? It certainly set me to thinking, and to selling cows to the butchers, and to buying cows, and to raising heifer calves from my \$60-cows. In this way, and changing from summer to winter dairying, I increased the butter yield of my dairy in a few years from 150 to 266 pounds of butter per cow, and the profit, after paying for food consumed, was increased from \$15 to \$45 per cow, an increase of 200 per cent.

For the year ending June 1st, 1880, I received \$2.23 worth of milk from every dollar's worth of feed consumed by my cows.

I felt paid for the time and labor spent in this work. I thought better of myself. I began to look upon farming as a business that had as great opportunities as mercantile business. And I still think there is more room to improve and do better on the farm than in any other line of business in the West. I am fully convinced that there is more profit in winter dairying than there is in summer dairying, if the dairyman has comfortable quarters for his cows. By having your cows calve in the fall, you are milking them when the milk is of the greatest value. You have the least milking to do in the summer months, when the labor of securing the crops is driving. You have more time to test your cows, which you should certainly do. And when you find a cow that is not making you a reasonable profit, feed her what

grain she will eat, and milk her at the same time, get her fat for the spring market, when she will sell for a better price than at any other time in the year. This is the only way I have found for disposing of my discarded cows at a profit. For grain feed I use mostly corn meal and wheat bran, one-half of each by measure. I feed some wheat middlings and some rye feed. For hay, early-cut clover and timothy, and I think the more clover the better, if cut when in full blossom and is well cured. I feed wild hay, oat straw, corn-stalks, or any other coarse fodder in the racks in the yard. I find that my cows will eat considerable coarse fodder in the yard, if they have all of the best hay they will eat in the barn. A plenty of fresh-pumped water is essential. Ice water does not increase the flow of milk. Several years ago, one of our most successful steer-feeders proposed to argue with me that there was as much profit in feeding steers as there was in feeding cows. I gave him the figures of my previous year's work with my cows, when he admitted that he could not show a profit to compare with it, and made no further talk upon the subject.

We have one patron that we paid \$87.08 per cow last year. The time was two days less than a year.

One of our patrons kept an accurate account of the feed consumed by his dairy of fourteen cows last month. For grain feed, \$42; for hay, \$21.70. Total cost of feed, \$63.70. The cows produced 7,700 pounds of milk, worth \$1.50 per 100 pounds, or \$115.50, leaving a surplus after paying for feed of \$51.80, or, in other words, one dollar's worth of feed produced \$1.81 worth of milk. Feed is very high with us. The frost nearly ruined our corn crop and we have to import feed from Minnesota.

Let me repeat: Keep the cows comfortable, feed well, furnish plenty of water minus the ice, weed out the unprofitable cows. You might as well pay a man \$20 per month that can only earn his board, as to keep a cow that will only produce enough milk to pay for her food. It does not require any great amount of skill to test your cows; the greatest point is to decide to do it and then go about it.

I am not living on my farm now, but I have my cows tested once per month; the 15th of each month the test is made. Each cow is numbered, and a record kept. My foreman takes great interest in this part of the work; in fact, I seldom had a man when I lived on my farm who did not take an interest in my experimental work.

I wish to state here that I have had trouble with abortion in my dairy, and I believe I have checked it by the use of bone meal fed to the cows with their salt. I feed one-quarter bone meal and three-quarters salt, and let them eat what they will of the mixture.

The calf is certainly a much more important animal with the dairymen of this section than it is with us in the Elgin section. We find but little profit in growing a steer from weaning to the butcher. But I think there is here, with your cheaper feed, both summer and winter, a nice profit in steers. In fact, I suspect that is one-half the inducement for you to keep cows.

I will give you some of my experience in raising calves. I have my cows calve in the fall or early winter. I always let the calf have its mother's milk for two or three days and then commence to feed it warm, sweet skim-milk, and teach it to eat a little corn meal or other grain as soon as we can; also hay. I warm the milk for my calves all winter, and do not wean them until turned to pasture in the spring. I have had Durham grade

calves gain two pounds per day in the winter time. I find better success in raising fall and winter calves than with spring calves.

The fall calf, if fed milk all winter, will be a large, strong animal in the spring, and by the following winter, or when a year old, will not need much more care than the older young stock. The spring and summer calf will be weaned in the fall, and the chances are it does not get the extra care it needs the first winter. I am a strong advocate of early-cut clover hay for calves as well as cows. My remedy for scours is boiled sweet skim milk; and I have found this remedy good for other farm animals. I have had my grade Durham calves weigh on an average over 300 pounds when three months old. I cannot make grade Jerseys grow so fast, but they do make splendid butter cows.

The pigs I have tried as hard to make some money out of as I have with my cows, and I have probably done as well with them as the average farmer, but the balance, after paying for the feed, does not compare well with the cows.

I have made many experiments in feeding hogs and pigs and have learned this: that to have an experiment reliable, they (and all animals) must be fed on the food to be experimented with a few days before the experiment is commenced. Some of my earliest experiments were made to learn the value of skim-milk for pork-making, or the number of pounds of skim-milk it required to produce a pound of pork.

I always attended to all my experimental work personally. The first experiment was with milk alone, and the pigs on a floor, so they could get no food except what I gave them. The result showed that it required sixteen pounds of skim milk to produce a pound of pork, live weight, or six and one-quarter pounds increase from 100 pounds of skim milk, which with pork worth 4 cents per pound would make the milk worth 25 cents per 100 pounds.

These pigs weighed 50 to 60 pounds when the trial was commenced. I afterward experimented with a lot of shoats weighing 130 pounds, by dividing the lot as evenly as I could and feeding one lot corn and water and the other lot corn and skim milk. I first weighed up the lot fed corn and water, and found what the corn had produced. Then weighed the lot fed corn and milk, and credited the corn with the same increase it made in the other case, and the milk with the balance of the increase. The result was the same as in the other case, namely: 6½ pounds increase from 100 pounds of milk. This trial was during colder weather than the first and with larger animals, both points against the last experiment.

In December, 1873, twenty-two July and August pigs, weighing 117 pounds, gained 1 1-6 pounds per day, were fed corn and skim-milk. Allowing the milk to make 6½ pounds of pork to 100 pounds of milk, the corn made 13 84-100 pounds from 60 pounds of shelled corn.

In February, 1874, forty-six June, July and August pigs, weighing 200½ pounds each, fed on cooked corn meal and ear corn, made an increase of 12 4-10 pounds per bushel of feed.

In January, 1875, thirty May and June pigs made 9 42-100 pounds increase from 60 pounds of corn meal fed dry, with water for drink, and the thermometer ranging from zero to 18 deg. below.

The following month the same lot of pigs made an increase of 9 74-100 pounds from 60 pounds of shelled corn. The weather was much milder than during the previous experiment.

In December, 1875, fifty-four pigs, 7 months old, averaging 242 pounds, made an increase of 10 3-10 pounds from a bushel of corn.

In January, 1876, the same fifty-four

pigs produced 8 pounds increase from one bushel of corn.

In October, 1877, fifty-four old hogs that had been at pasture with no other food all summer, made an increase of 2 54-100 pounds each per day, and produced 12 1-5 pounds increase from a bushel of corn.

In October, 1877, fifty-eight July pigs fed ear corn, skim-milk and corn and oat-meal made an increase of 14 97-100 pounds from a bushel of corn, after allowing for the milk what previous experiments had shown it to produce.

In July, 1878, twenty-nine hogs, averaging 170 pounds, made an increase of 11 pounds per bushel of corn.

