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Agricultural Matters.

DROUGHT-RESISTING FORAGE PLANTS.

BY PROF. DICE M'LAREN, BROOKINGS, S. D.

When the rain falls on the prairies of the West they are covered with a thick carpet of verdure which for ages fed the herds of roving bison. The drought which followed the rains suncured the prairie grass to a nutritious hay, and the abundant seeds formed the grain necessary to balance the ration of the American buffalo, which fed and clothed and sheltered the red man. The American Indian and the buffalo and the wild forage plants adapted themselves to the conditions of ever-recurring cycles of rainy years teeming with profusion, alternating with drought-stricken years of famine.

The advent of the white man is a disturbing factor in the naturally arranged conditions of the American prairies. The cattle king crowded back the Indian chief and the cowboy brought the range steer to graze the plains left vacant by the well-nigh exterminated buffalo. The superior intelligence and industry of the white man in subduing the natural resources of western America has gained for him the mastery of the red man and grants him the right to occupy the land. But the balance of nature is disturbed. The Indian will not adapt himself to the changed conditions, and in consequence the race is disappearing. When the hoofs of the buffalo were stilled and the prairie fires were quenched the velvet sward of buffalo grass gave way to the tufted bunch grass and grama or to the rich wheat grass and blue-joint. These grasses sometimes fall in the droughts, or are crowded out by weeds when over-pastured.

The building of the transcontinental railways settled the great plains during a cycle of rainfall years. The prairies east of the 100th meridian were plowed and planted to American corn and wheat, or were fenced and closely pastured by thousands of head of corn-fed cattle. To the west the whole region was closely grazed by one vast throng of branded cattle. Then came the years of sunshine and drought. The hot winds of June burned the prairie's coat of grass to a crisp, tawny hide, which stretched as far as the eye could see. The hot winds blasted the wheat and corn, while the cattle were forced to graze the fields and the range to the bare, brown earth. The grasshoppered hearts of the prairie dwellers sold the lean kine and cleared the plains of the bleaching bones of the buffalo.

Through the years of drought the buffalo grass of the prairie could feed a few bison, but the tender-tufted grass which flourished with the white men could not feed their thousands of cattle and horses and sheep. On both slopes of the Rocky mountains the range of wild grasses was so closely grazed that there was once more a Great American desert. The prairie sod was weakened and some varieties of grasses were well-nigh exterminated. The desert features of central Asia and northern Africa were reproduced by the close grazing, which is believed to have rendered unprofitable even the irrigation which was formerly practiced in the river valleys of those foreign lands. Then arose the cry for drought-resisting plants, and a world-wide search was made for crops which would grow after the rains ceased to fall.

Since then the droughts have twice changed to floods and this year the ever-welcome rains are again blessing the Dakota farmers. Past experience has taught us that through the years of plenty we must prepare for years of famine. Granaries and cribs and warehouses should be kept filled from year to year. But the roughage of the stock ration is so bulky that its storage from year to year would be far too costly. Fodder crops must be grown from summer to summer, and as prairies will not sod over in one season nor forage crops be adapted to our climate in one planting, the stock feeders of the West are wisely developing new varieties of forage plants which will

win for them their certain victory over the Great American desert.

In the warmer regions of the West the perennial clover, which is called alfalfa in Spain and lucern in Switzerland, has proved itself the sturdiest drought-resisting plant for permanent meadows. In Dakota it is liable to be winter-killed, though a few fields of it are now growing successfully as far north as Big Stone lake. It is worthy of cautious trial in the hope that a variety may be developed which will withstand our dry, cold winters. It cannot be very successfully seeded with other crops. At least twenty pounds of seed should be planted in early spring. The failure to get a stand in one seeding does not prove that alfalfa is not adapted to the region. Sown on a more favorable day it will effectively cover the ground and more vigorously resist the weeds, which are the greatest enemies to its tender seedlings. No crop should be expected from the first year's growth of alfalfa, and if there are many weeds the field should be mowed. All the first year's crop should be left on the ground to protect the young alfalfa plant through its first winter. Thereafter it will take care of itself, and if supplied with copious rainfall or abundant irrigation will yield two or three heavy crops of hay each season for many years.

The non-saccharine sorghums or millets, indigenous to the drier regions of southern Africa or Asia, have proved themselves the most profitable annual forage plants for the drought-stricken fields of North America. Prominent among these is the variety of sorghum which is called Kafir corn. Its red variety has won the most praise from the farmers of Kansas and Nebraska. The plant resembles sorghum or broomcorn, and the crop receives the same treatment when the production of grain is the chief aim. When fodder is desired the seed is drilled in more thickly in rows far enough apart to be cultivated with horses. For a grain crop, five pounds of seed may be sown on an acre, but as many as ten pounds may be safely planted in drills for fodder. A horse corn-planter may be used, but in Dakota it would probably be more advisable to use ordinary grain drills with a number of the feed-holes covered and their shoes or hoes removed, as is sometimes done when sorghum seed is planted. The culture of Kafir corn is in all respects similar to that of sorghum cane. The cooler summers of the Dakotas may prevent the ripening of grain on Kafir corn grown from southern seed, but it is altogether probable that acclimated varieties may yield the grain which is so desirable for a balanced ration. Fodder can be grown in any event, and well-ripened seed is reported as far north as Aberdeen, in South Dakota.

The common American field corn is undoubtedly the most profitable annual grain and fodder crop for those regions which have the warmth and moisture necessary to its perfect development. Whenever there is rain enough south of the Red River valley to grow field corn it will be more profitable than Kafir corn. But field corn stops growing when the drought comes, and even when tasseled it is so blasted by the hot winds that the cobs do not set with grain. Kafir corn, however, grows slowly on through the drought and when the fall rains come the heads of grain shoot up and ripen. As soon as the seeds are in the milk the crop is cut with a strong mowing machine or with a corn harvester. The heads of seed are chopped from the ends of bunches of Kafir corn fodder and threshed in an ordinary threshing machine. The grain is then coarsely ground for stock-feeding. Kafir corn flour rivals buckwheat for griddle cakes, and even makes good bread when mixed with a small amount of wheat flour. The slender stalks, with their nutritious leaves, are readily eaten by all kinds of farm animals. Kafir corn fodder may be safely fed without cutting off the seeds, and where this is done it is generally left in large bunches in the field through the dry fall and winter until needed by the stock. The best Kafir flour is now made by the Marquette, Kas., roller mills.

The annual millets are closely re-

lated to the non-saccharine sorghums and partake of their drought-resisting qualities. The mammoth-headed German millet is adapted to the richest soils; the common large-headed millet flourishes under average conditions, while the slender-headed Hungarian millet thrives on poor or on sandy soils. All these millets are successfully grown in the Dakotas. If cut before the seed ripens, they may be safely fed to all farm animals. Millet hay-containing much ripe seed should be cautiously fed and alternated with other forage. From ten to twenty pounds of millet seed per acre is either broadcasted or drilled late in May or in June or July. The millets and Kafir corn are especially useful annual forage plants, because they furnish both fodder and grain and can be harvested with the mowing machine.

Rape is a biennial forage plant, which, like the perennial alfalfa, furnishes no grain. But it is dear to the heart of the sheep-owner, by reason of its furnishing luxuriant fall and early winter pasture long after the drought or frosts have destroyed all other green food except winter wheat and winter rye. When the latter are grown as grain crops all the foliage of the wheat or rye which would be winter-killed may be fall pastured without injury to the yield of grain. Spring pasturage is injurious because the spring foliage feeds the grain. Summer-sown oats make good fall pasture until killed by the frost. Rape, however, makes the best fall pasture for sheep. It has successfully withstood severe drought at the South Dakota Experiment Station, at Brookings, and also at the North Dakota station, at Fargo, under actual farm conditions.

The broad-leaved dwarf Essex rape has the leaves of a turnip, the stalk and flowers of a mustard, and the root of a cabbage. It flourishes in the northern United States and in Canada, for the reason that their climate resembles that of its home in northern Europe. Any soil which will grow wheat or corn will grow rape. The seed-bed should be made very mellow, that an abundant supply of plant food may be provided for the very rapid growth of the plant. It does best planted in July, two inches deep, in drills thirty inches apart, using two pounds of good seed per acre. When broadcasted five pounds of rape seed are needed for an acre. The drilled rape is cultivated like corn. In August or September a portion of the rape field is enclosed with portable fence, and after giving the sheep, cattle or swine a full feed of other forage they are turned upon the rape. The milk of cows is liable to be tainted. The rape grows up again after being grazed, when the stock and the portable fence are moved to another part of the field. Rape is a hardy, drought-resisting forage plant which is worthy of trial for fall and early winter pastures in the Dakotas, for it promises to add a profitable crop to a needed rotation, and to very much prolong the period of pasturing, which experience has everywhere proved to be the most economical method for feeding farm stock.

In the corn belt corn may be king. In the Dakotas, which are the granary of North America, wheat may be king. But everywhere the successful farmer is transferring his supreme allegiance to the forage plants which feed the stock, because the stock carry him through the famine years and secure him higher prices for his wheat and corn. To the successful farmer grass is king. The wild prairie grasses of the Dakotas make Dakota mutton and wool the best in the world. The wild prairie grasses of the Dakotas give to Dakota butter that flavor which commands the highest Chicago and New York prices, and which is the envy of other American butter-makers. Dakota range grasses, with their ripe seeds, finish beef until it is as fine as the corn-fed article. But when the rains fall the prairie grasses fail to make hay, and during long droughts the pastures are overstocked, the ranges are too closely grazed, and no grass seeds are ripened to balance the winter ration on the range or in the

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barnyard. At such times the wheat farmer has lost his all and left the country, but the stock farmer has been enabled to struggle through the famine to reap rich rewards in the good times and rainy seasons which are sure to follow. By selling some of his lean stock there was more food for the others, and a continuous income was insured. In the rainy times which come every year he planted such catch crops as millet and Kafir corn, fed up the old straw stacks, and ranged his stock on the abandoned wheat farms.

Annual forage plants and catch crops, however, are costly makeshifts when compared with permanent pastures and meadows, whether these be wild or tame. The extra cost of the annual plowing and seeding is very seldom returned in the extra yield of forage. During portions of the year the soil is left bare to bake into clods or dust to be drifted by the winds, or to be invaded by foul weeds. Grasses are needed which are hardy enough to produce drought-resisting meadows and pastures.

Some years ago it became the duty of the writer to organize and conduct for some time the Wyoming Agricultural College and Experiment Station with its six experiment farms, and to direct, in connection therewith, the United States co-operative experiments with grass and forage plants adapted to the non-irrigated range or farm. In addition to this, extended experiments were conducted with promising wild and tame grasses under irrigation. The improvement of the Wyoming cattle and sheep ranges was the chief aim of the National Botanist, Dr. George Vasey, in establishing this United States Grass Station at Laramie. The results obtained confirmed the observations which the writer had made from his earliest boyhood days in Kansas, that the buffalo and grama grasses were the best for prairie pasture, while the blue-stem or wheat grass was the best wild variety for Northern meadows, and the tall blue-joint for Southern meadows. The cultivated grasses which did best under arid conditions were alfalfa, the fescues and the brome grasses.

The true buffalo grass (*Bulbils* or *Buchloe dactyloides*) multiplies by surface runners and by seeds so sparse that its propagation is too costly to allow it to be used as a pasture grass. Grama grass, or *Bouteloua*, however, yields sufficient seeds for profitable propagation. It is often called buffalo grass, but grows taller and has no runners. The blue-stem or wheat grasses are species of *Agropyrum*. They spread by underground creepers and by profusions of heavy seed which somewhat resemble oats or chess. If cut when

the seed is in the milk it furnishes a rich hay containing grain enough to make a balanced ration. The tall blue-joint grasses, species of *Andropogon*, are the hay grasses of the warmer prairies and promise to well repay cultivation. No one grass, however, will meet the varying conditions affecting a prairie pasture or meadow. The natural prairie sod is a mixture of grasses, each species having its special and necessary work to do in forming and maintaining the permanent sod. The garden farmers of England, the Netherlands and China, have ascertained, through years of patient search and trial, the kinds and proportions of grasses which must be used to form the velvet swards and springy turfs of those lands. We must do the same for the prairies. The pioneer work in this line has been done by that eminent botanist, Dr. Charles E. Bessey, in a careful study of the wild grasses of Nebraska. His pupil, Prof. Thomas A. Williams, of the South Dakota Agricultural college and station, at Brookings, seems destined to be the Moses who shall lead us from these sometimes desert conditions to the promised prairie land of waving summer grass and thickly clustering winter haystacks. As his bulletins (No. 40 and No. 45) are the best authority upon the drought-resisting grasses of the Great Plains, brief summaries of their contents are herewith presented.

The smooth brome grass of southern Europe (*Bromus inermis*) closely resembles its near relation, the hardy chess or cheat, which annoys the winter wheat farmer. It is a strong growing perennial grass with slender root stocks and smooth leaf stems, from one to four feet tall. Its tough even sod soon crowds out the weeds. It furnishes early spring and late fall grazing. Through five years the yield has been good, the hay of prime, though coarse quality, and all kinds of stock have eaten it readily. The best results have been secured by seeding early in the spring on clean soil which was deeply plowed the previous fall. From twenty-eight to forty-two pounds of seed are used per acre and it is much better to plant it with a drill. The grass spreads so rapidly by means of its underground stems that two bushels or twenty-eight pounds of seed properly drilled in will give as good a stand as three bushels sown broadcast. A stand is far more certain if no nurse crop is used. The wheat, barley or oats is liable to kill the smooth brome grass. The expense of the seed may make it expedient to sow only one acre on good clean land from which all weeds are removed. By saving the seed from this plot each year the size of the field may be increased. A larger field may be sown by mixing red clover, alsike, alfalfa, millet or other forage plants with the smooth brome, and as these die out the brome will spread and finally occupy the whole field.

Sheep's fescue (*Festuca ovina*), hard fescue (*Festuca duriviscula*), red fescue (*Festuca rubra*), are the most promising grasses for use in dry upland Dakota pastures, especially if the soil be poor and sandy. They are perfectly hardy so far as the cold of winter and the heat of summer are concerned. They should be sown largely in sheep pastures, as they form a thick sod which stands much tramping. Seed as early as possible in the spring on fall-plowed ground, broadcasting about two bushels per acre. The fescues are the best grasses to reclaim worn-out spots in native pastures, sowing the seed on the thin places and tearing up the ground with a harrow.

Throughout the Sioux valley and the Big Stone basin timothy (*Phleum pratense*) is one of the best hay grasses. It endures the cold and dry freezing of the Dakota winters, but if the soil is allowed to become hard and baked in the summer the hot sunshine of July and August will seriously damage it. If some red clover or red-top or creeping bent is mixed with the timothy the meadow will keep in better condition. The stubble should be left two or three inches long to protect the roots. Twelve to twenty pounds per acre are broadcasted in the early spring on fall plowing. Timothy, like alfalfa, thrives under irrigation.