In 1878 I made a series of experiments to learn at what age a pig would make the largest increase from the food consumed. The first experiment was made with the sow and her eight pigs, when the pigs were 13 days old. In this experiment the sow and pigs made an increase of 14 pounds from a bushel of feed.

June 8th, the eight pigs weighed 327 pounds. June 21st, they weighed 423 pounds, a gain in 13 days of 96 pounds. They were fed 439 pounds of skim milk, and 217 pounds of corn, crediting the milk with 6½ pounds per 100, would make 27½ pounds increase, leaving 68½ pounds increase to credit the corn with, or 19 pounds increase from 60 pounds of shelled corn. Figuring the milk at 25 cents per 100 pounds and the corn at 30 cents per bushel (which was the market price at that time), the pork cost 2 27-100 cents per pound.

In August, the eight pigs weighed 126 pounds each, and produced 15 1-9 pounds increase from a bushel of corn, after allowing for the milk fed.

My experience is that with proper food the first 100 pounds increase of weight on a pig costs less than the second 100 pounds, and that each succeeding 100 pounds costs more than the preceding one.

I wish to compare my most successful pig-feeding experiment with my most successful calf-feeding experiment.

February 22d, 1881, two grade Durham calves, about 5 months old, weighed 732 pounds. March 1st, they weighed 767 pounds, a gain of 35 pounds in 7 days. Gain each per day, 2½ pounds. They were fed as follows:

280 lbs. skim-milk, at 25 cents.....	\$ 7.00
44 lbs. corn-meal.....	.25
70 lbs. hay, at \$10 per ton.....	.35

Total feed expense.....\$1.30

Cost per pound of increase, 3 7-10 cents, to compare with 2 27-100 cents in the pig experiment. The feed was figured at the same price in both cases. The point is here: The pig will consume a larger percentage of feed per day than the calf, and consequently must make a larger increase from the food consumed.

I feed my hogs some wheat middlings all the time when fattening. My breeding stock I feed but little other food. I think it is much better than to feed corn.

I would like to impress upon every dairyman's mind the importance of testing his cows separately. I hope you will remember this if you forget all the rest I have said to you.

Fun, Facts and Fiction.

SATURDAY EVENING LANCE!

A PAPER FOR THE PEOPLE.

Devoted to Society, Lodge, Amusement and Dramatic News, good Literature, etc. Will be published especially for the State of Kansas. Terms, \$2 a year; \$1 for six months. Specimen copy free.

Address M. O. FROST & SON, Pubrs., Topeka, Kansas, Clubbed with the KANSAS FARMER for \$2.75.

The Veterinarian.

[The paragraphs in this department are gathered from our exchanges.—ED. FARMER.]

CASTRATION OF COLTS.—This operation is now in order, and is one which may seriously affect the future of the animal which has to undergo it. The proper time for such work should be determined according to the condition of the colt. The state of the weather should also be taken into consideration. In work of this kind the most skillful operators will be found the cheapest in the end, and should always be employed.

REMEDY FOR "BIG JAW."—A Western paper states that Charles Goodnight one of the cattle kings of Texas, thinks "jump-jaw," or "big jaw" in cattle, is caused by decayed teeth. A few years ago he saw in his herd a young steer having a swollen jaw. The animal was promptly roped, his teeth examined, and one which showed decay was knocked out. In a day or two the animal recovered. Since that time his men have orders to watch for signs of "big jaw," and on its appearance to resume their dental operation. He has had no "big jaw" in his herd since adopting this plan, of which those scientific gentlemen who pry into the secrets of nature and her jaw with microscope and great curiosity should make note.

OVERREACHING.—In cases where the horse overreaches to pull off his shoes, the best method, according to a correspondent of the *Horseshoer*, is as follows: Leave the front shoes just as long as you would if the horse traveled all right and naturally. Make the heels of the front shoes high enough so as to raise the heels of the foot a little more than level with the toe; now fit the shoe for the hind foot, leaving it short enough so that when set the foot will project out and cover the shoe a quarter of an inch; in welding the toe calk on to the shoe, weld on the inside of the toe, so that the shoe projects over or beyond the calk as far as possible. Nail the shoe on the foot, not rasping off any of the hoof on the toe, and you will find it almost impossible for the horse to overreach so as to cast his shoes.

GLANDERS FATAL TO MAN.—The death of Ira S. Todd, a farmer in Tolland, Conn., from glanders is reported to have occurred lately after terrible suffering. Mr. Todd purchased a horse from a traveling horse-trader and essayed treatment of the animal for glanders by blowing smoke into his nostrils and in other ways by which he was brought into close contact with the beast. A short time after, he had symptoms resembling those of pneumonia, and finally had blotches and gatherings on his body and an excessive nasal discharge. Physicians pronounced it glanders and their treatment was ineffectual, as the disease was considerably advanced before they were called. A local veterinary surgeon says several such cases have occurred in Connecticut from infection from glandered horses after the disease had reached the malignant stage.

EPILEPSY.—Will you please inform me in your next issue what was the probable trouble with my yearling heifer also a remedy in case I may have another such case. I found her standing with her nose against the barn frothing at the mouth badly, and jerking all over as if in spasms; her eyes were glassy and twitching. She finally fell and was in such agony that we thought it best to kill her. * * * From the symptoms we think there is very little doubt that the heifer was attacked with an epileptic fit, and had she not been destroyed it is more than probable that as soon as the fit had passed over she would have regained her self-control sufficiently to stand upon her feet, and in time recovered her usual health and strength. Epilepsy is not necessarily a fatal malady. Many of our domestic animals, as well as some members of the human family, become the unfortunate victims of periodical attacks of epilepsy but they do not very often die of this malady. It is not always an easy matter to ascertain the cause of epilepsy. Nervous, excitable subjects are the usual victims.

PROSPECT FARM.



The two imported Clydesdale Stallions, **Carron Prince** and **Knight of Harris** will stand at the stable of the undersigned this season—the one at \$20.00, the other at \$25.00, to insure. Both horses imported from Scotland in 1882 and recorded in A. C. S. Book, pages 364 and 370.

The two High-grade Stallions, **Donald Dean** and **King William**, will stand at same place at \$10.00 each to insure. These two horses were bred and grand-sired by noted imported Clydesdale Stallions. Farmers, come and examine these horses for yourselves. **STALLIONS AND MARES FOR SALE.** **H. W. McAFEE.** Three miles West of Topeka, 6th St. road.

IVANHOE. Trial Mile at 3 Years Old, 1:46.

Dark Bay, 15 3-4 hands high, weight 1,100 pounds

Stands at **GLENVIEW FARM**, 8 miles southwest of Humboldt, at \$20 to insure. Free pasture for mares. Sired by **Glendower**, (son of **Evergreen** and **Imp. Knight of St. George**); 1st dam by **Panlo**, 2d by **Dubloon**, 3d by **Sir Richard**, 4th by **Whip**, 5th by **Costeas**, 6th by **Imp. Dare Devil**.

For a combination of blood, size, style, speed and action, united with beauty of the highest type and the power of transmitting these qualities to his progeny, this horse has few equals. **G. A. LAUDE,** Humboldt, Kas.

MARQUIS 2D,

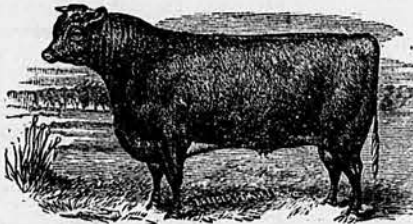
A Pedigree English Shire Horse,

Stands for the season at **Fowler's Ranch**, Maple Hill, Kas., on Tuesdays, Wednesdays and Thursdays; at the **West Ranch** on Mondays, and at **St. Marys**, on Saturdays, in each week.

TERMS OF SERVICE:

To insure, \$25,—payable when mare proves in foal or if owner disposes of her. Single services \$15,—payable to man in charge, at time of service.

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Breeders of Short-horn Cattle and furnishers of High-grade Red and Roan Bulls and Heifers. Specialty of Grade Polled-Angus and Galloway Cattle for Western trade.

200 choice High-grade Cows and Heifers for sale.

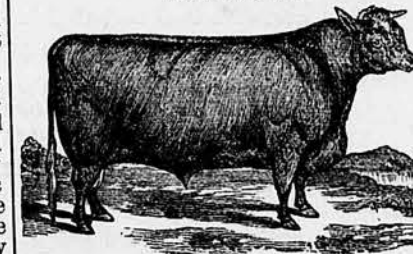


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1,000 Short-horn Cows, and raise for sale each year **Near 400 Bulls.**

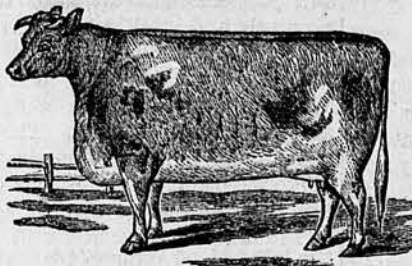
Will sell males or females at all times as low as they can be bought elsewhere. The Annual Public Sale will be held the first Wednesday and Thursday in June of each year. Parties wanting to buy Short-horns Write to **J. M. CLAY**, President, Plattsburg, Mo.; **H. C. DUNCAN**, Vice President, Osborn, Mo. or **S. C. DUNCAN**, Secretary, Smithville, Mo.

Wm. Gentry & Sons, Sedalia, Pettis Co., Mo. **Joel B. Gentry & Co., Hughesville, Pettis Co., Mo.**



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SHORT-HORN CATTLE of the most noted beef strains, and all superior individuals.

FOR SALE—Forty Thoroughbred Pure Short-horn Bulls—Ross of Sharon, Young Mary and Princess, from 9 months to 2 years old; also, 60 High-grade Bulls, all Red and in fine condition, from three-quarters grade cows and pedigree bulls.

Correspondence or inspection of herd cordially invited.

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To parties wishing to start a Herd I will give very low figures. Write or come.

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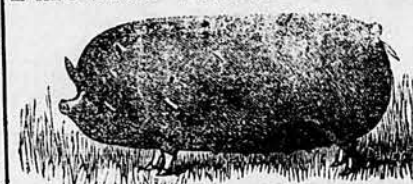


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My stock was selected from the best herds in Illinois, Indiana and Ohio. Young stock for sale; also high-class Poultry. Send for catalogue and prices.

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The **Wellington Herd** of well-bred and Imported Berkshires is headed by **HOPEFUL JOE 4889**. The herd consists of 16 matured brood sows of the best families. This herd has no superior for size and quality, and the very best strains of Berkshire blood. Stock all recorded in **A. B. R.** Correspondence and inspection invited. Address **M. B. KEAGY,** Wellington, Kas.



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Fully up to the highest standard in all respects Pedigrees, for either American or Ohio Records, furnished with each sale. All inquiries promptly answered. Address **STEWART & BOYLE**, Wichita, Kansas.

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Herds of pure-bred and high grade Short-horn Cattle, Poland-China Swine, Shepherd Dogs and Plymouth Rock Fowls. The best herd of Poland-Chinas west of the Mississippi river, headed by **Black-foot 2231**, Young U. S. 4491, **Laudable**, vol. 6 (own brother to **Look-No-Farther 4005**) and **Seek-No-Farther** (a son of **Look-No-Farther**). All stock sold eligible to the Ohio Record. Send for new catalogue. **MILLER BROS.** Box 293, Junction City, Kas.

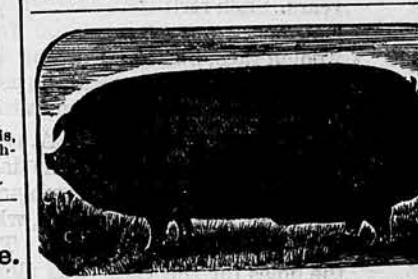
Thoroughbred Poland-Chinas



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Hogs of Quick Growth,

Easily fattened and early matured, showing a great improvement in form and style, especially in the head and ears.

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PIG EXTRICATOR, to aid animals in giving birth. Send for free circular to **WM. DULIN,** Avoca, Pottawatomie Co., Iowa.

Orange Culture.

One of our California exchanges says experiments that have been tried in Los Angeles, Pasadena and in Governor Stoneman's orange grove, in the San Gabriel Valley, clearly show that although our soil may be immensely rich and well suited to orange culture, yet the presence of fine manure, mingled with the soil beneath the orange tree, adds greatly to the vigor and growth of the tree, and increasing the number of oranges.

As a result of careful observation in Los Angeles County, we have observed that in many orchards some part of the land was in sand, some in stiff land, and some portion in dark gravel and vegetable mold. The difference in growth without fertilization was remarkable. The gravelly loam produced the largest tree, the sand land the next largest, and the hard, stiff, clayey soil the smallest growth.

In the product of fruit the difference in young trees was noticeable. The trees in the dark soil grew lustily and dark green, with fine, large fruit, but not very numerous. The sandy land had more fruit, but smaller in size, while the trees of the same age in hard, stiff land were pale in color, but loaded with small fruit, tart and unsalable. After these are dead and gone the trees on the rich portion of the land will pour out annually their golden crops of large and luscious fruits for a century. These observations show clearly that fertilizers are invaluable in the production of fine oranges. The effect of sheep manure and dried blood on the growth and fruit of the orange tree are remarkably fine. By the use of these manures the trees on hard soil can be stimulated and made to produce fine, large fruit. These manures act very promptly, but the effect wears away after a few years, when they should be supplemented by slowly working fertilizers that last for twenty years. Such fertilizers as crushed bones, leather scraps from shoe factories, woolen rags, buried straw and iron filings will slowly change to the properties that the tree will absorb and utilize.

On the fruit farm of Mr. A. O. Porter, of Pasadena, a portion of his land was a kind of hard-pan, a combination of clay, iron and gravel, which, when dry, is almost as dense as rock. To make the holes for the trees was almost like quarrying rock, and required a heavy expense to make them. Into these sheep manure was thrown and left exposed to a heavy winter rainfall, which filled the holes with water that stood in them as in a kettle. The effect was remarkable. In the summer the orange trees were planted and have grown well and are now bearing noble fruit. Without this, or some other quick-acting fertilizer, it would have been worse than useless to have planted these trees. Such examples are of great value to persons who are planting orchards, and to those who have young orchards just coming to fruitage. It shows that fertilizers can be profitably used on orange groves, and where there are certain elements lacking in the soil should be used freely and promptly. There are thousands of orange trees in this part of the country that have 2,000 worthless little oranges on them apiece, that are about useless, while if fertilizers had been used, instead of the 2,000 miserable oranges, there would have been a robust tree with 500 handsome oranges that would have been worth four times the crop of little, pale oranges that attempted to get a subsistence from a half starved tree.