The necessity for mixing grasses in

a permanent pasture has caused Prof. Thomas A. Williams to recommend the following mixture for a permanent pasture on average prairie soil, such as the rich loamy land of our broad valleys, and this mixture will be found best for all general purposes:

	Pounds.
Smooth brome (<i>Bromus inermis</i>)	7
Meadow foxtail (<i>Alopecurus pratensis</i>)	3
Wood meadow grass (<i>Poa nemoralis</i>)	3
Creeping bent (<i>Agrostis stolonifera</i>)	3
Kentucky blue grass (<i>Poa pratensis</i>)	5
Timothy (<i>Phleum pratense</i>)	3
Red fescue (<i>Festuca rubra</i>)	3
Red-top (<i>Agrostis vulgaris</i>)	3
Orchard grass, or tall meadow oat grass	2
Creeping June grass (<i>Poa compressa</i>)	4
Alsike or white clover (<i>Trifolium</i>)	6

Total pounds per acre.....42

For old lake beds, low river bottoms and other land which is liable to be overflowed, the following mixture is recommended:

	Pounds.
Red-top.....	3
Tall fescue (<i>Festuca elatior</i>).....	3
Reed canary grass (<i>Phalaris arundinacea</i>).....	6
Creeping bent.....	6
Timothy.....	6
Fowl meadow grass (<i>Poa serotina</i>).....	9
Meadow fescue (<i>Festuca pratensis</i>).....	9
Alsike (<i>Trifolium hybridum</i>).....	7

Total pounds per acre.....41

For the dry, rocky or gravelly soil, found on the hilly farms, so often used for sheep pasture, the following is a good mixture, and it is excellent for other sheep pastures:

	Pounds.
Smooth brome grass.....	7
Sheep's fescue (<i>Festuca ovina</i>).....	5
Red fescue.....	5
Creeping June grass.....	5
Red-top.....	3
Kentucky blue grass.....	5
Creeping bent (<i>Agrostis stolonifera</i>).....	4
White or Alsike clover.....	8

Total pounds per acre.....42

In the bulletins thus summarized, Prof. Williams emphasizes the necessity of sowing grass seed, whether of a single kind or mixture, in the early spring and without such nurse plants as the summer grain crops. In the Dakota droughts the forage plants need all the moisture of the soil. The writer believes that some of the native grasses now on trial at the South Dakota and other experiment stations on the Great Plains will be so developed and selected that drought-resisting meadows and pastures will soon cover the Dakota prairies. Three classes of meadow plants are needed.

1. Annual fodder plants which will grow rapidly during the rainy times of even the driest seasons and which will ripen grain enough to form a balanced winter ration.

2. Short-lived forage plants which will yield pasture or hay for a few years in a well-planned rotation with the grain crops. It is not necessary that these should resist extreme droughts, as they may be grown through the rainy years.

3. Perennial grasses which will form a close sod, to cover the ground and prevent the baking of the soil and which will withstand the scorching droughts of summer and the drying cold blizzards of winter. These will of necessity need deep roots to reach the moisture of the subsoil, or thickened roots, stems or runners in which to store the plant food needed to start a vigorous, rapid growth when heavy rains come and able to stand a protracted drought.

The scientists of the nation and the State are searching for such drought-resisting forage plants, and there is every reason for believing that success will crown their efforts.

To prevent pale and delicate children from lapsing into chronic invalids later in life, they should take Ayer's Sarsaparilla together with plenty of wholesome food and out-door exercise. What they need to build up the system is good red blood.

Eugene Davenport, of the Illinois Experiment Station, says he has for years fed sunflowers to hogs of all ages, and esteems them very highly as a stock feed. From the time the seed forms until it is fully ripe, he cuts and feeds whole to the hogs.

How's This!

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

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

WEST & TRUAX, Wholesale Druggists, Toledo, O. WALKING, KINNAN & MARVIN, Wholesale Druggists, Toledo, O.

Hall's Catarrh Cure is taken internally, acting directly upon the blood and mucous surfaces of the system. Price, 75 cents per bottle. Sold by all Druggists. Testimonials free.

The Stock Interest.

THOROUGH-BRED STOCK SALES.

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

SEPTEMBER 17—W. H. Wren, Poland-Chinas, St. Joseph, Mo.
OCTOBER 1—E. E. Axline, Poland-Chinas, Oak Grove, Jackson Co., Mo.
OCTOBER 30—J. R. Killough & Sons, Poland-Chinas, Richmond, Kas.

Thoroughbreds for Breeding.

EDITOR KANSAS FARMER:—Several articles, claiming to emanate from ex-Gov. Furnas, of Nebraska, and Dr. Salmon, of the Department of Agriculture, have appeared, advising farmers to cross their stock with the "razor-backs" of Florida for health and constitution and as a preventive of disease, especially cholera. We are literally amazed at the very audacity of such statements, coming from any source claiming an intelligent knowledge of breeding or disease. It indicates progress forty years backward, and it must be that these literary gentlemen are returning to their second childhood.

Where is our genial friend Coburn, that his sarcastic pen has not cleft asunder such profound logic, emanating from official headquarters, which no man in Kansas can endorse?

Has not every intelligent swine breeder and author always maintained that cholera was no respecter of sex, age, breed, color, royal blood, blue blood, or wild blood? Do we cross our thoroughbred horses with a Texas pony to keep them from having the heaves, or a Jersey cow with a Texas trotter to prevent dry murrain? If so, we will cross the honey bee with a lightning bug, so the bee can use his lantern to work late at night. Daniel Webster used to say: "Young man, there is always room at the top," because very few ever get there. We say now, after nearly a quarter of a century's experience in breeding, the same statement of Daniel Webster is true, but it will never be found by breeding backwards "towards the woods." Any fool can do that, and he will soon be willing to kill off the whole lot in disgust as his experience enlightens him on the subject.

The great trouble to-day with the horse business in Kansas is, so many of our farmers are using cheap service, and our annual exhibits of colts at our county fairs show that we are going back to the woods with our exhibit. Hard times and want of money is forcing farmers to a false economy, each county selling off its best brood mares, and, with cheap service stallions, horses are retrograding in many counties. Every breeder knows that he can retrograde very easily, but very few know how to breed up and correct deficiencies.

One great secret of good breeding lies in the royal blood of the cross. Like produces like, unto the fourth and fifth generation. Do these official gentlemen want the farmers to produce "hazel-splitters," Arkansas "tooth-picks," or Texas "razor-backs?" Please except the farmers of Kansas. Nebraska may swallow this logic, but Kansas, never. If we want constitution we will breed to a hog with strong limbs, large around the heart, with full lungs, that has been brought up on grass, pure water, plenty of shade and exercise, in a natural manner. No wonder you are sick of some of these artificial, hot-house, parlor-fed, forced, artificial products of 300 pounds at eight months old to be furnished for breeders. We don't think the Almighty ever intended such to be used for that purpose. They will do to eat, to look at and for the tender-foot editors to laud at the fairs. They may fool the natives, but not the experienced breeder. But don't let us go back to the woods and commence again to breed up for long, weary years to get relief. Make breeding and feeding two distinct kinds of business. Get top blood in an animal that has been raised in a natural manner, with wiry bone, blue blood, wiry muscle, strong constitution, whose ancestors have been similar—equally as good for several generations—and when you get there try to stay there, and improve if possible. This crossing with wild blood has not a single redeeming feature.

Ottawa, Kas. W. S. HANNA.

Pure

Blood means sound health. With pure, rich, healthy blood, the stomach and digestive organs will be vigorous, and there will be no dyspepsia. Rheumatism and neuralgia will be unknown. Scrofula and salt rheum will disappear. Your nerves will be strong, your sleep sound, sweet and refreshing. Hood's Sarsaparilla makes pure blood. That is why it cures so many diseases. That is why thousands take it to cure disease, retain good health. Remember

Hood's Sarsaparilla

Is the One True Blood Purifier. All druggists. \$1.

Hood's Pills cure Liver Ills; easy to take, easy to operate. 25c.

Plans for a Manger.

EDITOR KANSAS FARMER:—Many horses and cows will waste as much hay as they eat, on account of defective mangers, or of no manger at all.

I will give my plan for a manger that will save all the hay or roughness of any kind that you may feed. Board up two and one-half feet of the front end of the stall, say three feet high—board straight up; then board up the rest of the way, leaving eighteen inches space in the center for the horse or cow to put their head in. They will stand with head in clear to the shoulder, and will not waste a straw. When they have eaten all that is good you can throw out the trash for bedding.

H. FELLOWS.

Wichita, Kas.

Artichokes as Stock Food.

I raised twelve acres of artichokes last year. The yield was not so great as former years, on account of drought, but there is lots of them just the same. I am feeding my hogs only one ear of corn a day, and many of them are too fat for breeding purposes. I have found artichokes much cheaper than shorts or bran. My opinion is that as soon as they are better known every farmer will raise them. They are very nice and crisp and afford a succulence that all stock should have. The hogs dig them as they wish.

The planting and cultivation are the same as for potatoes. Four bushels is enough to plant one acre, and in a good season they will produce 1,000 bushels. Freezing and thawing while in the ground does not seem to injure them, but seems to make them crisp. There is much being said about the Mammoth White French and the latest improved kinds, but so far as my experience goes there is but little difference in them; they are all good. I think the Jerusalem is the hardiest. The man that raises artichokes will find his stock looking healthy.—Simon Cox, in *Breeder's Gazette*.

Feeding Cattle.

Raising and growing cattle is one thing and full-feeding is another. There are plenty of experienced cattle-feeders, with ample capital and credit, who have given years of time to the full-feeding of cattle, and have made a study of fattening cattle at the least cost in the quickest time, who have made a success. The full-feeding of cattle and preparing them for market is a trade or profession, as much so as that of the merchant, mechanic, doctor or lawyer. Scientific cattle-feeding is coming more and more to be a matter of necessity every year, brought about by competition in feeding cattle in different parts of the country and by the variety and kinds of feed used. The new kinds of feeds introduced in the last few years have almost revolutionized the old method of full-feeding cattle—alfalfa, cottonseed meal, oil cake and other mixtures of feed that were not thought of years ago. Formerly it took from five to eight months to fully fatten a three or four-year-old steer on corn. To do so now might prove profitable and it might not; but to do so a good strong price, above the average, must be realized, and that with feed at the minimum prices.—*Field and Farm*.

Irrigation.

PUMP IRRIGATION ON THE PLAINS.

By H. V. Hinckley, Consulting Irrigation Engineer, Topeka, Kas., in *Irrigation Age*.

The only limit to the profitable development of the billion acres embraced in the "Great American desert" is the extent of the available water supply. The mountains and the plains afford hydrographic conditions which are entirely dissimilar. The "little farm well tilled" and watered, when compared with the bonanza wheat farming of recent years, is a step toward agricultural independence. The community in which the individual secures water from an unlimited supply under his own land is free from the control of bonded syndicates.

It is not within the province of this article to discover the various causes of financial embarrassment which have come upon many of the landed and bonded canal and water supply systems in, or originating in the mountains. The most practicable plan for the conservation of mountain waters for use in mountain parks, or on the plains in immediate proximity to the mountains, is that of mountain or canon reservoirs with open channel or pipe conveyors, and failures of such systems to pay the anticipated revenues have not been due to the fact that they have been so constructed. Upon the prairie plains, however, natural reservoir sites or favorable dam sites are scarce, evaporation reaches high maxima and artificial reservoir storage of surface run-off is, in general, impracticable.

The plains streams are generally intermittent and are often dry during the season when water is most needed for plant growth. Where the plains break geologically into high rolling lands, as in eastern Kansas and Nebraska, storage in a small way is practicable (that is to say, in reservoirs smaller by far than those which are or would be built in the mountains) as by a dam, across a ravine, holding back a lake of say ten to 100 acres. Some of the valleys within these broken plains and a large area of the prairies have beneath them a never-failing water supply, moving constantly but slowly under the influence of gravity toward the sea or toward natural surface channels in which it may flow oceanward or be evaporated. This underflow is replenished by rainfall sinking through the sandy soils of the plains in general and, in the valleys, by the downward lateral flow, from natural channels, of storm waters or mountain snow waters.

It is generally conceded that to dam a plains river, like the Platte or the Arkansas, having a practically bottomless bed of sand, and to thereby hold back and divert the floods either into service canals or into side-hill or other reservoirs, is impracticable. Numerous canals have been built for the diversion from these rivers, during the flood season, of the portions of the flood represented by the carrying capacity of such canals. The general result is an annual wash-out of cheaply-constructed head-works, an unseasonable, unreliable and, consequently, unsatisfactory service to patrons.

The writer will not say that the construction of canals upon the plains proper is in no case justifiable. Local conditions may be, and in places are, such that a canal may be an unqualified success, and such that no other service will fit them as well as that of a canal system, but the future water supply for plains irrigation will not come from the surface flow of rivers.

MONEY WASTED IN CANALS.

One of the western Kansas canals represents over a million dollars of wasted capital, which was invested with a lack of knowledge regarding the hydrography of the region. Failing in attempts to maintain a dam for the diversion of the floods (into a canal having a capacity of only a small percent. of the flood flow) its company built a long, easy diversion dike. This failing an attempt was made to tap the underflow by an open channel extending up stream, with lighter grade than nature gave the river. Other companies are even now following suit, and failure awaits most of them.

The development of underground water supplies is properly a problem of engineering, not of financing nor politics, and the man who attempts to develop the underflow by guess would go to law without a lawyer, and he must expect to be fined for contempt in nature's court. Probably 2,000 individuals in western Kansas have erected pumping plants of various styles and capacities within a few years past. So far as known the rate of progress is illustrated by the following comparison of the number of plants erected: 1891, 18; 1892, 33; 1893, 55; 1894, 224; 1895, 1,241. The State Board of Irrigation reports that six of these men pronounce pump irrigation a failure. Is this strange? Irrigation is a new feature of agriculture on the plains. It has taken the writer over two years of investigation and study to get even a fair idea as to water duty on the plains, the cost and methods of underflow development, the relative cost of pumping by various powers, and other kindred problems, all of which concern every irrigator, be his farm large or small. It is wonderful, then, if only a fraction of 1 per cent. of the farmers who have attempted pump irrigation have made mistakes sufficient to cause them to pronounce it a failure.

COMMON ERRORS.

It is so easy for a man to put in a pump for raising 2,000 gallons a minute from a well that can only supply 500 gallons a minute, and whose capacity could have been told before erecting the pump; so easy for a man to assume that with an average annual rainfall of twenty inches he will need but a very little water, forgetting or not knowing that it is the minimum of two inches in the first six months of the year, or the minimum of five inches per annum, upon which his needs should be based; so easy for him to find in manufacturers' catalogues the indicated and actual H. P., and so think he has made all necessary allowance for friction when he buys the necessary "A. H. P." computed from the water lift; so easy for him to base his windmill computations on a fifteen-mile wind given in catalogues, when the average is but eleven; to forget the law of squares, and to forget that the wind blows lightest when he needs the most water.

A FEW INSTANCES.

Let us now look at a few fair representative cases of what is being done in one season in a section of country that has been nearly depopulated on account of insufficient rainfall to produce crops:

Eugene Tilleux, Tribune, Greeley county, Kansas, uses an eight-foot mill; well 130 feet deep to water. Planted one acre of garden vegetables; three-quarters of the area was a total loss. Mill was only good for a quarter acre, and furnished not over six inches in depth of water during the season to that quarter. Besides all vegetables needed for family use, received from sale of surplus \$90, which paid for the pumping outfit.

I. L. Diesem, Garden City, Finney county, Kansas, fourteen-foot mill; seventeen feet to water. Cost of plant, including reservoir, \$200. Irrigates twelve acres. Two acres sweet potatoes, 303 bushels; four-tenths acre onions, 400 bushels; half acre sugar beets, 128 bushels, etc. "Have made a living this year and paid off a \$300 mortgage."

J. M. Cramblett, Kinsley, Edwards county, Kansas. Twenty-eight feet to water. Irrigates one-half acre with small windmill. Yield: 160 bushels of tomatoes, sold for \$40; four tons of cabbage, sold for \$100. Cabbage yielded at the rate of \$640 per acre. Onions and other vegetables for family use not measured.

V. Q. Billings, Kinsley, Edwards county, Kansas. Twelve-foot mill; cost of plant \$150. Put in too late; could not irrigate till June, when crop had begun to suffer. Had several mishaps with mill and reservoir, but still sold from one and a quarter acres, potatoes, \$300; cabbage, \$100, besides family supply.

F. L. Richter, Garden City, Finney county, Kansas. Seventy acres alfalfa and orchard; income \$7,000.

A. L. Parson, same address. Five acres fruit and produce, \$300.

E. E. Fritzell, Larned, Pawnee county, Kansas. Reservoir 130 feet in diameter, banks eight feet high. Can draw out of it (at one time) over a half million gallons, or seven acres three inches deep. Two fourteen-foot steel mills on thirty-foot towers. Ten-inch cylinders. Twenty-six-foot lift. Fill reservoir in three days on an average. Have successfully irrigated twenty-five acres of orchard, twenty of alfalfa, thirteen of potatoes, sixteen of beans, cabbage and onions. Spanish onions yield 400 to 1,000 bushels per acre.

The mistakes that have been made—the disappointments resulting from

ONE CENT Per Hour is Cheap.

That is what "WEBER" GASOLINE ENGINES COST to run per H. P. Simple, Safe, Reliable, Economical. Get Posted. Weber Gas and Gasoline Engine Co., 459 Southwest Boulevard, Kansas City, Mo.



less acreage being irrigable by given plants than their owners had anticipated—have been more than balanced by the phenomenal yields under reliable water supply and thorough cultivation. The mills above mentioned are the common form of radial-fan windmills on towers. Hundreds of similar cases could be cited. Suffice in a general way to say that windmills of ten to sixteen feet diameter (mostly steel mills) on towers thirty to forty feet high are successfully irrigating from six to twenty acres with twenty-foot lift, or one to three acres with 150 foot lift, and an investment of \$150 to \$300 is enabling the farmer to realize generally from \$20 to \$100 per acre per annum. No definite statement can be made as to average results obtainable from such investments. Intelligence and muscle are as essential as water. The man who still insists on growing wheat and corn does well if he nets \$12 to \$15 an acre above expenses. He who grows alfalfa and feeds it nets \$20 to \$50 an acre. He who has a handy market for garden vegetables or has a bearing orchard or vineyard often nets \$100 to \$200 an acre and occasionally very much higher figures are given.

THE MOGUL WINDMILL.

As the price paid for a pair of pants frequently depends upon the amount which the purchaser has to spend, regardless of the real economy of the purchase, so many farmers on the plains who have trusted for years in the possibility of an increasing and more reliable rainfall, only to be disappointed, and who have lost crop after crop and seed after seed, have been obliged to economize in the extreme in pumping plant investments and, in the absence of credit, to buy or make what they could. This has resulted in the experimental and limited use of the Mogul. This machine is generally set for a north or south wind, working equally well with either, and diminishing in power as wind veers toward east or west.

A Mogul twelve feet in diameter, fourteen long, with eight fans two by fourteen feet, will irrigate one to two acres with twenty-foot lift. The cost, if built new and all work paid for, is from \$100 to \$200. If made by the farmer, of old stuff on hand, the cash outlay may be as low as \$25. This machine is sometimes made with fans of one board only, say one by ten feet, for irrigating small garden.

D. M. Frost, President State Board of Irrigation, has on his farm at Garden City a Mogul, diameter eighteen feet, shaft twelve feet, fans three by ten feet. Cost \$175. Irrigates three acres in summer or six during the year. Also a steel tower mill, diameter fourteen feet, cost \$300. Irrigates ten acres in summer or twenty during the year. Water lift fifteen feet.

The Mogul is less reliable than the tower mill. The direction of the wind is not controlled by the irrigator, and the wind is not as strong at the surface of the ground as it is thirty or forty feet in the air.

From seventy to a hundred tower mills can be counted from the train as one passes Garden City. The windmill is the popular pumping machine; that is to say, there are, on the plains, several times as many windmills on towers as there are of all other kinds of pumping power combined, because wind *per se* is cheap. Contrary to popular opinion, however, cheap wind does not necessarily furnish the cheapest power.

OTHER FORMS OF POWER.

Following in order of power, after the Mogul and tower windmills come the gasoline engines, driving centrifugal or auger pumps from low lifts from creeks or open wells; rotary pumps (positive) for higher lifts, or reciprocal (cylinder) pumps for very high lifts, as at the Goodland State pumping station. These plants, complete, cost from \$500 to \$1,500, or more, though the average cost is nearer the lower than the higher figure.

Then come the compound duplex (or

high duty) steam pumping engines of usual water-works type, pumping from reservoirs or rivers. These large steam plants being expensive are not in general use, parties who could well afford the investment preferring to await the experience of others with similar plants.

A STEAM PUMPING PLANT.

Geo. M. Munger, of Eureka, Greenwood county, Kansas, has 500 acres of orchard. He built an earthen dam behind which he impounds 700 acre feet of water. He proposes to increase the storage capacity to 1,600 acre feet.

He has two boilers, each thirty-five horse-power, compound duplex pumps, capable of lifting 4,000,000 gallons a day against a lift of forty-nine feet above the pumps. Cost of plant to date something over \$15,000. Estimated cost of enlarged plant, \$25,000. He says he prefers not to give publicity to his figures as to gross value of crop, profits from water investment, etc., as "these items vary so widely in practice that it would not do to publish them." However, he said to the State Board of Horticulture, very recently: "The question of whether or not it pays is the vital one to be considered. Should a man obtain by irrigation 100 bushels of corn per acre and get 15 or 20 cents per bushel for it he would not be making headway rapidly, but if a man has a bearing orchard that is yielding an occasional crop of from fifty to 100 bushels per acre, of which one-half to three-fourths must be classed as seconds or culls, and if by irrigating that orchard he can increase the crop to three times the quantity and have it all grade fancy, it is easy to see that, at any prices for fruits that have been known to prevail, he could afford to spend a very considerable sum per acre to install an irrigation plant.

"Then if, in place of an occasional crop, the irrigation will give him regular annual crops of this class, it requires no book-keeping to discover that it is profitable."

Gasoline has taken a notion to advance since it has come into considerable use as a pumping power. Coal sells at from \$4 to \$6 on the plains, and the need of a cheap, reliable power for pumping offers inventive genius a prolific field. The "Defender" and the "Mogul" do not supply the need.

The wind is lightest and the sun strongest during the driest months. Who will give us a practical heliomotor and reap the reward that awaits him?

THE AVERAGE RETURN PER ACRE.

Pump irrigation, or anything else, is a failure if it does not pay. The following table gives returns from certain crops as reported by quite a number of prominent irrigators on the western Kansas plains. Each item, being the average of those reported to the writer, would seem to be entirely within the reach of any intelligent and industrious irrigation farmer.

Crop.	Annual returns— dollars per acre.		
	Average bottom land —not irrigated....	Average irrigated....	Best results of irrig. —outlet (average)....
Alfalfa hay and seed	21	36	61
Alfalfa hay only	14	23	36
Corn	5	11	24
Wheat	5	18	29
Potatoes	25	137	250
Sweet potatoes	25	173	333
Onions	50	275	550
Small fruits	100	625	1,100
Orchards	50	537	1,000

Allowing for exaggerations or over-enthusiasm of the honest farmers furnishing the data from which this table is made, there is still enough margin to justify the erection of pumping plants when water is at any depth at which it is ordinarily found in abundance.

Good judgment dictates in general the cultivation of various crops on the

same farm—for example early potatoes and late cabbage—thus making a given monthly supply of water do double duty. In favorable soils deep plowing and winter irrigation (storing water in the subsoils) still further increases the duty so that all-the-year irrigation may be made to cover three times the acreage of ninety days' summer surface watering.

In general the larger pumping plants of either class are the more economical for reasons which it seems not necessary to explain.

By reason generally of a saving in first cost other combinations are in occasional use—a second-hand steam thrasher engine belted to a centrifugal pump, animal power geared to endless chain or belt of elevator buckets or board buckets lifting in box spouts.

The whole matter of pumping water for irrigation is so new to our people that they often adopt makeshift arrangements till they can see with their own eyes what a little water does for them. How many New York farmers pay \$10 or \$20 an acre annually for fertilizers and then reap, on an average, only a half or two-thirds of a maximum crop because of a partial drought at some time during the growing period. Unreliable water by canals has been costing the average irrigator of the United States almost exactly \$1 a year per acre. Reliable water by pumps properly planned, costs from one to three dollars in the valleys proper and as high as five or even ten dollars on the higher lands—including interest.

Where is the fruit or vegetable grower who does not, nearly every year, realize that he could well afford to pay \$5 an acre, or even more, rather than to have suffered from the deficiency of water that visited him at some time during the growing season?

Shawnee Horticulturists.

The Shawnee County Horticultural Society held its regular monthly meeting at Mr. Fred Tompkins', three and one-half miles northeast of Topeka, July 2. In a beautiful grove a splendid picnic dinner was enjoyed by a large crowd.

After dinner a talk was given on "Co-operation in Horticulture," by Major Sims, in which he clearly showed the value of the county horticultural society. One remark was, "Had I attended more of the meetings of the horticultural society before planting an orchard I would have succeeded much better."

A paper was read by Mr. Thompson on "Shall We Grow Fruit for Profit Only?" an excellent subject, well and interestingly handled.

A talk was given on "Labels, Stakes and Marking," especially of fruits and horticultural products at public exhibition, by William H. Barnes, Acting Secretary of the State Horticultural Society.

There was a fine display of fruit, including Early Harvest, Early Ripe and Golden Transparent apples, Early Amsden peach, apricots, Abundance and Wild Goose plums, Snyder blackberries, Morello cherries, mulberries, and Comet or Lawson pears, large and ripe. Also an abundance of elegant flowers.

J. F. Cecil was elected "Prompter," and will, at each meeting, tell you what to do, and not forget, before the next meeting. Bring your note-books and pencils and attend the next meeting, which will be held at Mr. John Jordan's, two miles north of Wakarusa.

Popular Low-Price California Excursions.

The Santa Fe Route personally conducted weekly excursions to California are deservedly popular. About one-third saved in price of railroad and sleeper tickets as compared with first-class passage.

The improved Pullmans occupied by these parties are of 1896 pattern and afford every necessary convenience. A porter goes with each car and an experienced agent of the company is in charge.

The Santa Fe's California line is remarkably picturesque, and its middle course across the continent avoids the discomforts of extreme heat or cold.

Daily service, same as above, except as regards agent in charge.

For descriptive literature and other information address G. T. Nicholson, G. P. A., A. T. & S. F. Ry., Chicago.

The Apiary.

Conducted by A. H. Duff, Larned, Kas., to whom inquiries relating to this department should be addressed.

How Far will a Swarm of Bees Travel?

This may be very uncertain. Where accommodations are plentiful, such as timber, etc., in most cases they perhaps locate within a mile or two of their home. But in some cases they fly long distances, and at one time I am satisfied I captured a swarm of bees that came from an apiary ten miles away. I have known swarms that, apparently, had been on the wing all day, cluster on the limb of a tree and hang all night, and next morning, as soon as the sun was well up, start again to perhaps complete a similar trip. Bees fly at the rate of from twelve to twenty miles an hour, and the swarming motion is probably the slowest.

Hive Stands.

The bottom-board of the hive should not rest directly upon the ground. This will in a short time rot out the bottom of the hive, and will also draw dampness to the interior of the same. Cleats for each end of the bottom-board should be three or four inches wide, and when nailed on brings the bottom proper of hive the same distance from the ground. This will allow space for a free circulation of air under the hive, and not so high from the ground but that the ground can be banked up on a level with the entrance of the hive. The embankment should gradually slope from the entrance, and on a level with the same, back two feet from the hive.

Bee Veils and Gloves.

Veils and gloves are much used for protection from stings, and any one that is timid may find beneficial results by the use of them. A handy and cheap veil may be made from mosquito netting, drawing one end round the crown of the hat, leaving it hang loosely around and over the rim of the hat and down over the shoulders. Costly and finer fabrics may be used with better satisfaction in the same way. The best glove is made of rubber, which stings will not penetrate, and are the only glove that is fit for the purpose. We do not recommend the use of gloves and veils except in cases where persons receive much injury from stings. It is a very rare exception where the effects of bee stings prove damaging. The best preventive of bee stings is a thorough knowledge of the nature and habits of the bee. First learn this, then throw away fear, and you will have no use for bee veils and gloves. When you attain this you are ready to go into the apiary as you would go into the harvest field.

Catching Queens.

As there is but one queen in a colony, it would seem quite a task to look her up and secure her, and would, no doubt, be with an inexperienced eye; but the apiarist would not spend over five minutes opening the hive and securing the queen. It is much more difficult to detect black queens than those of the yellow races. This is true, from the fact that in handling black bees they become very much excited, and will gather in groups over the combs, and will desert the combs entirely, queen and all, and this is one great objection to the native or black bees. The Italian bees are quite different in this respect. They adhere closely to the combs in a very quiet, composed condition, and it is a very rare thing to find an Italian queen off the comb. But she retains her position on the brood comb, and goes about her household duties, depositing eggs, after the comb has been taken out of the hive. It often occurs that black queens must be hunted up, in case of introducing Italian queens into black colonies, and when we fail to find her by making a search through the hive, the bees may be driven out and shaken down on a white cloth, placing the hive a short distance from them, so that in traveling in the direction of the hive the queen can readily be detected. Before commencing operations the bees should

be thoroughly smoked, and but little trouble will be met in finding her. When searching for queens, examine the brood combs carefully, as the queen is seldom found off them. Upon finding a queen to be removed, take hold of her by the wings, as there is danger of injuring her otherwise. It is an easy matter when you once get a little practice to get hold of her by both wings, by following in the direction she is traveling, with the thumb and finger, a little ways. We are safe in concluding that after we get one queen from the hive, that none remains. Exceptions to this are so few, it is not worth taking into consideration.

Comb-Building.

Comb-building ceases at the winding up of the honey flow at any season of the year, and also at the approach of cold weather. It is impossible for bees to secrete wax in cold weather. Bees will not secrete wax and build comb at any time other than a time they are gathering honey or being fed. It matters not how small the amount of comb they have on hand, they will not make any addition to it, unless they can secure stores from some source. Late swarms oftentimes have not the required amount of comb to cluster and feed on to carry them through the winter; but it seems that they are content to allow things to remain in this condition. They appear to think it unnecessary to build store-houses if they have nothing to put in them, and hence are content as long as life exists. It always requires an abundant flow of honey to induce comb-building, and this supply must be kept up regularly for some time before operations are commenced. A colony of bees may be fed so as to produce enough comb and honey to carry them through the winter, but it requires very heavy feeding, and especially so if comb foundation is not used. Wax is a natural secretion of the honey bee, and is produced by the bees consuming large quantities of honey, similar to an animal producing fat by heavy feeding. It is a mistaken idea that some have, that bees gather wax and carry it on their legs. The articles thus gathered are pollen and propolis.

Bees Working in Surplus Boxes.

"What is the reason my bees do not work in the surplus boxes?" This is a question frequently asked by beginners, especially in seasons when the honey flow is not very abundant. This is a hard question to answer in order to meet the requirements of every one, but if we knew just the kind of hives and fixtures in use, and the manipulating qualities of the operator, we could better proceed with directions to obviate the difficulties. By taking it for granted that some of the standard hives are used, we will give a pen outline of reasons why bees do not work in surplus boxes. It does seem an old story to advanced bee-keepers, but it is nevertheless new and greedily devoured by beginners and those having a few bees and never studied practical bee-keeping. The first two reasons we give, and very essential ones they are, is that it is necessary, first, that bees have a source from which to gather honey in such quantities as to produce a surplus; and second, that the strength of the colony will admit of them occupying the boxes. A very moderate flow of honey will not produce much, if any, surplus, as it takes quite an amount of stores to feed the young brood, and to create a surplus the flow of nectar must be moderately heavy. A hive of bees, in order to be ready to occupy surplus boxes, must be full of bees, so full that they are crowded for space, and when the boxes are put on a portion of them are crowded into the boxes. Bees under these conditions will, as a general thing, give good results in surplus.

Sometimes the swarming fever takes hold of them, and swarming will be the rule, and no surplus. If the swarming mania takes hold of them, and they are allowed to proceed in such a course, no surplus need be expected. To prevent this, take away all their queen cells, and in most cases this will hinder them for a while, at least, but there

are exceptions to this. They will occasionally become so determined to swarm that they will issue without queen cells, but this is the exception. The remedy in this case is to take away their queen, which will hold them in check until more queens are reared, which will be sixteen days thereafter, but the queen cells may be removed and this prevented, and the strength of the colony kept up by giving brood from other colonies.

When conditions are seemingly all right, some colonies are loth to accept the boxes, and in such cases they may be driven to work by the use of the smoker. All surplus boxes should be supplied with foundation starters, and the bees will take to them more readily. The brood chamber may be contracted, thereby forcing the bees into the surplus boxes.