The irresistible conclusion is obtained from careful observation that the orange tree flourishes best and most profitably by fertilization, and that all our pale-colored trees, with small, numerous

and pale-colored fruit, need fertilizing promptly and intelligently. It is to be hoped that these views will prevail, and the day of small oranges be done away. We should have the best and most sizable fruit, and no other. There is no use in raising oranges that run less than 220 to 250 per box. It is perfectly certain that the matter can be controlled by intelligent cultivation, and it is for the interest of orange growers to give attention to the subject.—Florida Dispatch.

EDUCATION PAYS

The KANSAS State Agricultural College

TO FARMERS' SONS AND DAUGHTERS

A full four years' course of study in English and Sciences most directly useful on the farm or in the home with careful training in the industrial arts adjusted to the wants of students throughout the State, with shorter courses in common branches, and all

Tuition Free.

Other expenses are reasonable, and opportunities to help one's self by labor are afforded to some extent. The work of the farm, orchards, vineyards, gardens, grounds and buildings, as well as of shops and offices, is done chiefly by students, with an average pay-roll of \$200 a month.

THE TWENTY-FIRST YEAR OF THE COLLEGE BEGINS SEPT. 13TH, 1883,

with sixteen instructors, 350 students, buildings worth \$90,000, stock and apparatus worth \$35,000, and a productive endowment of 405,000.

For full information and catalogue address,
PRES. GEO. T. FAIRCHILD,
Manhattan, Kansas.



We have spent over \$100,000.00 in defending our right to the Durham Bull as our trademark. Undoubtedly he is to-day the most valuable Bull in the world. Now it stands to reason that we could afford to protect him so thoroughly if BLACKWELL'S BULL DURHAM TOBACCO, of which he is the representative, wasn't the BEST Smoking Tobacco ever made.



The sales of Blackwell's Bull Durham Smoking Tobacco far exceed those of any other brand in the world, simply because it has been, is, and will be, the best that can be made. All dealers have it. Look for trade-mark of the Bull on every package.



240 JERSEY CATTLE

Consigned by Prominent Breeders to
PETER C. KELLOGG & CO.

For Positive Auction Sale,
Tuesday, Wednesday and Thursday,
JUNE 17, 18 & 19, 1884,

Commencing each day at 10 o'clock,
at the

AMERICAN HORSE EXCHANGE, Limited,
Broadway and 50th St., New York.
(Office, 107 John St.)

Among the consignors are Mr. T. A. Havemeyer (entire Mountaineer Herd), Mahwah, N. J.; Mr. Valancey E. Fuller, Hamilton, Canada; Mr. A. B. Darling, Ramsey, N. J.; Mr. F. C. Havemeyer, Westchester, N. Y.; Mr. S. M. Shoemaker, Baltimore, Md.; Mr. John P. Maxfield, Bloomfield, N. J.; Mr. John I. Holly, Haddonfield, N. J.; Mr. George R. Sheldon, Morrisville, N. J.; Mr. Wm. Rockefeller, Greenwich, Conn.; Edenside Farm, Orange, N. J., and other owners of valuable Herds.

There are Cows, Heifers and Bulls, by Stoke Pogis Ed. Duke of Darlington, Royalist, Lord Lisgar, Black Prince of Hanover, Carlo, Uproar, Pedro, Sultan Carlo, Hero, Romulus, Tom, Victor, Brownie, and close descendants of Coomassie (a daughter), Khedive, Grand Duke Alexis, Victor Hugo, Pandellon (a daughter), Jersey Belle of Scituate, Vertumnus, Jersey Boy, Lady Mary, and nearly every fashionable strain in the country.

The lateness of the season, the large number offered, the financial situation, and the high quality and breeding of the offerings indicate that this sale will prove the most available opportunity of the year for valuable bargains.

Address **PETER C. KELLOGG & CO.,**
107 John St., New York.

At Abilene, Kansas, Wednesday, June 18th,
WILL BE OFFERED AT PUBLIC SALE THE

DURHAM PARK HERD,

Consisting of



ONE HUNDRED AND SIXTY Thoroughbred Short-horns,

LATE THE PROPERTY OF MR. ALBERT CRANE.

HAVING purchased the above-named herd, together with the Durham Park estate, I have decided to close out the cattle by public auction at the time and place above mentioned, and to dispose of the land in small tracts at private sale. For a number of years past the surplus cattle stock at Durham Park has been disposed of at private treaty, and no opportunity has heretofore been presented for the purchase of

THE MANY CHOICE BREEDING ANIMALS

Collected with such a liberal hand by Mr. Crane. In building up the herd Mr. Crane not only patronized several of the leading American breeders but made purchases at several notable English sales, including the Torr-Booth dispersion. Bulls of the purest breeding have been used, and every endeavor made to maintain a thoroughly useful cattle stock.

The proprietor has refused to dispose of anything at private sale since the purchase, and has catalogued for this occasion the entire herd just as it was received from the hands of Mr. Crane, without a single reservation.

Catalogue on application to
S. A. SAWYER, AUCTIONEER.

A. H. MARTIN, Durham Park, Kas.

PUBLIC SALE OF Pure-bred Short-horn and Aberdeen-Angus CATTLE

Turlington Stock Farm.

The first annual sale of pure-bred Short-horn and Aberdeen-Angus cattle from the Turlington herds, will be held at the farm,

Tuesday, June 17th, 1884.

Among the SHORT HORNS to be catalogued are RED ROSE PRINCESSES, RENICK ROSE OF SEARONS (including some of the POPPY branch), MAZURKAS, ROAN DUCHESSES, EASTER DAYS, ROSAMONDS, YOUNG MARYS, etc., etc.

The ABERDEEN-ANGUS will embrace ERICAS, SYBILS, JILTS, PRIDES, DUCHESSES OF CARRON, DUCHESSES OF FERNYFLATT, FYVIE FLOWERS, DRUMIN LUCYS, etc.

This draft of 50 Head from the above herds in point of individuality and high breeding cannot be excelled.

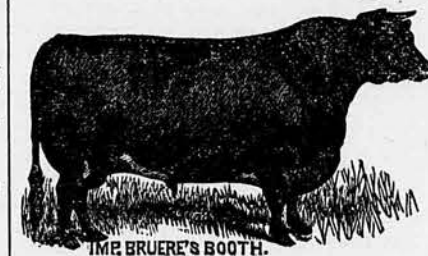
Catalogues to be had on application to
COL. L. F. MUIR, } Auctioneers.
FRED. M. WOODS, }

T. W. HARVEY,
Turlington, Nebraska.

TURLINGTON, NEB., is on the B. & M. R. R., fifteen miles west of Nebraska City, and thirty-five miles east of Lincoln. Passengers on B. & M. stop at TURLINGTON, which is on the Farm.

PUBLIC SALE OF 500 HEAD Pure-bred and High-grade Short-horn Cattle.

—AT—
Buckeye Farm,
SAFFORD, Chase Co., KAS.,
Wednesday and Thursday,
JUNE 11 and 12, 1884.



BEGINNING at 12 M., Wednesday, the 11th, we will sell OUR ENTIRE HERD OF SHORT-HORN CATTLE.

ON THURSDAY, June 12th, beginning at 10 a. m., we will sell about 25 HEAD OF GRADE NORMAN HORSES, about 300 HEAD OF HIGH-GRADE COWS AND HEIFERS, 150 HEAD OF STEERS.

Special Train will leave Emporia at 9 a. m. on Wednesday.