Hives should be set close to the ground, or rather on the ground; a small embankment may be made, raising the ground a few inches above the surface. Placing hives on benches any distance from the ground is a mistake. Bees coming home loaded with provisions in cool days are apt to drop on the ground near the hives in large numbers and become chilled so as to be unable to take wing again, and are lost. Hence the importance of having the entrance just at the place of dropping.

The thrifty farmer plants plenty of roots for the stock—turnips, beets, carrots and potatoes—to feed next winter in the place of green grass.

An old milch cow will make tender beef if she is fattened off very quickly after being turned dry. We have seen this tested. While fattening the old cow, however, have plenty of roots or vegetables, such as pumpkins, carrots, or beets or cabbages for her. This makes the meat juicy and more tender than dry grain alone can do.

Do you keep a record book for your live stock? The time of birth should be recorded and every event of importance in the life of the animal set down. You want to keep track of the pedigree of each. This record book full of notes is especially valuable in the case of cattle. Such a book with its story of every occurrence of note in the herd will prove a history full of interest and value.

It is the rule of an aged and highly successful cow doctor to give a cow, immediately after calving, a pail of water, slightly warm, into which a shovelful of ashes and live coals has been thrown. After drinking it the cow is left in perfect quiet for several hours. There is never fever or retention of anything which should normally be discharged, he says, after such a drink of weak lye water and such a rest.

Very young clover is not good for hogs. Do not turn them on the clover pasture till it is in blossom, but cure a good lot of it to be fed, chopped fine, with the hogs' grain next winter. Clover chopped fine, moistened with water and fed to hogs that are being fattened on corn makes a most excellent ration. The clover is a nitrogenous or lean meat producing food. It balances the fat and heat making qualities of the corn.

To St. Paul and Minneapolis via "Burlington Route."

Two splendid through trains each day from Missouri River points to the north via the old established "Burlington Route" and Sioux City Line. Day Train has handsome observation vestibule Sleepers, free Chair Cars and Dining Cars (north of Council Bluffs). Night Train has handsome Sleepers to Omaha, Council Bluffs and Sioux City, and Parlor Cars Sioux City north. Consult ticket agent.

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Sleepers and chair cars Kansas City to Denver, Rio Grande scenic line beyond for Colorado, Utah and California.

Ask agent for tickets over the established lines of the Burlington Route.

L. W. WAKELEY, Gen. Pass. Agt.,
St. Louis, Mo.

The Home Circle.

CHILD AND MOTHER.

O Mother-My-Love, if you'll give me your hand
And go where I ask you to wander,
I will lead you away to a beautiful land—
The Dreamland that's waiting out yonder.
We'll walk in a sweet-possie garden out there
Where moonlight and starlight are streaming,
And the flowers and the birds are filling the air
With the fragrance and music of dreaming.
There'll be no little tired-out boy to undress,
No questions or cares to perplex you;
There'll be no little bruises or bumps to caress,
Nor patching of stockings to vex you.
For I'll rock you away on the silver-dew stream
And sing you asleep when you're weary,
And no one shall know of our beautiful dream
But you and your own little dearie.
And when I am tired I'll nestle my head
In the bosom that's soothed me so often,
And the wide-awake stars shall sing in my stead.
A song which my dreaming shall soften.
So, Mother-My-Love, let me take your dear hand
And away through the starlight we'll wander—
Away through the mist to the beautiful land—
The Dreamland that's waiting out yonder!
—Eugene Field.

TO A VIOLINIST.

A little brown fiddle
Wrought long years ago.
Nay, read me the riddle—
What makes the tune flow
From these four narrow strings
When your violin sings?

For us the wood's soundless,
And senseless and cold;
For you there's a boundless
Romance, safely told
By the bow to the strings
When your violin sings.

It has prisoned and captured
The rustling leaves' whim;
It echoes th' enraptured
Wild nightingale's hymn.
Hark to forest-taught strings
When your violin sings.

Or, stay, did Apollo
A-tune his lyre
Give you hint how to follow
His passion-born fire?
Divine grow the strings
When your violin sings.

And scored by the Muses
Is Marsyas again,
The while your hand chooses
Its tender refrain.
Come, quick, touch the strings,
For your violin sings!
—Blanche Lindsay, in the Speaker.

LUMINOUS COMPLEXIONS.

Striking Effects in Illumination Seen at a Paris Afternoon Tea.

Electric lights are out of date at Paris society functions, and gas, candles and lamps have likewise been superseded. Phosphorescent furniture is the latest fad, and formed an interesting feature of a unique "five o'clock tea" which took place the other day in the Rue de Longchamps, Paris. It was not evident where the light came from, but every object in the room was luminous. The ceiling sparkled as with diamonds. Chairs, carpet, pictures, flowers, teacups—all emitted luminous rays. Nor were these fascinating gleams limited to the room and its furnishings, but the gowns of the women were also brilliantly phosphorescent, while their complexions gleamed like pearls flooded with moonlight.

As this idea threatens to become a fad of no small proportions, it should be known by women who long to emit this spoonlike radiance that there is a luminous face powder which is said to fulfill its mission admirably. There is also in the market a luminous starch with which the clever laundress can give laces, muslins and all the dainty articles of feminine attire a perpetual source of radiance. The idea of an invisibly lighter room, its atmosphere charged with luminous rays, is a very taking one, though it may be questioned whether phosphorescent complexions and self-luminous linen collars would be becoming to all types of women.—N. Y. World.

Good for Lung Diseases.

A New York specialist on lung diseases recently prescribed a course of treatment for a woman who was evidently far on the road to consumption. What he told her to take was all sorts of strengthening food, such as rare beef, cream, lots of butter, etc. Besides this, he directed her to eat raw eggs, beaten up in milk until she could bring herself to take 12 a day. This last regime alone, faithfully carried out, has, it is believed, saved another consumptive; it has helped the first woman greatly as well.

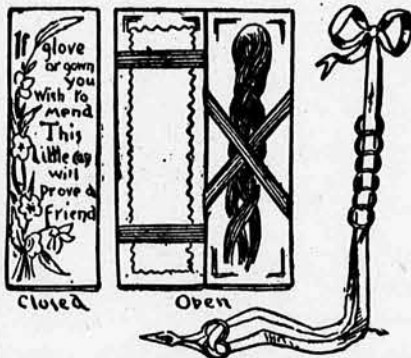
PRETTY FANCY WORK.

How to Make a Charming Silk Case and Scissors Chatelain.

A convenient contrivance to hold embroidery scissors at one's side is made like the accompanying illustration. One yard and a half of ribbon, somewhat less than an inch wide, about two dozen of the brass rings, a safety pin and a patent hook are all the necessary materials. Finish the top with a bow, under which is sewed the pin as indicated by the stitch, for a fastening to the belt, run the ribbon through the rings, crossing them and putting the ribbon in the space between; sew the hook on the lower end, slip through the handles of the scissors, bring it back and fasten it to the next lowest ring on the under side. If desired the rings may be crocheted with silk to match the ribbon, and the more rings used the firmer will be the holder. Some scissors are always disappearing, but with this attachment they are always at hand.

These two cuts show a simple and pretty gift for handy fingers to make, and one which will prove its usefulness in the testing.

Prepare four pieces of cardboard, 2 1/2 by 8 1/2 inches, cover two with fine white linen and two with buttercup yellow satin. On one linen paint a spray of buttercups and grasses and add the suggestive lines in dainty lettering. Leave the other linen plain. Take bands of narrow yellow satin ribbon about one-half inch wide and, laying the plain linen back on the table with the unfinished side up, paste the ribbons to its edge, leaving about three inches extend-



SILK CASE AND SCISSORS CHATELAIN.

ing to the left side; in like manner paste to the inner side of one of the satin-covered pieces other ribbons so slanted as to cross each other, extending to the right side.

Now lay the reverse pieces on each, turning under the ribbons at the edges, pasting the parts together, and when complete you will find you have a set of hinges which will work either way like a swinging door, and the case will open from either side. In other words, the ribbons should be attached to each cover only at the places in the illustration indicated by the cross (X).

In one side slip a piece of fine, white flannel, pinked at the edges, for needles, and under the crossed ribbons on the other put one of the vari-colored silk or thread glove-menders so much in vogue. If neatly executed this will make an extremely dainty gift, and the little peculiarity about the hinges will puzzle the uninitiated and enhance the value of the trifle considerably.—Chicago Record.

Cooking Cabbage Without Odor.

Many housekeepers decline to have cabbage cooked in their kitchens because of the disagreeable odor with which the vegetable fills the house. If the servant would but obey the following directions this objection would be reduced to a minimum. In the first place the saucepan should be the largest the menage affords, and must contain enough water to entirely cover the cabbage. This saucepan must be placed on the hottest part of the range and the water be at a galloping boil before the cabbage is put in, and must be kept at a boil until the vegetable is done. Last of all the lid must not be put on the saucepan during the whole process of cooking.

Salad Served in Red Apples.

At a recent luncheon the salad, which was the now extremely popular one of apples and celery with a mayonnaise, was served in bright red apples. The top of the apple was taken off neatly, the meat scooped out till the walls were about half an inch thick, and the shell filled with the salad. Every apple rested on a bed of green cream. The apples

want to be prepared as near the time of serving as possible, to prevent the rusting of the edges. Served in this way the course is a pretty novelty, though on the same lines as tomato shells, or those of green pepper for the meat or fish salad of a green and white luncheon.

ABOUT SHIRT WAISTS.

They Will Be as Popular This Season as They Were Last.

The shirt waist of the season has developed wonderfully in variety since the first installment of this necessary garment appeared in the shops, and lawns, batiste, and dainty waists are quite as plentiful as those made of cambric. These range from the simple cotton waists which can be bought for 75 cents up to the lace-trimmed blouse which may cost \$25 or \$30. The long ascent in price is graded with every imaginable kind and price.

The shirt waist proper is made with a narrow-pointed yoke in the back, and with or without a yoke in front, and the collar and cuffs may be of the same material or of white linen. Dimities, lawns and batistes, plain, striped and patterned all over in Persian designs, make the daintiest shirt waists, and these usually have a soft turn-back cuff of the same, and either a white linen collar or a colored satin stock with a white piping set in the edges and a narrow satin tie to match is tied around the neck over this. Sleeves of these thin waists sometimes are tucked in one cluster at the top, or in two, one being well down toward the waist. Swivel silks, ginghams and the heavier cotton chevrons are also made up into these waists, but the batistes seem to be the favorites this season. The light colors look pretty with white muslin collars and cuffs trimmed with lace, and ecru batiste waists are trimmed up and down or across with innumerable frills of narrow valenciennes lace. Another style has a yoke of ecru embroidery. Very handsome are the dotted Swiss muslin waists, lined with silk and trimmed elaborately with lace and ribbon. These usually have elbow sleeves and a wide collar of muslin, with yellow lace on the edge.—N. Y. Sun.

CREPE PAPER WORK.

How to Make a Very Dainty and Attractive Scent Bottle Cover.

Take crinkled or crepe paper of two colors, such as pale pink and blue, yellow and brown, green and pale yellow, or any other pretty combination to suit the room. Lay the two papers together and cut a circle measuring three times the height of the bottle; for instance,



if your bottle be four inches high, then your circle should measure 12 inches across. Stand the bottle exactly in the middle of these two circles, take the paper at the edge, still holding the bottle down firmly in place with one hand, and draw it up round the bottle. Arrange the fullness to set as evenly as possible, then secure it with wire around the neck. Bend down the edges, which at present are standing upright, and pull out and coax the paper so that it sets like a frill and large gofferings around the mouth of the bottle, as clearly shown by illustration. Arrange the paper tolerably evenly, but not formally, and finally tie a piece of colored ribbon over the wire below the frill. Make a smart bow, and, if necessary, fit it with a pin or a few stitches. If the bottle is large enough to allow of this, add a spray of artificial flowers starting from the middle of the bow and trailing down the side of the bottle. A pair of these bottles are a great addition to the dressing-table.—Minneapolis Housekeeper.

WHISK BROOM HOLDER.

What an Ingenious Woman Can Do with Plain Brass Rings.

The possibilities of brass rings are numerous. In the broom holder 42 brass rings are all worked over in double crochet with dark red Asiatic crochet silk. These rings are joined together front and back, as seen, and ribbon of the same hue is run through



the outer row of rings and formed in tasteful bows at the corners, ribbon also forming the means of suspension and being bowed at the top.—Eva M. Niles, in Boston Globe.

FOOD FOR CHILDREN.

A Few Facts Which Mothers Would Do Well to Remember.

No solid food of any kind should be given to a child until it has the larger share of its first teeth. Even then it must not be supposed that because a child has acquired its teeth it may partake of all kinds of food with impunity. The digestive apparatus of a child differs greatly from that of an adult in its anatomical structure, and in the character and amount of digestive fluids, and it is by no means proper to allow a child to eat all kinds of even wholesome food which a healthy adult stomach can digest with impunity, to say nothing of the rich, highly seasoned viands, sweetmeats and epicurian dishes which seldom fail to form some part of the bill of fare. Children are not likely to crave unsuitable foods unless a taste for such articles has been developed by indulgence in them.—Mrs. E. E. Kellogg, in Good Housekeeping.



READ MY STORY.

FREE TO SUFFERING WOMEN.

I suffered for years with uterine troubles, painful periods, leucorrhoea, displacements, and other irregularities, and finally found a simple, safe home treatment, that cured me without the aid of medical attendance. This is no quack doctor's medicine; but nature's own remedy for women. It costs nothing to convince yourself of its merits; for I send it free with full instructions to every suffering woman. Address: MRS. L. HUDNUT, South Bend, Ind.

Don't take substitutes to save a few pennies. It won't pay you. Always insist on HIRE'S Rootbeer.

Made only by The Charles E. Hires Co., Philadelphia. A 25c. package makes 5 gallons. Sold everywhere.



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FORTY FOR \$1.00...

For the next 60 days we make this extraordinary offer on our HIGH-ARM SINGER MACHINES. On receipt of \$1.00 we will send our No. 3 High Arm on 30 days' trial (price \$12.25), or our No. 1 (price \$18.75). Our machines are the best made; our No. 1 beats the world; 10 years' guarantee with each. Deal with a reliable house; buy at factory prices. H. R. Eagle & Co., 70 Wabash, Chicago.

DISEASES

of the Liver, Kidneys and Bladder are quickly relieved and permanently cured by using

Dr. J. H. McLEAN'S LIVER AND KIDNEY BALM

For sale at Druggists. Price, \$1.00 per bottle

THE DR. J. H. McLEAN MEDICINE CO. ST. LOUIS, MO.

The Young Folks.

THE STAR-SPANGLED BANNER.

O say, can you see, by the dawn's early light,
What so proudly we hail'd at the twilight's
last gleaming—
Whose broad stripes and bright stars, through
the clouds of the fight,
O'er the ramparts we watch'd were so gal-
lantly streaming!
And the rocket's red glare, the bombs burst-
ing in air,
Gave proof through the night that our flag
was still there;
O say, does that star-spangled banner yet
wave
O'er the land of the free and the home of the
brave?

On that shore dimly seen through the mist
of the deep,
Where the foes haughty host in dread silence
reposes,
What is that which the breeze, o'er the tow-
ering steep,
As it fitfully blows, now conceals, now dis-
closes?
Now it catches the gleam of the morning's
first beam,
In full glory reflected now shines on the
stream;
'Tis the star-spangled banner; O long may it
wave
O'er the land of the free and the home of the
brave!

And where is that band who so vauntingly
swore
That the havoc of war and the battle's con-
fusion
A home and a country should leave us no
more?
Their blood has wash'd out their foul foot-
steps' pollution.
No refuge could save the hireling and slave
From the terror of flight or the gloom of the
grave;
And the star-spangled banner in triumph
doth wave
O'er the land of the free and the home of the
brave.

O! thus be it ever, when freemen shall stand
Between their loved homes and the war's
desolation!
Blest with victory and peace, may the heav'n-
rescued land
Praise the power that hath made and pre-
served us a nation.
Then conquer we must, when our cause it is
just,
And this be our motto—"In God is our
trust!"
And the star-spangled banner in triumph
shall wave
O'er the land of the free and the home of the
brave.
—Francis Scott Key.

HOW TO TRAIN A DOG.

If You Want an Educated Pet Follow These Directions.

Queen Victoria has about 55 pet dogs, and, of course, being royal canines, they live in a royal way; they have a hand-somely carpeted dining-room, ornamented with portraits of their ancestors, and seem very proud of them. Whether a royal dog needs special training I do not know; but if you possess one of the regular sort that is content to live in a kennel in the yard and eat from the same plate as the cat at the kitchen door, or if he is a pet dog and allowed to have his quarters in the house, these directions will be useful to you in giving him an education.

Dog trainers tell us that, with the exception of the elephant and the monkey, dogs are the most intelligent and teachable of animals.

The first step in training your dog is to attach him to your person, to make him very fond of you, so that the slightest cross word you may speak will be punishment enough, without resorting to a stick. In training a dog it is never necessary to strike him; he is more affected by a scolding than is a child, and consequently does not need a slipper. You should never scold a dog "for fun" to see how "sorry" he will look; reserve your scolding as a punishment, or you will lose all authority over him. Never be afraid of encouraging him; let him know when he has done right, and he will be anxious to do it again.

To teach him to jump, place a stick in a doorway, where he cannot crawl around it; at first place it very low, so that he can walk over it, and when he understands you can raise it gradually. If he doesn't understand at first, jump the stick yourself to show him, and he will follow your lead.

"Begging" is easy, as it is natural for a dog to want food; but if he snaps at it too soon, cuff his nose and he will soon learn the proper way. By practice he will get his balance on his hind legs, and be even taught to walk on them by following the morsel about.

When he has mastered this he can be taught to "sit up." When standing on his hind legs you must take one paw in each of your hands and gently press him into a sitting posture, saying: "Steady! sit up!" The words: "Stand up!" "Walk!" "Sit up!" should be constantly repeated so that the commands will become familiar with the actions.

To "shake hands" when he is "sitting"

give him a slight cuff under the right side of the nose; this will make him lose his balance so that he will raise his right paw, which you must shake, saying: "Shake hands!" When he becomes familiar with the words in connection with his actions, he will readily obey alone. Practice is the principal thing.

He may be taught to ring a bell by tying a piece of meat on the handle and telling him to "ring the bell" as he shakes it in endeavoring to get the meat off; this being connected with something to eat will always be a pleasant task when he is learning, but he will soon do it for the fun of it and the love of you.

To make him walk on his forelegs, ask him to jump a stick, and as he jumps catch his hind legs with the stick so as to hold them up from the ground, saying "hip-hip!" By struggling to keep his balance he will learn to walk.

To make him "go lame" keep tapping one leg till he holds it up, saying at the same time, "lame, lame."

In order to make him creep you must hold him to the floor with your hand pressed gently on his head, and walk slowly backward, making him follow you, saying "creep, creep!" By holding him in this way and saying, "down, down!" you prepare him for learning to "die." From the "down" position push him over on his side, and if he does not straighten his limbs, do it for him, telling him he is "dead, dead." By the time he has learned all of these tricks he will be quite an accomplished dog, and ready for harder tasks which will exercise his intelligence to a greater extent.—Home Queen.

AN INTELLIGENT DOG.

Rides on Trains and Street Cars and Never Makes a Mistake.

There is a wonderful dog in Jackson, O., owned by Mr. N. M. White, manager of one of the coal mines between there and Wellston. This dog is named Frank, and he is a very pretty little water spaniel, and, though very young, he has shown himself to be a perfect marvel of canine sagacity.

Every dog has a hobby, whether carrying off old shoes, hiding bones or howling all night, and the dog in question has a little one of his own, which he uses to his own pleasure almost daily. This dog is a railroader, and he probably knows more about railroading than any dog in the country. A hundred trains a day do not confuse him, and he treats them all alike, riding on any or all of them to go from one place to another all over this part of the country.

Mr. White, the owner of the dog, goes up to his work at the mines every morning on the Ohio Southern, and returns in the evening on the same road. It was in going up with his master every day that Frank became familiar with the trains on that road and with the men on the trains. At first he would wait until the evening train and come home with the rest of the miners on their regular train, but he soon became accustomed to other trains on the road, and would jump on a coal train or a freight and come home whenever he got ready. He seems also to have a remarkable power for remembering the times of the trains, for on days when he does not go up the creek to the mines he is always at the depot to meet his master when he comes home in the evening, rarely missing the train by more than a few minutes each way.

Since the completion of the new electric belt road between Jackson and Wellston the dog has shown himself abundantly able to keep afoot of the times. He now goes down to the electric road depot to the first car in the morning, and goes up to the mine himself, being always there when the owner appears on a later train on the other road. He also gets on the Hocking Valley train out of here early in the morning and goes to Columbus, returning on the same train at night.

He has a habit of jumping off the train at every station and then climbing back on again as the train pulls out. One night recently he was coming home on the railroad and jumped off at Coalton. The train pulled out without his noticing it, and, after chasing it for a few yards, he seemed to be reminded of the electric road, and he walked over to the electric road depot, a short distance away, and came home on the next car.

The dog is well known to trainmen all along the road and is a great favorite among them. Mr. White values him very highly, and is thinking of sending him on a trip around the world.—Cincinnati Enquirer.

DWELLINGS IN TREES.

New Guinea Families Use Ladders to Climb Up to Their Beds.

The natives of New Guinea climb like monkeys, and travel for long distances from one tree to another, without descending to the ground. In this country, where birds build little fairy-like cabins on the ground, the people construct their houses in the top of the tallest forest trees. First, a native having climbed the great trunk of the teak or cedar or oak tree he has selected, begins by cutting off some of the branches the right length to support a platform of bamboo, on which his house is to rest. You would wonder how he could do anything with the tools he uses, if you could see them. He has no saw, or steel-edged ax, but only a sort of a tomahawk, made of stone, and knives of bone or hard wood. When, however, he has in some way managed to get the limbs of his tree so cut and fashioned as to support his house, his hardest work is done.

The house itself is soon built, and is made of bamboo strips with palm leaves. All parts are firmly lashed together with strips of rattan palm, a very tough vine used by the natives in place of ropes. It is not a large house, though it some times contains several rooms, but it is a safe and secure retreat for the women and children in case of sudden attack by hostile tribes.

But as the builder can scarcely expect his wife and little children, to say nothing of his pet pigs, of which these people generally keep one or more with them in the house, to climb the tree, he has to provide some way of getting from the ground to the house. This he does by making a long ladder of vines, reaching from the earth to the platform upon which his house is built. If enemies appear, the ladder is, of course, drawn up, and those above rest securely far out of reach of any weapon known to the wild men of New Guinea. These tree houses also serve for lookouts, from which to see coming friends or enemies in time to prepare a suitable reception for either.

There are several good reasons for building houses so far above the ground,



A NEW GUINEA MANSION.

besides those already given; one is that they are not reached by the low-lying bad air that in this country causes fevers and sickness; another that they are free from ants and mosquitoes, two terrible plagues throughout New Guinea; and still another is that the breeze that gently rocks the house, like a bird's nest, in the tree tops, is much pleasanter and more refreshing than the sultry heats below.

If you should climb the ladder and peep in at the door, you would find the family perhaps all asleep or sitting about on the floor eating yams, coconuts or bananas, and sharing them with their pet pigs, parrots or poultry. You would find there no pictures, toys, or playthings, such as even the poorest children amongst us possess, no music and no books; no furniture in the room, not even a bed, and no mats on the floor.

Many a tree-built nest is constructed with more art, and is more comfortable for the little ones, who are born in it, and is far prettier than the rude huts of the wild men of New Guinea.—Chicago Inter Ocean.

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BRIGHT BOY'S IDEA.

He Explains How He Bends and Makes Perfect Shiny Sticks.

A bright boy writing to St. Nicholas tells how shiny sticks are made.

"I get sticks," he writes, "as nearly straight as possible and bend them at home. I have a board made like this: There are two pins at one end, at 1 and 2, around which the stick is bent; and at the other end are two rows of holes into which a pin, No. 3, can be put to hold the handle in place. When the



HOW TO MAKE A SHINNY STICK.

sticks—they should be as green as possible—are in place on the board, I put the whole thing in the back of the furnace, where the stick will bake. In about two days the sap is dried out and the stick will keep its curve.

"Then I take a belt lace—a leather string about half an inch wide and one-sixteenth of an inch thick—and bind it on the short end. If the stick is split, I bind it first with brass wire and then put the leather binding over the brass."

A Few Amusing Irish Bulls.

An Irishman, who was very ill when the physician told him that he must prescribe an emetic for him, said: "Indeed, doctor, an emetic will never do me any good, for I have taken several and could never keep one of them upon my stomach." An Irishman, at cards, who, inspecting the pool, found it deficient, exclaimed: "Here is a shilling short, who put it in?" A poor Irish servant maid, who was left-handed, placed the knives and forks upon the dinner table in the same awkward fashion. Her master remarked to her that she had placed them all left-handed. "Ah, true, indeed, sir," she said, "and so I have. Would you be pleased to help me to turn the table?"

Few medicines have held their ground so successfully as Ayer's Cherry Pectoral. During the past fifty years it has been the most popular of all cough cures and the demand for it to-day is greater than ever before. Prompt to act and sure to cure.

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GEO. M. HERRICK, President.

Cut this out and send to-day for free catalogue. \$2.15 buys natural finish Baby Carriage with plated steel wheels, axle, springs, one piece bent handle, 3 years guarantee. Carriages sent on 10 days FREE TRIAL. NOT FROM FACTORY & SAVE DEALER'S PROFIT. OXFORD WHEEL CO., 240 Wabash Ave., CHICAGO.

FREE A GENUINE 14 K. GOLD-FILLED WATCH and chain to every reader of this paper. Cut out this card and send it to us with your address and we will send you FREE for examination the Best and Only Genuine American watch ever offered at this price. It is 14k. Solid Gold filled, with Genuine American Movement, 30 Year Guarantee, and looks like a Solid Gold Watch sold at \$40. Examine at express office and if you think it a bargain, pay \$7.50 and express charges, otherwise pay nothing. A Handsome Gold Plated Chain, sold in certain stores for \$3 goes free with each watch. **OUR GRAND OFFER.** FREE One of these \$7.50 watches and chain, if you buy or sell SIX. Worth to-day, as this price holds good for 30 days only. **ROYAL WPP CO.,** 207 Third St., Chicago, Ill.

KANSAS FARMER.

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Annual cards in the Breeders' Directory, consisting of four lines or less, for \$15.00 per year, including a copy of KANSAS FARMER free.

Electros must have metal base.
Objectionable advertisements or orders from unreliable advertisers, when such is known to be the case, will not be accepted at any price.

To insure prompt publication of an advertisement, send cash with the order; however, monthly or quarterly payments may be arranged by parties who are well known to the publishers, or when acceptable references are given.

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

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

Address all orders—

KANSAS FARMER CO., Topeka, Kas.

The iron output of the United States for 1895 aggregated 9,446,308 tons, the largest production on record, valued at \$105,198,550. The output of silver was 47,000,000 ounces, with a coinage value of \$60,766,000. This is the smallest silver output since 1888. The output of gold was 2,273,629 ounces, valued at \$47,000,000. This exceeds the gold product for 1894 by \$17,500,000. The output of copper was 381,168,868 pounds, having a value of \$38,882,000. The value of the total production of metals in the United States for 1895 is placed at \$611,795,290.

This is a great year for talk about farmers for political preferment. Last week a great New York paper sent one of its staff writers to interview the man most prominently mentioned for the nomination of this week's great convention for President of the United States. The newspaper man traveled across several States and finally landed at a small town in southwestern Missouri. But the man he sought did not live in town and the news-gatherer had to seek him on his farm. Here he met him in his shirt sleeves. It seemed to the New York man like a veritable fairy tale to find in the hay field, pitchfork in hand, his son driving the mowing machine, "the man for whom," to use the New Yorker's own words, "State after State was instructing its delegates for the highest office in the world." This man is "Dick" Bland among his neighbors. He is "Silver Dick" in the Congressional district which for twenty years he represented in Congress. When this reaches the eye of the reader he may be one of two men to become President of the United States.

Somebody, rejoicing in the title of Governor or some other dignity in a neighboring State, imagined that the remedy for the diseases which have so devastated swine herds during recent years was to be found in going part way back to the ancient "razor-back" types of the pig. His imagination being active, he suggested a cross of the well-bred Berkshire or Poland-China with the Southern razor-back, a race of animals which may be guaranteed to out-run a horse and to clear a ten-rail fence without inconvenience. This cross, it was suggested, would make a fine bacon hog, for the reason that the "razor-back's" belly is always thin. The influence of the aforesaid Governor or other dignity was such that some one in Nebraska—we withhold his name, for we would not unnecessarily expose any to ridicule—procured a start of Georgia "razor-backs." The experiment was watched with interest. The papers commented upon it. Deliverance from hog cholera and swine plague were hailed as coming in with the return of "the razor-back." But now comes the sad news that the cholera has turned up the toes of the last of the imported "razor-backs." Exit the "razor-back."

CHANGES IN EXPORTS.

According to a circular just issued by the United States Department of Agriculture, the exports from the United States have suffered a steady decline in value since 1892. The reduction has been entirely confined to agricultural products exported. Indeed the non-agricultural exports were of greater value for the year ending June 30, 1894, than for any other of the last six years. The year ending June 30, 1892, showed phenomenally large exports, especially of agricultural products. There was a special cause for this in great shortage of wheat and rye in Europe and Western Asia, together with the phenomenally large crop in this country. Very large exports of wheat and flour at fairly remunerative prices resulted and the figures representing value of exports required ten places to write them.

Exports of domestic merchandise from the United States.	Years ending June 30—					
	1890.	1891.	1892.	1893.	1894.	1895.
Total exports domestic merchandise.....	\$845,293,628	\$722,270,293	\$1,015,732,011	\$831,030,785	\$899,204,937	\$733,397,890
Agricultural exports.....	629,820,808	642,751,344	799,328,232	615,362,786	638,363,038	553,215,317
Exports, non-agricultural.....	215,472,820	229,518,939	216,403,779	215,667,999	240,841,899	240,182,573

The changes in the quantities and values of wheat and wheat flour exported have been especially noticeable. From the "Statistical Abstract of the United States," page 169, we have the following figures for the years ending June 30 of the years designated:

Exports of wheat and wheat flour from the United States.	Years ending June 30—					
	1890.	1891.	1892.	1893.	1894.	1895.
Wheat..... (bushels)	54,387,707	55,131,948	157,280,351	117,121,109	98,415,230	76,102,704
Wheat..... (dollars)	\$3,270,400	\$3,230,770	\$10,161,369	\$8,534,970	\$7,030,407	\$5,835,663
Flour..... (barrels)	12,734,131	11,244,394	16,630,338	16,899,553	15,298,938	15,298,938
Flour..... (dollars)	\$7,060,138	\$6,706,016	\$10,362,283	\$9,447,671	\$7,770,511	\$6,551,928

In the year ending June 30, 1892, we exported a little more than twice as much wheat as in the year ending the same day, 1895, but we got nearly four times as much money for it. All wheat-growing countries have suffered like reductions in price. Except for the advance in price on account of the old world famine of 1891, the decline in price has been tolerably steady for many years.

On page 168 of the "Statistical Abstract" it is shown that the exports of agricultural implements increased from

\$2,367,258 in 1886, to \$5,413,075 in 1895. Of this last sum the greater part, \$3,659,735, was for reapers and mowers. Undoubtedly the pauper laborers of other parts of the world are learning to use American harvesters so as to turn their labor, which they sell at a few cents per day, into wheat, with which they have brought down the export price to a figure at which there is but a few cents per day compensation for the American wheat-grower.

While our agricultural exports are rapidly decreasing in value the reverse is the case as to manufactured products.