For further information or Catalogue, address

S. E. PRATHER and J. F. PRATHER,
Springfield, Ill.,

S. T. BENNETT,
Safford, Chase Co., Kansas.

Attention is called to S. E. Prather's Sale on June 4th, next, at Springfield, Ill.

Home June 18th. Herd June 19th.
AT YOUR OWN PRICE, JUNE 18th and 19th,

A HERD OF HOLSTEINS AND A DESIRABLE HOME.

The First Closing-Out Sale of an Established Herd.

Not an Animal or a Bid Reserved.

An injury to my back that unfits me for business, the only reason for selling.

Oldest herd in Iowa, established by personal selections from twelve importations made by one who has spent a life-time handling dairy stock. Milk records that have not been surpassed. Milk is now giving from 80 to 90 pounds per day, and four of her calves, 60 head of the choicest thoroughbreds and a few grades. Sale at 12 sharp, regardless of weather. Lunch at 11.

Farm of 142 acres, 1 mile from Iowa City, 2 from State University. Out-buildings, large modern and convenient barn, room for 100 head of stock and feed to winter them. Land in the highest state of cultivation. Location high and healthful. Every acre in view of the house; convenient house of 12 rooms. Ice house, carriage house, wagon sheds, waterworks, evergreen grove, orchard, etc. Sale at 3, Wednesday.

Send for Catalogue.

Carey R. Smith, Iowa City, Iowa.

THE STRAY LIST

HOW TO POST A STRAY

BY AN ACT of the Legislature, approved Feb 27, 1886, section 1, when the appraised value of a stray or strays exceeds ten dollars, the County Clerk is required, within ten days after receiving a certified description and appraisal, to forward by mail, notice containing a complete description of said strays, the day on which they were taken up, their appraised value, and the name and residence of the taker up, to the Kansas Farmer, together with the sum of fifty cents for each animal contained in said notice. And such notice shall be published in the FARMER in three successive issues of the paper. It is made the duty of the proprietors of the KANSAS FARMER to send the paper free of cost, to every county clerk in the state to be kept on file in his office for the inspection of all persons interested in strays. A penalty of from \$5.00 to \$50.00 is added to any failure of a Justice of the Peace, a County Clerk, or the proprietors of the FARMER for a violation of this law.

How to post a Stray, the fees fines and penalties for not posting.

Broken animals can be taken up at any time in the year.

Unbroken animals can only be taken up between the 1st day of November and the 1st day of April, except when found in the lawful enclosure of the taker-up.

No persons, except citizens and householders, can take up a stray.

If an animal liable to be taken, shall come upon the premises of any person, and he fails for ten days after being notified in writing of the fact, any other citizen and householder may take up the same.

Any person taking up a stray, must immediately advertise the same by posting three written notices in as many places in the township, giving a correct description of such stray.

If such stray is not proven up at the expiration of the ten days, the taker-up shall go before any Justice of the Peace of the township, and file an affidavit stating that such stray was taken up on his premises, that he did not drive nor cause it to be driven there, that he has advertised it for ten days, that the marks and brands have not been altered, also he shall give a full description of the same and its cash value. He shall also give a bond to the state of double the value of such stray.

The Justice of the Peace shall within twenty days from the time such stray was taken up, (ten days after posting) make out and return to the County Clerk, a certified copy of the description and value of such stray.

If such stray shall be valued at more than ten dollars, it shall be advertised in the KANSAS FARMER in three successive numbers.

The owner of any stray, may within twelve months from the time of taking up, prove the same by evidence before any Justice of the Peace of the county, having first notified the taker up of the time when, and the Justice before whom proof will be offered. The stray shall be delivered to the owner, on the order of the Justice, and upon the payment of all charges and costs. If the owner of a stray fails to prove ownership within twelve months after the time of taking, a complete title shall vest in the taker up.

At the end of a year after a stray is taken up, the Justice of the Peace shall issue a summons to three householders to appear and appraise such stray, summons to be served by the taker up; said appraiser, or two of them shall in all respects describe and truly value said stray, and make a sworn return of the same to the Justice.

They shall also determine the cost of keeping, and the benefits the taker up may have had, and report the same on their appraisal.

In all cases where the title vests in the taker-up, he shall pay into the County Treasury, deducting all costs of taking up, posting and taking care of the stray, one-half of the remainder of the value of such stray.

Any person who shall sell or dispose of a stray, or take the same out of the state before the title shall have vested in him shall be guilty of a misdemeanor and shall forfeit double the value of such stray and be subject to a fine of twenty dollars.

Strays for week ending May 21, '84.

Linu county—J. H. Madden, clerk.

PONY—Taken up by E. Norman, in Pototsi tp, April 16, 1884, one dun pony, branded X. S. on left shoulder and small H on left hip, dark mane and tail, small star in forehead.

Pawnee County—J. F. Whitney, Clerk.

COW—Taken up by Joseph Shirley, in Pleasant Valley tp, one red roan cow about 3 years old, branded G with curved line underneath; valued at \$23.

COW—By same, one red cow, about 3 years old, branded G with curved line underneath; valued at \$23.

CALF—By same, one roan calf, 9 months old; valued at \$9.

CALF—By same, one red calf, 9 months old; valued at \$9.

MARE—Taken up by N. Edick, in Garfield tp, in April, 1884, one strawberry roan mare, shod all around no marks or brands; valued at \$20.

Graham county—H. J. Harwi, Clerk.

HORSE—Taken up by Henry Garrett, in Wild Horse tp, April 20, 1884, one bay horse, about 10 years old, 14 hands high, left fore foot and both hind feet white saddle marks on back, no other marks or brands; valued at \$30.

Reno county—W. R. Marshall, clerk.

PONY—Taken up by J. B. Millard, in Albion tp, April 23, 1884, one dun pony mare, 6 years old, indistinguishable brand on left hip; valued at \$30.

Greenwood county—A. W. Hart, clerk.

SEVEN HOGS—Taken up by John Willis, in Bachelor tp, April 18, 1884, one white and one spotted barrow, one white and one black sow, two spotted sows, marked with crop off right and left in left ear, one white sow—no marks; valued at \$57.75.

Strays for week ending May 28, '84

Clay county—W. P. Anthony, clerk.

MARE—Taken up by Henry Mahn, in Goshen tp, May 5, 1884, one dun mare, mane and tail white, branded J on left hip, also indistinct brand on left jaw; valued at \$35.

Harper county—Ernest S. Rice, clerk.

HORSE—Taken up by Charles Cropper, in Spring tp, May 12, 1884, one strawberry roan horse, no marks or brands visible; valued at \$40.

PONY—By same, one spotted horse pony, branded with circle on right hip; valued at \$35.

Brown county—G. I. Prewitt, clerk.

MARE—Taken up by David Hillyer, in Padonia tp, one iron-gray mare, 5 years old, branded M on left shoulder, about 15 hands high; valued at \$75.

Rice county—C. M. Rawlings, clerk.

HORSE—Taken up by John W. Royse, in Victoria tp, May 12, 1884, one clay-bank or dun horse, right hind foot white, white star in forehead, collar marks on shoulder; valued at \$35.

Elk county—J. S. Johnson, clerk.

MARE—Taken up by Leonard Robinson, in Union Center tp, May 16, 1884, one iron-gray mare, wart on left jaw; valued at \$50.

Summer county—Wm. H. Berry, clerk.

PONY—Taken up by E. M. Desart, in Jackson tp, May 8, 1884, one small sorrel 2-year-old mare pony, branded B on right shoulder, right hind foot white, small white strip on face; valued at \$30.

Strays for week ending June 4, '84.

Shawnee county—Chas. F. Spencer, clerk.

MARE—Taken up by J. E. McCarty (P. O. Rossville), in Rossville tp, May 21, 1884, one black mare, 3 to 4 years old, left hind foot white, blaze face, not bridled; valued at \$30.

Davis county—P. V. Trovinger, clerk.

PONY—Taken up by George Heidel, in Jackson tp, April 12, 1884, one bay mare pony, 3 years old, 13 hands high, branded B on left shoulder, small strip on nose, some white on right hind foot; valued at \$25.

Kingman county—Chas. Rickman, clerk.

PONY—Taken up by S. M. McCord, in Hoosier tp, April 28, 1884, one medium-sized roan horse pony, blaze in face, 2 white feet; valued at \$15.

PONY—By same, one small brown mare pony, anchor branded on left shoulder and S on left hip, white feet; valued at \$15.

Anderson county—A. D. McFadden, clerk.

HEIFER—Taken up by A. P. Caldwell, in Rich tp, April 23, 1884, one white yearling heifer, bit out of upper part of left ear; valued at \$18.

HEIFER—By same, one pale red and white yearling heifer, square bit of left ear; valued at \$18.

HEIFER—By same, one pale red and white spotted yearling heifer, no marks or brands; valued at \$18.

Labette county—F. W. Felt, clerk.

HORSE—Taken up by Leander Pond, in Hackberry tp, May 10, 1884, one bay horse, 5 years old, blaze face, white spot on each of its sides, indistinguishable brand on left hip; valued at \$25.

MARE—By same, one bay mare, blaze face, glass eyes 3 years old, branded as above; valued at \$20.

MARE—By same, one bay mare, about 9 years old, branded as above; valued at \$15.

MARE—By same, one black mare, about 4 years old, star in forehead, branded as above; valued at \$20.

HORSE—Taken up by J. D. Lombard, in Hackberry tp, May 15, 1884, one dark bay horse, 4 years old, 14½ hands high, branded on left hip nearly like "1 H," bad on a head-stall; valued at \$30.

HORSE—By same, one dark bay horse, 15 hands high, 6 years old, branded as above on left hip (1 H); valued at \$40.

Strayed.

From the subscriber, 3 miles southwest of Leavenworth, evening of May 10, 1884, team of small horses. One bay, light on hips, much darker on shoulders, age about 10 years, has rather large head; other very dark, nearly black, has very heavy mane, tail and foretop, age about 6 years, has Texas brand. Both have collar and saddle marks. A liberal reward will be paid for their return or information where they may be found. G. S. SMITH or R. W. CRUTCHER, At Broadway Stock Yards, Leavenworth, Kas.

STRAYED.

From the subscriber, two miles southeast of Pauline, Kas, on the 18th of April, 1884, a bay mare with bald face and 4 white feet 7 years old, weighs between 800 and 900 pounds, had on 3 shoes; also, a black yearling horse colt with star in forehead. A reward of \$10 will be paid for the return of said horses or information where they may be found. J. S. WEIR, Pauline, Shawnee Co., Kas., Or, L. KINGMAN, Topeka, Kas.

HALL'S VEGETABLE SICILIAN

Hair Renewer.

Seldom does a popular remedy win such a strong hold-upon the public confidence as has HALL'S HAIR RENEWER. The cases in which it has accomplished a complete restoration of color to the hair, and vigorous health to the scalp, are innumerable.

Old people like it for its wonderful power to restore to their whitening locks their original color and beauty. Middle-aged people like it because it prevents them from getting bald, keeps dandruff away, and makes the hair grow thick and strong. Young ladies like it as a dressing because it gives the hair a beautiful glossy lustre, and enables them to dress it in whatever form they wish. Thus it is the favorite of all, and it has become so simply because it disappoints no one.

BUCKINGHAM'S DYE FOR THE WHISKERS

Has become one of the most important popular toilet articles for gentlemen's use. When the beard is gray or naturally of an undesirable shade, BUCKINGHAM'S DYE is the remedy.

PREPARED BY

R. P. Hall & Co., Nashua, N.H.

Sold by all Druggists.

J. P. DAVIS, Pres't., E. N. MORRILL, Treas., JNO. E. MOON, Sec'y.

The KANSAS Mutual Life Association.

OF HIAWATHA, KAS.

The only Co-operative Life Association offering Absolute Protection in Old Age.

Agents wanted. Send for Journal and Leaflet, giving full information, to J. E. MOON, Sec'y.

YORK NURSERY COMPANY (Established 1870). Nurseries and Green Houses at FORT SCOTT, KANSAS. Largest Stock of Nursery and Green House Plants in the West. BEAUTIFULLY ILLUSTRATED CATALOGUE now ready. Mailed to applicants free.

\$1000

Positively sure to Agents everywhere selling our New SILVER MOULD WHITE WIRE CLOTHES-LINE. Warranted. Please at sight. Cheap. Sells readily at every house. Agents Everywhere. Send for full particulars. Agents make \$500 to \$1200 during Winter. Handsome samples free. Address, GIRARD WIRE MILLS, Philadelphia, Pa.

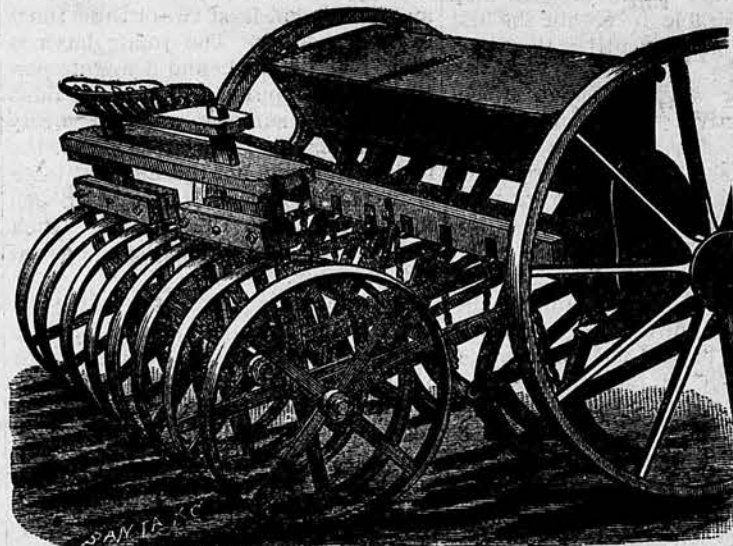
TOPEKA MANUFACTURING CO.,

TOPEKA, : : : KANSAS, Manufacturers of

Smith's Roller-Attachment for Grain Drills, The Meadow King Hay-Stacker and Hay-Rake, and The Topeka Swivel Tower Wind Mill.

Smith's Roller-Attachment!

The Roller-Attachment



For Seed Drills.

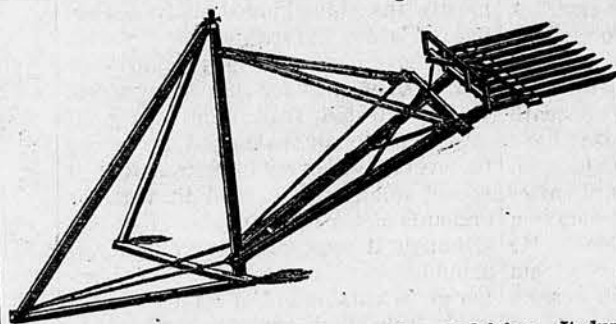
WHEAT-GROWING

Made a Certainty by the use of Smith's Roller-Attachment for Seed Drills.