Exports of agricultural and manufactured products.	Years ending June 30—					
	1890.	1891.	1892.	1893.	1894.	1895.
Agricultural.....	\$256,560,972	\$331,188,438	\$385,961,091	\$320,820,808	\$299,328,232	\$253,210,026
Manufactured.....	81.13	79.35	73.25	74.51	73.69	69.73
Per cent. of total.....	40,345,862	68,279,764	102,856,015	151,102,376	158,510,937	183,595,743
Per cent. of total.....	12.70	12.46	17.87	15.61	15.61	23.14

Whether with the very cheap labor of oriental countries they are likely to become as formidable competitors in the market for manufactured as they are becoming in that for agricultural products, is a question to be considered, with the attending conditions. It is asserted that the Japanese, who labor for a few cents per day, are manifesting great skill in the factory and that Japanese manufactured products are a serious menace to the markets for the products of American workmen, both in the foreign and in our own markets. It is well known, however, that the protective tariff is a barrier to the entry of foreign competition with American manufactured goods in the home market, and that while this is maintained American consumers will be obliged to pay for even Japanese manufactured goods a higher price than the foreign cost of production, the cost of transportation and the cost of selling. Thus while the American manufacturer is obliged to meet the cheap labor competition on what he sells abroad, he is able by combines and trusts and shielded by the tariff to secure remunerative compensation for what he sells to us.

It seems impossible, however, for statesmanship, even if it were so inclined, to devise any protection for the American farmer against the crushing competition of cheap foreign labor while handling the best of modern machinery bought in the open market of the world.

Whether the constant increase of bread-eaters is soon to make their numbers so great that the wheat-growing lands of the world will be inadequate to the production of more than people are able to buy and consume and thus usher in the better day for the farmer, is apparently cast into doubt by the course of the markets. Our records of exports seem to indicate that the old world is in these last years growing more independent of American supplies. Perhaps phenomenal harvests have something to do with this. Certainly the prevailing low prices ought to enable everybody to have plenty to eat.

WHAT IS MEANT BY 16 TO 1?

Much as the monetary question has been discussed during the last few years, and especially during the last few months, there are many who have only a misty conception of what is meant by "16 to 1."

Under the coinage laws of the United States one silver dollar weighs sixteen times as much as one gold dollar, or, as frequently expressed, the ratio is 16 to 1. Under the coinage laws of most European nations the ratio is 15 to 1.

The FARMER is asked to explain why there is just now so much agitation about the question of "ratio." It is a long story, but we shall try to answer it briefly and fairly.

In the early part of the century, the English government discontinued the coinage of silver, except for small change, and made gold its standard of value. In 1873 the United States and several European nations took similar action. Prior to that time the United States had coined comparatively few silver dollars, because silver was valued higher relatively to gold at European than at American mints. Considerable quantities of halves and smaller pieces had been coined, there being less silver in two half dollars or in four quarters than in one whole dollar.

Since the action of so many leading nations in 1873, whereby gold was made the standard and the coinage of silver largely discontinued, the price of silver has fallen greatly in relation to gold. During all these years there has been much discussion in this country as to what is termed the remonetization of silver. By one side the great fall in prices of products of labor, with the attendant panics and enforced idleness, has been attributed to the "act" of 1873. By the other side it has been insisted that it is necessary to "get down" to the gold basis before there can be permanent prosperity. Some compromises have been had, but the last Congress repealed the last of these. It is still lawful, however, for the government to pay any of its obligations in silver, and if these be paid in silver the country will scarcely be on a "gold basis." There is still, therefore, a contention between those who favor getting down to a gold basis and those who favor a restoration of our coinage system as it existed up to 1873. There is also talk of other ratios than the old one of 16 to 1, also of a plan to limit the coinage to the American product, which is approximately one-third of the silver product of the world. The issue for the present campaign will, however, be on the proposition to restore the former coinage laws, which gave to gold and silver equal privileges at the mints, sixteen ounces of silver being equal in value to one ounce of gold.

In Texas corn and cotton are reported seriously damaged by drought.

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

David T. Day, Chief of the Division of Mineral Resources, of the United States Geological Survey, is authority for the statement that the value of iron in the United States rose from \$9.76 per ton in 1894 to \$11.13 per ton in 1895. It will be remembered that the iron trust got well organized about that time.

Hay intended for dairy cows should not be allowed to get so ripe as that intended for other animals. Cut it when it is green and tender, just when the seed begins to form. After that time the juiciness of the plant goes to perfect the seed and the stalk is no longer so palatable or nourishing for the cows.

Experiments have shown that under ordinary conditions one bushel of prime corn will produce ten and one-half pounds of pork; hence, when corn is 25 cents per bushel, pork can be made for 2½ cents per pound, 84 cent corn produces 4 cent pork, 50 cent corn, 5 cent pork. The same experiment showed that it costs one and a half times as much to add a pound to the weight of a ten months pig as to a five months pig.

Weekly Weather-Crop Bulletin.

Weekly Weather-Crop Bulletin of the Kansas Weather Service, for week ending July 7, 1896, prepared by T. B. Jennings, Section Director:

GENERAL CONDITIONS.

A warm week; though the temperature was about normal in the western counties, it averaged 3° above in the central and 2° above in the eastern counties. The rainfall is above normal in the eastern counties, much above north of the Kaw river, but below in the extreme southeastern counties; it is below normal in the central counties generally, and in Gove and southward through Clark, Meade and Seward in the western; it is above normal in the extreme western counties and in Decatur, Sheridan, Graham, Norton and Phillips and extending southeast to and through Barber.

RESULTS.

EASTERN DIVISION.

A fine growing week, and corn, grass, millet and gardens have fully responded to the favorable conditions. Oats are in bad shape from rust and dampness. Flax is in fine condition and ripening. Much threshing done.

Allen county.—Fine growing week, with soil in fine condition; flax ripe and a large yield; corn all eared out and prospects good; Mammoth clover ready to out.

Brown.—Corn prospects could not be better; wheat and oats mostly harvested; too wet for stacking or haying.

Chautauqua.—Cool first part, hot last of week; corn has made rapid progress; wheat in shock has dried out and is being threshed with good results.

Douglas.—Corn looks fine; oats that

Oat harvest is nearly over, but much of the crop is damaged. Flax is in fine condition. Fodder crops are now being planted, while in Sumner fall plowing has begun.

Barber.—Fine growing weather; crops of all kinds doing well; farmers planting cane, Kaffir and millet; range excellent and cattle in fine condition.

Butler.—Some wheat damaged in shock by wet weather; oats badly damaged by rust; corn in first-class condition; flax fine; pasture and alfalfa never better.

Cloud.—Everything in fine condition.

Dickinson.—Harvest almost over; wheat a fair crop, oats poor; ninety-day corn about made; late corn beginning to tassel, but will need rain soon.

Harper.—Crops doing well; corn improved; fine late rains.

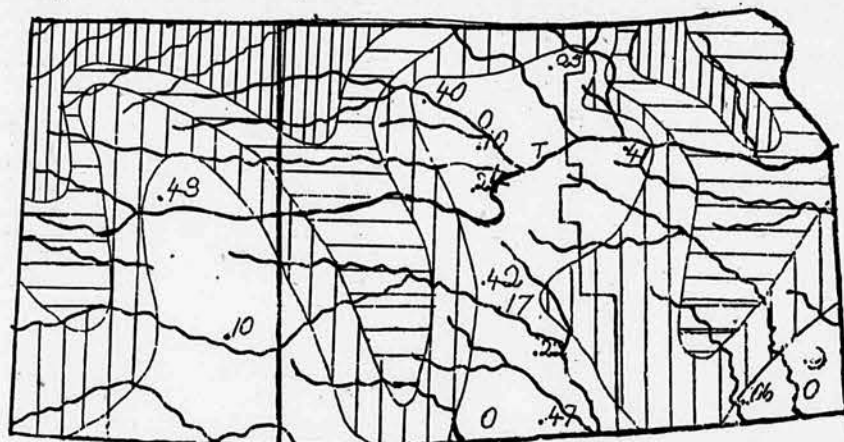
Harvey.—Wheat harvest over and threshing has commenced; very little of the oats being cut, not worth it; corn in fine shape, now tasseling and silking; chinch bugs abundant.

Kingman.—Good growing week for corn, which looks immense; harvest about over; threshing will be in full blast next week.

Ottawa.—Wheat harvest nearing completion; oats nearly all cut, badly damaged by grasshoppers and chinch bugs; wheat threshing begun.

Pawnee.—Rains of last two weeks have greatly revived all vegetation; pastures fine and corn doing fine, tasseling but not shooting good; grasshoppers very thick.

Phillips.—An extremely hot week; harvest about over and threshing begun; corn doing finely; millet and cane in fine shape.



Scale of shades less than 1/2 1/2 to 1 1 to 2 over 2 Trace
ACTUAL RAINFALL FOR WEEK ENDING JULY 4, 1896.

are not cut are down badly; flax is good.

Greenwood.—The rain came in time to keep up the magnificent growth of corn and hay crops.

Johnson.—Good for corn; oats about all harvested, better than expected; grass being cut.

Labette.—The oat crop poorest for years, much left in the field not worth cutting, spoiled by rust; corn doing well; millet coming on very fast; splendid week for threshing.

Leavenworth.—Too much rain; wheat is growing in shock.

Marshall.—Corn doing fine; oats badly damaged by wind, rain and rust, many fields will be cut for hay only.

Montgomery.—A good growing week; corn in fine condition; grass and stock in fine condition; temperature reached 103° on 3d.

Osage.—The warm rains are making corn rapidly, a good portion in tassel; roasting-ears, peaches, apples and blackberries on the market.

Pottawatomie.—Pastures good; stock doing well; oats harvested, very rusty; corn mostly tasseled and silked, doing fine; sweet potatoes cover the ridges.

Shawnee.—Oats about all harvested; early corn tasseling; some wheat threshed, making a fair yield.

Woodson.—Oats bad, and but few growers will thresh them; flax is fine; corn looks fine and bids fair to be the best ever raised in the county.

MIDDLE DIVISION.

A fine growing week and growing crops have made rapid advancement; corn has done the best, it is tasseling and silking in the north, and earing in the central counties. Early corn is far along toward maturity. Wheat harvest is over and threshing going on.

Reno.—Good growing week, corn in best of condition.

Rice.—Harvest about done and threshing will begin.

Saline.—A warm, dry week, giving farmers an opportunity to finish harvest, and cultivate late corn; early corn in fine condition and beginning to ear.

Sedgwick.—A fine growing week; some corn nearly mature.

Sumner.—Good growing weather; corn in silk; wheat not all cut, ground too wet, part of the time; ripe peaches plenty; plowing for wheat has begun.

Washington.—Corn laid by, and in fine condition, growing nicely and has begun to tassel and silk; wheat harvested and threshing begun; yield good; oat harvest about over; some fields are an entire failure and will not be cut on account of rust.

WESTERN DIVISION.

This has been an exceptionally fine week for growing crops. Corn is making very rapid progress. Range grass is fine, affording an abundant pasture for stock. Small grain crops have not done well this year, owing to the dry weather earlier in the season.

Decatur.—This has been a great crop week, though rain has interfered some with cultivation of corn, much of which will have to be laid by with two plowings; harvest has begun and will become general next week; wheat will be a fair crop; corn is on the top shelf.

Ford.—Corn, pastures and alfalfa look good.

Grant.—Crops improved some by light showers.

Gove.—Wheat is only a half crop, but corn, sorghum, Kaffir corn and other field crops are good; pastures

good and plenty of moisture; grasshoppers have done much damage.

Kearney.—The finest week of the season for growing crops, but rather late for special results; melons, gardens and late crops will be greatly benefited.

Morton.—A growing week; moist surface soil, but lacks depth for permanent supply.

Sheridan.—Small grain improving with the rains; corn doing well and gives fine promise; grass good.

Thomas.—Rye and early wheat harvest has begun; early corn is tasseling; all corn looks good.

Trego.—Bad weather for harvesting; good corn weather, some early fields promise well.

Wallace.—Fine rains; range grass good; wheat, oats and barley dried up before the rains; corn fair; grasshoppers ate up the gardens.

A Help to Horticulturists.

EDITOR KANSAS FARMER.—Shawnee County Horticultural Society is rapidly coming to the front as a valuable aid to the orchardists of this vicinity, especially within the last year or two, giving to that industry a notable impetus. To one visiting the society after an absence of months, the progress manifest is astonishing. It has proved a good educator in the interchange of thought and experiences, in mutual experiments and the beneficial results of co-operation in this, as in other branches of enterprise.

July 2, the society met at the pleasant home of Fred Tompkins, a few miles north of Topeka. Mr. and Mrs. Tompkins, with cheerful courtesy, gave their time and labor for the entertainment of the society, and the guests, upon arrival, found the grounds (a fine natural park) furnished with all the picnic paraphernalia necessary to secure the comfort of the most exacting—even to a gasoline stove, which accommodately lent itself to the boiling of coffee for those desiring that stimulating beverage. A bountiful dinner was partaken of, well seasoned with the piquant sauce of wit and good-fellowship, after which an adjournment was made to the seats prepared for the meeting proper, which was called to order by the genial President, Mr. George Van Orsdel.

Mr. Wm. Sims gave an address on "Co-operation in Horticulture," which was quite to the point, interspersed with various amusing reminiscences of early days, when himself and wife were the co-operating parties in orchard planting.

Mr. Hoover read an excellent paper, which was, I believe, one of a series to be presented at future meetings.

Secretary Barnes urged the study of nomenclature, also making the suggestion that a "Prompter" be appointed, whose duty it shall be to specify, at the next meeting, the particular work necessary in the orchard for the ensuing month, to which the President promptly responded by naming J. F. Cecil.

Apples, apricots, cherries, peaches, pears and plums, flawless and beautiful, were on exhibition. A gorgeous display of petunias (double and single), roses and clematis Jackmanni, by Mrs. Cecil, the mother of Mr. J. F. Cecil, was a most attractive feature of the meeting.

A vote of thanks was unanimously tendered Mr. and Mrs. Tompkins for their untiring efforts in entertaining the society so generously.

The August meeting will be held at the home of Mr. Jordan, near Wakarusa, at which time a very interesting program will be presented.

KITTIE J. MCCracken.

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E. L. LOMAX,
Gen. Pass. and Ticket Agent,
Omaha, Neb.

Comparative Wheat Supplies.

The Cincinnati Price Current summarizes the position of wheat at the opening of the cereal year, July 1, 1896, as follows:

"The receipts of wheat at the primary markets in the West have been approximately 200,000,000 bushels for the year now closed, compared with 153,600,000 bushels for the preceding year. The crop of 1895 as officially estimated was 467,000,000 bushels, and 460,000,000 for the preceding year. The visible supply now is 43,000,000 bushels, compared with 44,000,000 a year ago. The exports for the year have been about 128,000,000 bushels, compared with 145,000,000 the preceding year. The domestic consumption is a mooted quantity, which may be recognized as approximately 375,000,000 bushels for all purposes the past year.

"If the domestic consumption has been as much as 375,000,000, it follows that the crop of 1895 must have considerably exceeded the official calculation. In February, last, the Price Current suggested that it was within reason to recognize the production as fully 475,000,000, and in view of the evidence now available it seems reasonable to advance the estimate to about 500,000,000. The year's consumption on the basis mentioned, with the exports, and the gain in official visible stocks, represent a total of 507,000,000—and not much more than the 7,000,000 bushels can be accounted for in changes in other supply channels.

"The following revised exhibit may be considered as a fairly correct one in regard to the relative position of wheat supplies in the United States for the year:

	Bushels.
Official visible, July 1, 1895	44,000,000
Farmers' stocks, say	32,000,000
Other supplies	20,000,000
Total for July 1, 1895	96,000,000
Crop of 1895	500,000,000
Total supply	596,000,000
Domestic consumption, 12 months	375,000,000
Exports, 12 months	128,000,000
Official visible, July 1, 1896	43,000,000
Farmers' stocks, say	25,000,000
Other supplies	20,000,000
Total for July 1, 1896	93,000,000

"There can be no reasonable doubt that the total supply on July 1 equals 93,000,000 bushels—of which quantity fully 40,000,000 may be recognized as unavailable or unmarketable reserves—a quantity necessarily remaining on hand at a time of practical exhaustion of marketable supplies.