The soil is firmly pressed on the seed, causing the soil to adhere to the seed, which greatly assists germination. The compactness of the soil retains the moisture, preventing injury by drought. Requiring less than one-half the seed usually sown, from the fact that none is wasted, either by a failure to sprout in the fall or by winter-killing, by pressing the soil firmly on the seed in track of the drill-hoe as it is being sown by the drill, leaving a wheel-track for the grain to grow in, which locates the wheat plant 2 to 4 inches below the general surface of the field, causing the plant to be covered by the drifting soil, it being pulverized like flour by the early spring weather, which is the most destructive weather that wheat has to pass through. The Roller-Attachment has been perfected in every respect, and we guarantee all that we represent for it.

THE ATTACHMENT CAN BE COUPLED TO ANY GRAIN DRILL.

THE MEADOW KING STACKER AND HAY-RAKE.

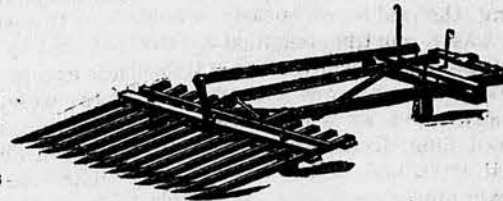


THE MEADOW KING Hay & Straw Stacker. Simplicity of Construction! No Engineer Required! Any Farm Hand Can Run It! Light Draft and Perfect Operation! CAPACITY of STACKING FROM 75 TO 100 TONS PER DAY!

The MEADOW KING STACKER saves time and labor. It dumps the hay evenly over the stack, just where you want it. It is easily operated. Two stacks built at a time if desired. It sells for less money and will do more and better work than any other Stacker in the market.

The MEADOW KING Hay-Rake

Will do more and better work than any other Rake sold. Takes the Hay from the Swath. It is the cheapest and best rake made. One man can rake from 20 to 30 acres per day.



We also manufacture THE TOPEKA SWIVEL TOWER WIND MILL, conceded to be the Best and Cheapest Wind Mill made. Will be ready for market as soon as the rush on the Roller-Attachment and the Meadow King Stacker and Hay-Rake is over, about September 1st.

For full particulars and information concerning our Machinery, address

TOPEKA MANUFACTURING CO.,

Topeka, Kansas.

The Cold Water Dip!

A HIGHLY-CONCENTRATED CHEMICAL FLUID! Non-poisonous and non-corrosive. Sheep Dip and Wash for all Domestic Animals. A safe and sure Remedy against all kinds of Parasites in Plants or Animals. A powerful disinfectant. Send for papers giving full instructions to DONALD MCKAY, Special Agt., Rose Bank, Dickinson Co., Kas.



Cures all Open Sores on Animals from any cause. At Harness or Drug Stores. 50 Cents a Box.

Horticulture.

Insects Infecting the Apple.

Apple trees need continuous attention during the growing season. The FARMER has often called attention to insects and their depredations upon apple trees, but the subject is never old. The remarks of a writer in *Country Gentleman* gives some good suggestions. He says there are a large number of insects which prey upon the apple tree or its fruit; but there are only three which have proved or may prove extensively formidable. These are the codling moth, the canker worm, and the apple maggot. The great importance and value of this crop makes it desirable to obtain the best information for preventing their ravages.

The canker worm, although sweepingly destructive where it obtains full possession, does less harm on account of spreading slowly. It goes from tree to tree, and makes thorough work with the foliage, leaving them with the appearance as if swept by fire. The old remedies consisted of a circle of some unctuous substance around the trunk to prevent the insects from crawling up. One of the most efficient of these was made by tacking sheathing paper six or eight inches wide to the trunk and extending around it, and covering it with refuse printers' ink. Pine tar was used instead of printers' ink. But where the insects were numerous they were caught, and the dead ones gradually formed a bridge over which the throng of live ones passed freely. A better contrivance consisted of a tin ring three inches wide and considerably larger than the tree, attached to a circle of muslin and held there by it, with a cord at the top around the tree. The inside of the tin, protected from the weather, was coated with a mixture of kerosene and castor oil, which made the worms drop to the ground as soon as they touched it. The most efficient remedy, however, especially for large orchards, is to shower the infested trees early in the season with Paris green in water, by means of a forcing pump or garden engine. A pound of Paris green will go over an acre. Animals should not be allowed the run of the orchard till a heavy rain has washed from the grass beneath what drippings of the poison may have fallen on it. The late Oliver C. Chapin, who had 120 acres of orchard, after using the various belts, found spraying far superior and more efficient. He used one of the wagon tanks of steam threshers, and treated fifteen acres a day.

The codling worm, by burrowing from the calyx into the core, and destroying the value of nearly whole crops, was at one time regarded as the most formidable enemy of the apple. Its destructiveness was increased by the many rapid ways in which it was conveyed long distances, both in the infested fruit and in a cocoon state. Wherever apples were sent in barrels, these insects were sent with them; they infested straw packing and boxes of goods and were conveyed in the same way. A single year was thus sufficient to carry them from the Eastern States to California.

Two good remedies are now employed for their destruction. Turn into the orchard late in spring enough sheep to eat all the infested young fruit as it drops, and keep them there till the first of autumn, continuing this year after year, and then few of the apples will be found infested. In orchards where this remedy was steadily applied, we have seen fine crops of fair fruit, with but few injured specimens; while

orchards in the same neighborhoods, not thus cared for, had their crops nearly ruined by these insects. Washing the trunks with a mixture of lime wash, soap and sheep manure, will prevent the sheep from touching the bark. As the dropping fruit and thin grass are insufficient food, they must have a regular supply of grain in troughs besides. Sheep are better than swine for this purpose.

The other remedy for the codling worm is Paris green. Shower the trees with it in about 700 times as much water, keeping it constantly stirred while the spraying is going on. A garden engine or hydropult will do the work rapidly. It should be done when the apples are the size of small cherries, and repeated at least two or three times in rainy weather. The young larva is then just hatched, and a minute portion of the poison kills it. The rains through the summer wash off every particle of the Paris green before the fruit is ripe, and not the slightest trace is ever found by chemical tests. Sheep should not have the run of such orchards till several rains have washed it thoroughly.

The apple maggot (*Trypeta*) although as yet confined to certain localities, is mentioned in this connection on account of the destruction which it threatens, if not understood and met in time. It has been described in detail, so far as known, by Prof. Lintner, in one of the bulletins of the New York Experiment Station. The larva or worm is greenish-yellow, about a sixth of an inch long, square behind, and tapering from the middle of the body to the pointed head. In its perfect state it is a fly, shaped somewhat like the common house-fly, a fifth of an inch in spread of wings. It deposits its eggs in July or August, at or near the calyx end of the fruit, and during early autumn the larva burrow inside the apple, completely destroying it in value, while the exterior may be smooth. In some localities in New England it has ruined the fruit of entire orchards, and has been found in various other places. More information is wanted of its habits, in order to meet and destroy it. It attacks mostly the thin-skinned early apples, but too late in the season to spray with Paris green, the remedy which has proved so efficient for the codling moth. If the infested fruit drops easily, it may be beaten or shaken off for sheep to devour. It is very important that it is not allowed to extend through the orchards of the country generally; and although it appears to travel slowly, it should be closely watched. Prof. Lintner gives a statement of its destructive work from Wallingford, Conn., where 250 bushels of late winter apples were examined in November, and 50 bushels were thrown out, which had become so infested by these insects as to be worthless except for cider (!), and the maggots were continuing their work, rendering another overhauling soon indispensable.