"If these approximations be accepted, and 475,000,000 bushels be recognized as possible production this season, with say 50,000,000 of marketable supplies carried over, there would be 525,000,000 bushels available for distribution the coming year. This would imply approximately 100,000,000 surplus for export from the new crop, with the additional 50,000,000 carried forward—meaning a possible exportable supply of 150,000,000 bushels by reducing reserves to the minimum point a year from now—which compares with 145,000,000 as the annual average for the past three years. The world's outlook does not make it appear likely that a greater quantity than thus indicated will be needed by importing countries from the United States the coming year."

If You Would Keep Cool

take the "Twin City Special" any evening from Kansas City, Leavenworth or St. Joseph, on the Chicago Great Western Railway (Maple Leaf Route), and spend a few days at the beautiful Minnesota lakes. Summer excursion rates now in effect. Through sleepers, free chair cars and cafe dining cars. Full information as to desirable resorts in the Northwest will be cheerfully furnished by G. W. Lincoln, Traveling Passenger Agent of the Chicago Great Western Railway, 7 West Ninth street, Kansas City, or F. H. Lord, G. P. & T. A., Chicago.

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Ask ticket agent for tickets via Vestibuled Eli to Chicago, and via the Vestibuled Limited to St. Louis.

L. W. WAKELY, Gen. Pass. Agt.,
St. Louis, Mo.

Horticulture.

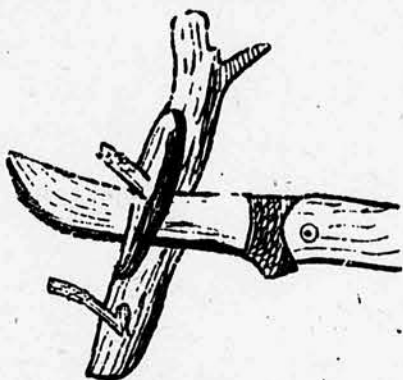
THINNING RASPBERRY CANES.

It is a great mistake to allow too many raspberry canes to grow in a bed. In the gardens of careless gardeners it is not uncommon to see the canes so numerous as to form perfect thickets, with the canes so close together that there is not room to pass between them. There is positive loss in this. One plant robs the other, resulting in canes no thicker than a telegraph wire, and the production of berries so small as to make it almost a waste of time to gather them. The right way is to have the plants set in rows, the plants two and one-half to three feet apart, should there be plenty of room. A few canes, say three or four, may be allowed to form about each one, until each becomes a small clump. No more than this should be allowed. Indeed, many persons adhere to the plan of having the plants two feet apart and cutting away all others which appear, claiming that larger and better fruit results. Certainly if there are more plants than the ground can sustain the fruit must suffer. And the whole secret of success in gardening is to be sure that there is food enough in the garden for all the plants in it. If not, then more manure must be applied, or some of the plants must come out. An overgrown bed of raspberries cannot be properly fed with manure; there is a limit to that. There should always be space enough of clear ground to allow the proper use of the hoe or cultivator, as this, besides being a guide as to the capacity of the ground to sustain a certain number of plants, is also of as much use in promoting their growth as a good coating of manure would be. Such beds of plants should be taken in hand and all useless canes cut out, if this is not already done, and those permitted to remain will be the stronger for it. It is the custom, even in the Middle States, to cover the more tender sorts of raspberries in winter, and further north it ought to be done with all sorts. The insignificant looking fruit of the raspberry placed on the table or sent very often to market is rarely the fault of the berry, but nearly always of the grower. The plants have been left to take care of themselves in such cases. They grow up a perfect thicket of canes, one starving the other. And then it is wondered why the fruit is so poor, or else it is given out that the particular kind is "running out." Raspberries are no exception to the plants which require good feeding. The ground should be prepared for them beforehand, securing a piece free from couch grass or other weeds which might be troublesome to get out from among them. Then have it well enriched, and when in this condition plant the canes, whether it be spring or fall. There seems to be a preference for spring planting among those who set out the most. When in a good location and fed annually with manure beds last almost indefinitely. For garden culture about three feet apart will do, but for the field, where horses are to be used, four feet is nearer the thing. The number of canes to the hill must be regulated in the same way. In a garden a half dozen will be ample, while more may be allowed in the field. The question of cutting off the tops, whether or not it is an advantage, is still somewhat of an open one. When topped the side shoots push out, making of the cane a stocky, somewhat self-supporting bush. The number of berries is greater on such a bush than on an unbranched cane, but they are not as large. I found, when I visited the fruit-growing districts of New Jersey last fall, that raspberries are not topped by growing. When the leaves fall or before growth starts in spring they are topped in the old way. The raspberry is such an acceptable fruit to almost every one, as much for eating fresh as for preserving, that a little care should be taken to have in perfection this delicious berry.—Joseph Meehan, in *Prairie Farmer*.

Thos. Slater has a message for every man on page 15.

Budding Fruit Trees.

The budding of fruit trees is a very simple process. It consists of placing the bud of one tree between the bark and wood of another, tying it tightly in place, where in a short time it unites, and afterwards becomes a part of the tree. Nurserymen and fruit-growers practice it largely. In fact, all the apples, pears, cherries, peaches and plums sold, are raised either by budding or grafting. The rare trees of ornamental character are, many of them, increased in the same way. New kinds are thus rapidly increased. Florists bud weak-growing roses on stronger sorts; and in all sorts of ways budding is useful. Taking the cherry among fruits as an illustration, the fruit-grower sows seed this season, which gives him plants large enough to set out in rows next spring. Should these plants grow freely, they are fit to bud in late summer. The seedling plants may be anywhere from one to two feet high. The bud is inserted near the ground. The next spring the seedlings are headed back to just above the buds. The buds then push into growth and become the trees. If the sap runs freely, which it must do or the work cannot be performed, the bark lifts



Removing a bud.

readily to admit the bud. Those whose business it is to bud, use a bone-handled knife. Such a one has a handle thin at the end, made so to enter where the cut is made, to lift up the bark without bruising it. The I cut has been found the best for the purpose. The knife must be sharp. The bud is to be cut from a strong, well-ripened shoot of the same season. The leaf has been cut off, but the leaf stalk is left on, as it assists in the placing of the bud in position. With the bark parted as explained, insert the bud by commencing at the upper part of the cut and gently forcing it into place. The bud will have been cut off about the



Opening to receive bud. Bud in place and wrapped.

length of the cut—if a trifle smaller it won't matter—but it must not be any longer. When inserted it must be tied tightly in its place to keep the parts close together until a union is effected. The joints must be tied to fit close to each other and to exclude moisture. Done at the right season, but little risk of failure is run. It takes but about a week to know if a union has been made. If successful, the leaf stalk which was left on the bud will drop clean away from the bud when touched, whereas, if unsuccessful, it will not drop, but will wither up and remain on the bud. In the course of from four to six weeks the strings should be cut, as the bark is fully united by that time, and as the stock is still growing, the string, if uncut, would prevent its expansion. In commercial places, where great quantities of string are used, either raffia or bass is used for the purpose. Both are fibers; raffia is from the palm, and bass from the linden. The exact season for

budding depends very much on the tree to be operated on. As a rule, both the apple and the pear finish their growth earlier than the cherry and the peach. July and August sees a good deal of the work on these finished, while that on the cherry and peach is a month or two later. All depends on the sap. The work is not done as soon as the sap is running to admit of the lifting of the bark, as the buds are usually too immature at that time, but it must not be delayed until the growth stops, or the bark cannot be lifted to admit the bud. Almost all other trees, as well as fruits, can be increased in the same way; and the operation gives pleasure to the amateur as well as brings profit to those who follow horticulture as a business.—Joseph Meehan, in *The Practical Farmer*.

Seed Soaked in Kerosene.

EDITOR KANSAS FARMER:—Noticing others are giving their experiences with soaking seeds in coal oil, I give mine:

First, I tested ten peanut kernels by soaking sixty hours in coal oil, and then planting in a can. All the seeds germinated, but when I got ready to plant my peanut patch I only rolled the kernels in oil and planted them so. I was still afraid to soak them, even after the test of sixty hours. But every hill came up nicely and then I planted some more which I had soaked over night—about twelve or eighteen hours. They also came and moles let them alone, although moles and gophers are abundant here. A neighbor who has tried to raise peanuts two years, and failed because of moles, was given some of the seed that was merely rolled in the oil and now she has a fine patch of peanuts. I have been much interested in this and should like to hear from others.

MRS. PRUDA B. UTLEY.
Cambridge, Kas.

Cow Peas in the Orchard.

Dr. Geo. M. Monroe, in *Practical Irrigation and Fruit Growing*, says: "In regard to growing cow peas, I will give you my experience with them in the South and in the Pecos valley, as well as my conclusions as to their value for the orchardist.

"I think they are the best crop we can possibly grow in our young orchards, for at least two reasons: (1) As a renovator of the soil they are, in my opinion, the best of all green fertilizers. (2) They shade the ground and keep it cool, thereby protecting the roots of the young trees during July and August, when they most need it.

"The time to plant varies considerably with different varieties. The Wonderful, the Blackeye and the Whippoorwill can be planted any time after frost is over until June 15, with equal success. The Southern Clay should be planted about the 15th or 20th of June.

"In the South the method most generally adopted is to sow them broadcast in the corn at the time of the last cultivation. But I think here in our orchards the best method to plant them is to drill them in with a cotton planter, from eighteen to twenty inches between the rows. From fifteen to eighteen pounds per acre is about the amount of seed to use. No cultivation is needed unless the land is poisoned up with weeds and grass. In that case any method of cultivation that would keep down the weeds until the peas get a start will do.

"I think the best way to gather them is to hand-pick the pods. Then plow under the vines as soon as possible. When planted for the seed alone, the vines can be pulled and the peas threshed out, the same as beans.

"The varieties that have given me the best satisfaction so far are the Wonderful and the Clay.

"I would like to see all of our orchardists give the cow pea a fair trial. By so doing I believe they and their young orchards will be satisfactorily benefited."

The cow pea belongs to the great family of *leguminosae*, every member of which has the property of adding certain elements of fertility to the soil on which it is grown. The clovers belong

to this family. Judge Wellhouse, the great Kansas apple-grower, sows red clover in his orchards about the time they begin to bear. Alfalfa, another clover, has been recommended, but those of most experience with it have found it undesirable for the orchard, because that, while it actively supplies the nitrogenous elements of fertility to the soil, its demands for moisture, and possibly for other elements of fertility, are such that it robs the trees. Cow peas will doubtless supply nitrogen and it is not impossible that they may be excellent in every way as a crop for the orchard. They may, however, prove, like alfalfa, to be bad. It will be best to try them on a small area at first.

Cottonwood, the much-regarded black sheep in the forest family, is about to make a favorite of itself by proving that it is just the thing for making matches. The Pacific Match Co., of Tacoma, uses this wood and is turning out about the finest grade of parlor matches ever made. For this purpose it is necessary that the very straightest of straight-grained wood should be used, and the fact that cottonwood has little or no grain is a recommendation rather than a detriment. Apropos of this subject it is reported that the Pacific Match Co. has been bucking the big match combine in the East and playing havoc as an offset to the punishment which is being attempted on them because they would not enter the big Eastern trust.

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Carnahan's Tree Wash and Insect Destroyer

Destroys the bore worm and apple root louse, protects the plum from the sting of the curculio and the fruit trees from rabbits. It fertilizes all fruit trees and vines, greatly increasing the quality and quantity of the fruit. Agents wanted everywhere to sell the manufactured article. Address all orders to John Wiswell, Sole Mfr., Columbus, Kas., and Cleveland, Ohio.

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In the Dairy.

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

WHY WILL CREAM NOT CHURN?

T. C. Rogers, of the dairy school at the Ontario Agricultural college, tells why, thus:

"1. Ninety-five times out of 100 the temperature is too low. There is no temperature that will suit all kinds of cream, neither will all kinds of cream churn at the same temperature. In a dozen different dairies as many different temperatures may be required to churn the cream of each dairy in thirty to forty-five minutes when all other conditions are the same. We were compelled to churn at 47 to 50 degrees early last summer to get a good, firm body in our butter. But at the same time churning was done in many good dairies at 62 to 66 degrees, giving equally good butter and with as good texture as ours. These are extreme temperatures for the season, as the usual churning temperature is about 58 degrees in the summer months. I might say the only reason for our cream's churning at such low temperature is that we had a good number of cows added to the herd in the spring, their cream being much easier to churn than any we had ever churned before. Our churning temperature is about 60 degrees at time of writing, while some are forced to churn at 68 to 70 degrees; so that no one temperature will suit all kinds of cream. Our rule and guide to find the proper churning temperature is to note the time taken to churn. If it takes over forty-five minutes we churn at a higher temperature, and if less than thirty minutes we churn at a lower temperature.

"2. Churning in a cold room delays the butter. The churn could be warmed to overcome the low temperature of the room. The temperature of the room should be as warm as the cream.

"3. Filling a churn half full and over is a very bad practice, as the cream swells while churning, leaving no room for concussion. Take a portion of the cream from the churn when trouble like this is met.

"4. The per cent. of butter fat or skim-milk in the cream affects the time required to churn. Cream containing 25 to 30 per cent. butter fat will churn at a low temperature, but cream containing from 10 to 12 per cent. can hardly be churned at so low a temperature. There is no difficulty in churning cream containing 17 to 30 per cent. butter fat or cream that will yield a pound of butter fat from less than four and one-half pounds, if the temperature is right.

"5. The breed of cows will affect the time in churning, but the proper temperature will overcome the difficulty. Cream from Jersey and Guernsey cows is generally more difficult to churn than from some of the other breeds.

"6. The length of time cows are milking has very much to do with the trouble in some dairies. With the room as warm as the cream, the cream containing no less than 16 per cent. butter fat, and not to be churned at any temperature, then the cause can be traced to some one or more cows in the herd that have been milking a very long time. The cream from the suspected cows should be used for some other purpose or churned by itself until the cows causing the trouble are found out.

"7. Sometimes the butter comes in small granules, but will not gather. This is caused by too large a percentage of skimmed milk in the cream and churning at too low a temperature, or adding a quantity of very cold water too soon after the butter breaks. With a churning like this it would be better to draw off half of the buttermilk through a fine milk strainer to catch what butter may come out. Return this butter to the churn and continue churning until the butter is gathered. The temperature of the water added to the cream should not be less than 5 degrees colder than the cream, except in very warm weather.

"Adding hot water to cream when churning is the worst of all practices, as the color and body of the butter is destroyed. This is the chief cause of

the white, soft, spongy butter so common in all our markets.

"How to have trouble: (1) Run the dairy without a thermometer. (2) Have two or three times as much skimmed milk in the cream as there should be. (3) Churn without considering temperature. (4) Fill a cold churn half full and over. (5) Pour in an abundance of cold water at the first appearance of butter; then the patience of any good man or woman will be sorely tried to get the butter.

"How to avoid trouble: (1) Skim the milk carefully, having as little skim milk in the cream as possible. (2) Make intelligent use of a thermometer in tempering the cream for ripening and churning. (3) See that the cream is at the proper temperature before pouring into the churn. (4) Fill the churn only one-third full. (5) Speed the revolving or barrel churns seventy or eighty revolutions per minute. (6) When the butter is about half gathered add 10 to 25 per cent. of water about 5 degrees colder than the cream, but at a lower temperature in hot weather, or when the butter is coming too fast; then continue the churning until the granules are as large as wheat."

The Filled Cheese Bill Passed.

The filled cheese bill has passed the Senate and has at last become a law. This should be joyous news to the dairyman, for it not only means a greater demand for cheese in this country but will restore confidence and be the means of re-establishing our once great export trade in this commodity.

We have every facility in the United States for making as good cheese as Canada, and there is no reason why our product should not meet with the same favor as our northern neighbor's in foreign markets, if we will only pay the same attention, producing a first-class and honest grade, that there can be no doubt about when they appear on the markets abroad.

An Excellent Dairy.