There are several other insect enemies of the apple, mostly well known. The orchard caterpillar, sometimes defoliating the trees, is easily killed by swabbing with kerosene, gas tar or lime wash, or by cutting off and burning the rings of eggs before the leaves open. The plum curculio has disfigured the fruit in some places, more particularly the earlier, thin-skinned varieties. They may be protected from it by inserting an iron plug in each of the larger branches, and striking on these with a heavy hammer, which will bring the beetles down on a large, stretched sheet, which the operator carries on his left arm, as he strikes the plugs with his right hand. They fall on the sheet, and he quickly kills

them with the thumb and forefinger of his right hand. The old method of pounding with padded mallet is inefficient, and would be worthless on apple trees. The apple curculio is rather smaller than the plum curculio, with a long snout, and it makes a round hole instead of a crescent-shaped one, for depositing its eggs. It has proved destructive to some extent at the West, but is rare at the East. The oyster-shell bark-louse has done much harm in some localities. It may be treated by scrubbing with a stiff brush with a mixture of soft soap and washing soda early in the season when the eggs are hatching, or by painting the bark with linseed oil. The borer (or round-headed borer), a striped beetle three-fourths of an inch long, which cuts into the wood at or near the ground, may be mostly kept out by coating the bark near the ground with soft soap early in summer, and again a few weeks afterward. The presence of the larva may be detected by their castings, which have a sawdust-like appearance. By clearing away these and a portion of the bark around their holes with the point of a knife, a flexible wire may be thrust in for killing them. The flat-headed borer is quite a different insect, belonging to the *Buprestis* family, but is to be similarly treated. The apple-root louse may be destroyed with hot water, pouring it around the roots of standing trees after laying them partly bare, and applying it nearly at the boiling point; or if the trees have been taken up for re-planting, applying the water at about 140 or 150 deg. Soap-suds have been used to advantage.

In addition to the special remedies which we have mentioned, it should be borne in mind that orchards will be least infested and injured by insects, if they are kept in a vigorous and healthy condition, and diseases will be less liable to affect them. Orchardists, to be successful, should make themselves well acquainted with their insect enemies and the modes for meeting them, and should understand the treatment of their orchards to preserve them in a healthy and vigorous state.



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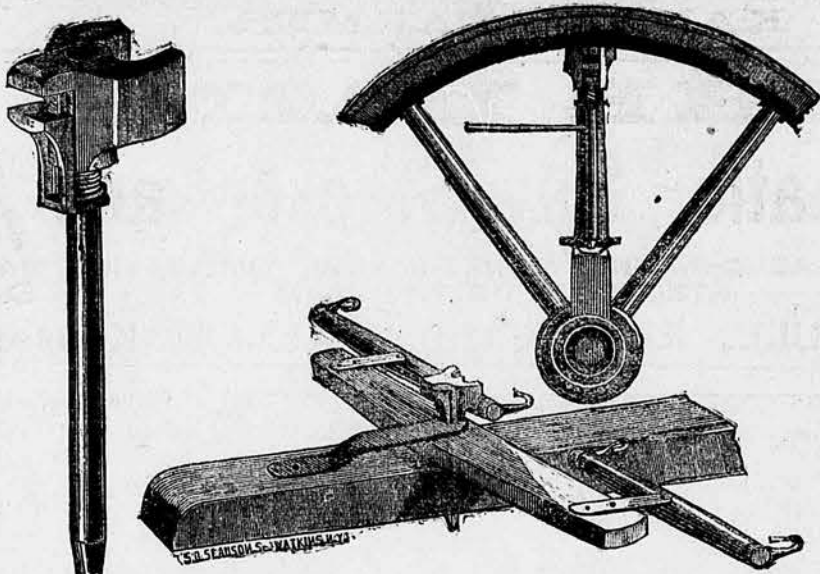
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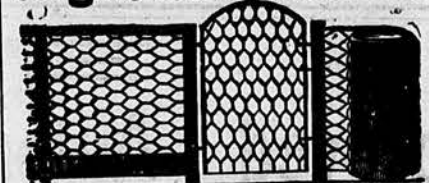
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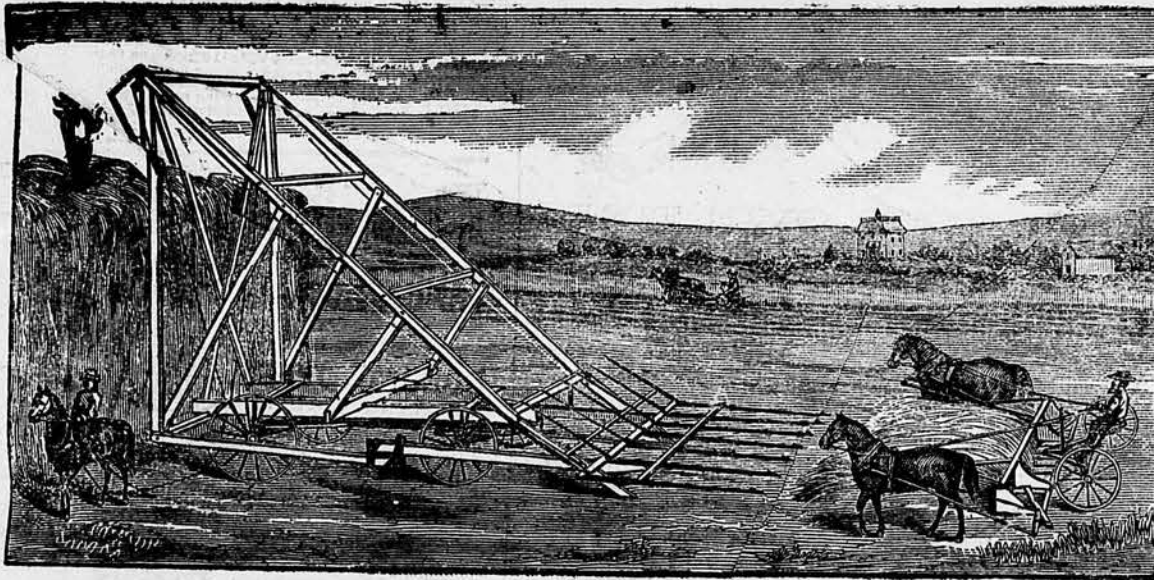
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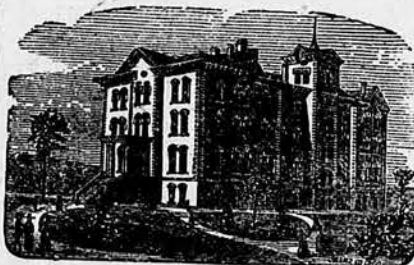
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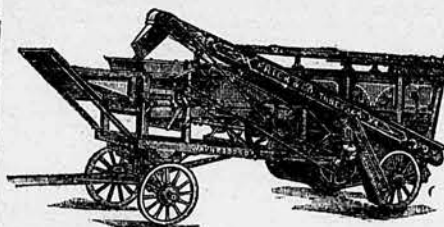
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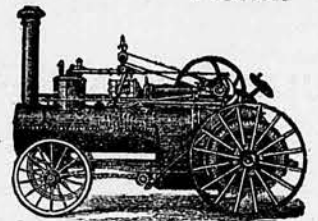
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