George W. Whitney, of Williston, Vt., has an excellent dairy of twenty-two grade Jersey cows, that gave during 1895 over 154,000 pounds of milk, with an average test for the year of 4½ per cent. of butter fat. The milk is delivered at the Valley creamery at Hinesburg, besides supplying two families with all the milk they used through the year. The amount of his creamery checks was \$1,543, an average of \$70.13 per cow. His best cow gave in one year 13,147 pounds of milk, best single day 65 pounds, best three days 186 pounds. Mr. Whitney is a generous feeder; his cows have all the hay and grain they will eat, together with most of the skimmed milk from the separator.

A Great Butter State.

Iowa is well dotted with creameries, ninety-five counties out of the ninety-nine in the State operating these or cheese factories. According to the 1895 report of State Dairy Commissioner W. K. Boardman, of the 855 establishments reported, 64 were cheese factories, 20 made both butter and cheese and the remainder butter. Of the entire number, 282 were co-operative concerns, 132 owned by stock companies, 438 proprietary, and of 52 the organization was uncertain. Of the whole number, 456 paid for cream on the basis of butter fat tests. There are 80,000 creamery patrons in the State and 516 creameries averaging 854 cows each. The total output of the factories in 1895 is estimated at \$13,300,000, an average of \$15,555 per factory.

The Butter Drier.

A new invention now threatens to supplant the butter-worker—the butter drier, which rids the granules of water without rolling or bruising them. In a recent issue of a London paper, Prof. Sheldon goes on record quite stoutly against the practice of working butter, and commends warmly the work of the Bradford drier and molder. In the use of this invention the butter is churned as usual, washed in the granular state, and then "brined." After remaining in the brine half an hour the granular butter is ladled out

and put in muslin-lined tin molds of any desirable size—for pound, half pound, or other weight packages. The filled molds are then placed around the inner periphery of a wheel that is revolved at a high speed, and the centrifugal motion drives out the water in the form of spray and also packs the butter in the molds without injury to the grain, so that in two minutes' time the dried and molded butter is ready for the wrapper or package. The butter is perfectly granular and breaks freely on slight pressure, being somewhat crumbly and on that account possessing—so it is claimed—an aroma and flavor that cannot be retained under the crushing of the rollers of the butter-worker.

Dairy Notes.

Good Jersey cows will give rich, clean, healthy milk.

Just because a lot of poor cows do not show a profit is no reason why a lot of good cows will not pay.

Prof. Dean, of Ontario, is justified by many experiments he has made in saying that sweet cream butter will not keep like sour cream; will not, in fact, keep as long as it should for ordinary commercial purposes.

One of the leading points in keeping milk intended for the creamery in hot weather is to air and cool it before setting away at night. The night and morning milk should in no case be mixed till both are cold.

Beware of these patent churn fellows that guarantee the butter to come in ten or fifteen minutes in their special churn. Such a churn is not desirable. To make a choice article of butter the churning should be protracted at least thirty minutes. Those who make gilt-edge butter that sells the year round at fancy prices, usually churn so slowly and carefully that the butter rarely comes under forty to fifty minutes. If the butter does come in the churn in less than thirty minutes, it is at the expense of quality.

Nine-tenths of the cheese produced in this country is made in New York, Wisconsin, Ohio, Illinois, Vermont, Iowa, Pennsylvania and Michigan, ranking in the order named. The New York product alone is almost half the total, and this State and Wisconsin together make over two-thirds of all. The rate of consumption of cheese in America is about three pounds per capita per annum, according to Secretary Alvord, Chief of the United States Department of Agriculture.

Minnesota creameries turned off 27,000,000 pounds of butter in 1895, valued at \$5,400,000, and in addition the value placed upon farm dairy butter was another \$2,000,000. According to the report of the State Food and Dairy Commissioner, 30,000 Minnesota farmers are patrons of the creameries, and 306 separators are used. Within the last year, it is reported the proportion of creameries using the separator process has increased from 45 per cent. to 60 per cent. of the whole, and those operated on the co-operative plan from 42 to 60 per cent. Cheese factories decreased in number from 129 to 65.

The coming butter-maker is going to have charge of a large field. He will not only be a butter-maker, but he will be a teacher; his instructions will go out on the farm and he will be an instructor in the best methods of raising crops. He will post himself on culture of the fields and crops; the proper curing of fodder and forage. He will become an expert judge of the dairy products; he will study the best methods of breeding, rearing and managing dairy stock, and let me tell you that in that line there is a greater field for the progressive creamery man than there has ever been or ever will be simply within the creamery. When you can by



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proper selecting and feeding of dairy cows teach the farmer that he can produce one pound of butter on four cents' worth of feed, whereas, under ordinary methods it costs eight cents, you see what a wonderful opportunity for men and what is the actual condition of farmers.—T. L. Hoecker, Director Minnesota Experiment Station.

CATARRHAL WEAKNESS.

Some Facts That Every Woman Ought to Know.

Catarrh is a very frequent cause of that class of diseases popularly known as female weakness. Catarrh of the pelvic organs produces such a variety of disagreeable and irritating symptoms that many people—in fact the majority of people—have no idea that they are caused by catarrh. A great proportion of the women have some catarrhal weakness which has been called by the various doctors she has consulted as many different names. These women have been treated and have taken medicines with no relief, simply because the remedies are not adapted to catarrh. It is through a mistaken notion as to the real nature of the disease that these medicines have been recommended to them. If all the women who are suffering from any form of female weakness would write to Dr. Hartman, Columbus, Ohio, and give him a complete description of their symptoms and the peculiarities of their trouble, he will immediately reply with complete directions for treatment, free of charge.

A book on Female Diseases, written by Dr. Hartman, will be sent free to any woman who wants it.

Make Cheese at Home with such simple apparatus as every farmer now has. Send one dollar to C. B. KITTINGER, Powell, S. Dak., who will mail to you ten rennets, with such plain printed instructions as will enable you to make a perfect cheese the first time. Money refunded to all who fail.

Cabled Field and Hog Fence,
24 to 36 inches high; Steel Web Picket Lawn Fence; Poultry, Garden and Rabbit Fence; Steel Gates, Steel Posts and Steel Rails; Tree, Flower and Tomato Guards; Steel Wire Fence Board, etc. Catalogue free.
DEKALB FENCE CO., 23 High St., DeKalb, Ill.



TOUGH ON FLIES

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

BUTTER in 2 min. \$150 PER MONTH
The QUEEN BUTTER MAKER.
Sells at sight. Every woman wants one when she sees the butter come and gathered in two minutes. Every machine guaranteed or money refunded. Butter churned and gathered by the same machine; larger yield as all the butter is taken out. The Queen Butter Maker is the greatest invention of the age. We will send a trial machine to one family in your neighborhood; a good chance for agents to make big money; costs but little more than an ordinary churn. **The Queen Butter Maker Co.,** 25 E. 3rd St., Cincinnati, O.

Publishers' Paragraphs.

Send \$1.35 to KANSAS FARMER office for one years' subscription to KANSAS FARMER and Chicago Weekly Inter-Ocean.

On another page will be found a list of bargains which the Hapgood Plow Co., of Alton, Ill., are offering at reduced prices.

Mr. W. A. Gardner, of Olden, Mo., President of the South Central Missouri Fruit Growers' Association and owner and manager of one of the largest fruit farms in Missouri, writes the manufacturer of Carnahan Tree Wash and Insect Destroyer, under date of June 5, as follows: "Mr. John Wiswell, Columbus, Kas.—Dear Sir: Please send me another barrel of your tree wash. It is doing the business on the peach tree borer. It gives me pleasure to tell people to use it. Send as soon as possible. W. A. Gardner." All fruit-growers should give this a thorough trial.

Gossip About Stock.

Sunny Slope farm, Emporia, Kas., reports: "Crops good in our part of State—in fact, good all over. Cutting alfalfa second time. Corn never better; oats good; grass for hay and pastures good. Everything in growing condition. We sold to Winsor Bros., of Garden Plains, a fine eleven-months-old bull to assist his Beau Real bull, out of Bertha. Winsor Bros. buy nothing but best and secured one of our best bulls. They are breeding high grades for Western breeders."

There are hundreds of breeders of Berkshire swine that are fitting up show herds for the 1896 fairs. Some need a boar or a sow to complete their aged show herd. Some are already in correspondence for one or more pigs to make an invincible young herd for the coming fairs, and there is no reason why every ambitious Berkshire breeder who desires to make a successful campaign at the 1896 fairs should not have a first-class show herd, as four of the best breeders have completed arrangements to sell some very choicely bred show animals at public auction at Springfield, Ill., August 12, 1896. Hon. N. H. Gentry, of Sedalia, Mo.; Hon. A. J. Lovejoy, of Roscoe, Ill.; Messrs. M. K. Prine & Son, of Oska-loosa, Iowa, and Mr. W. E. Spicer, of Bushnell, Ill., will sell at the Illinois State fair grounds, on the above date, about fifty head of Berkshire boars and sows that for breeding and quality are equal to the best that can be found in England or America. This is the first opportunity that has ever been offered the public of buying at public auction the "tops" of the leading Berkshire herds of America. Application for catalogue should be sent to Frank S. Springer, box 1, Springfield, Ill.

Young men or old should not fail to read Thos. Slater's advertisement on page 15.

List of Kansas Fairs for 1896.

Following is a list of fairs to be held in Kansas during the present year, their dates, locations and Secretaries, as reported to the State Board of Agriculture and furnished by Secretary F. D. Coburn:

Allen County Agricultural Society—H. L. Henderson, Secretary, Iola; September 8-12.

Brown County Exposition Association—E. H. Hove, Secretary, Hiawatha; September 15-19.

Chase County Agricultural Association—H. F. Gillett, Secretary, Cottonwood Falls; September 15-18.

Coffey County Fair Association—J. E. Woodford, Secretary, Burlington; September 15-19.

Douglas County—Sibley Agricultural Association—Wm. Bowman, Secretary, Sibley; September 16-18.

Finney County Agricultural Society—D. A. Mims, Secretary, Garden City; October 6-9.

Franklin County Agricultural Society—Chas. H. Ridgway, Secretary, Ottawa; September 22-26.

Greeley County Horticultural and Fair Association—L. B. Newman, Secretary, Tribune; September 8-9.

Jackson County Agricultural and Fair Association—S. B. McGrew, Secretary, Holton; September 14-18.

Johnson County Co-operative Fair Association—C. M. Dickinson, Secretary, Edgerton; August 25-29.

Johnson County Fair Association—W. T. Pugh, Secretary, Olathe; August 25-28.

Linn County Fair Association—Ed. R. Smith, Secretary, Mound City; October 6-10.

Miami County Agricultural and Mechanical Association—Geo. P. Leavitt, Secretary, Paola; September 29-October 3.

Montgomery County—Southeast Kansas District Fair Association—D. W. Kingsley, Secretary, Independence; October 13-16.

Morris County Exposition Company—E. J. Dill, Secretary, Council Grove; September 22-26.

Nemaha Fair Association—John Stowell, Secretary, Seneca; September 8-11.

Neosho County Agricultural Society—H. Lodge, Secretary, Erie; September 8-11.

Neosho County—The Chanute Agricultural, Fair, Park and Driving Association—R. C. Rawlings, Secretary, Chanute; September 1-5.

Ness County Fair Association—Sam G. Sheaffer, Secretary, Ness City; September 17-19.

Osage County Fair Association—G. W. Doty, Secretary, Burlingame; September 1-4.

Osborne County Fair Association—F. P. Wells, Secretary, Osborne; September 15-18.

Riley County Agricultural Society—R. C. Chappell, Secretary, Riley; September 15-18.

Rooks County Fair Association—David B. Smyth, Secretary, Stockton; September 8-11.

Saline County Agricultural, Horticultural and Mechanical Association—H. B. Wallace, Secretary, Salina; October 7, 8, 9.

Sedgwick County—Kansas "State Fair"—C. S. Smith, Secretary, Wichita; September 22-26.

Wilson County—Fredonia Agricultural Association—J. H. Edwards, Secretary, Fredonia; August 25-28.

THE STRAY LIST.

HOW TO POST A STRAY.

THE FEES, FINES AND PENALTIES FOR NOT POSTING.

BY AN ACT of the Legislature, approved February 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 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 50 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 to \$50 is affixed to any failure of a Justice of the Peace, County Clerk, or proprietors of FARMER for a violation of this law.

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

Unbroken animals can only be taken up between the first day of November and the first 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 up, 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 an estray, must immediately advertise the same by posting three written notices in as many places in the township, giving a correct description of each stray, and he must at the same time deliver a copy of said notice to the County Clerk of his county, who shall post the same on a bill-board in his office thirty days.

If such stray is not proven up at the expiration of 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 \$10, 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 appraisers, 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 \$20.

FOR WEEK ENDING JUNE 25, 1896.

Crawford county—John Ecker, clerk.

HORSE—Taken up by Thos. Walsh, in Grant tp., (P. O. Braden), April 30, 1896, one bay horse, 12 years old, white hind feet and white face, branded C. on left shoulder and O. on right hip, had on halter; valued at \$10.

HORSE—By same, one roan horse, 8 years old, white face, spavin on left hind leg, had on halter; valued at \$10.

Hodgeman county—S. S. Kiehl, clerk.

HORSE—Taken up by Nelson Dean, in Center tp., (P. O. Jetmore), May 13, 1896, one bay horse, fourteen hands high, weight 1,000 pounds, right hind foot and left fore foot white, blaze face; valued at \$10.

Labette county—J. F. Thompson, clerk.

MARE—Taken up by G. W. Hart, in Canada tp., May 29, 1896, one roan mare, 5 years old, branded E on right shoulder, had on raw-hide halter; valued at \$15.

Cherokee county—T. W. Thomason, clerk.

STEER—Taken up by T. M. Gilmore, in Junction tp., (P. O. Overbrook), April 30, 1896, one red and white two-year-old steer, no marks or brands.

Osage county—E. C. Murphy, clerk.

MARE—Taken up by S. E. Harrold, in Salamanca tp., May 1, 1896, one dark bay mare, star in forehead, right hind foot and right front foot white, about 12 years old; valued at \$5.

FOR WEEK ENDING JULY 2, 1896

Riley county—James R. Young, clerk.

COW—Taken up by F. H. Dale, of Manhattan city, June 6, 1896, one small red cow, 3 years old, some white on hips and belly; valued at \$15.

Shawnee county—Chas. T. McCabe, clerk.

CALVES—Taken up by W. G. Kinnard, in Menoken tp., (P. O. Elmont), two red steer calves with some white spots, branded T on right hip; one red and white spotted steer calf with red neck, branded T on right hip; one black steer calf, branded T on right hip; one black heifer calf with white spots, branded T on right hip; all are supposed to be from three to nine months old; valued at \$35.

Crawford county—John Ecker, clerk.

MARE—Taken up by W. D. Nance, in Lincoln tp., (P. O. Englevalle, care J. A. Cunningham), June 2, 1896, one dark bay mare, 9 years old, small scar on left hip.

HORSE—By same, one dark iron-gray horse, 4 years old, small white spot on forehead.

FOR WEEK ENDING JULY 9, 1896.

Anderson county—C. C. Young, clerk.

HORSE—Taken up by P. F. Triplett, in Reeder tp., June 15, 1896, one sorrel horse, 4 or 5 years old, two hind feet white; valued at \$15.

MARE—By same, one brown mare, 5 or 6 years old, scar across breast; valued at \$15.

THREE CATTLE—Taken up by Sol Kelley, in Washington tp., two red steers and one red and white heifer, aged 5 months, end of ears cut off and slit and switch of tail cut off; value of steers \$6 each and heifer \$3.

Osage county—E. C. Murphy, clerk.

HORSE—Taken up by A. L. Brady, of Quenemo, May 9, 1896, one gray horse, five feet nine inches high, had leather halter on when taken up; valued at \$20.

Get up a club for KANSAS FARMER.

Free to Every Subscriber.....

That grand semi-monthly, 20-page ladies' journal, LADIES HOME COMPANION, whose subscribers now number nearly 200,000, and this number is increasing rapidly. If you have seen some of the recent issues of this beautiful journal, and noted the many and decided improvements that have been made, you will not be at all surprised at this rapid growth.

WOMAN IS QUEEN,
and Home is Her Realm.



We have at last succeeded in completing arrangements whereby we are enabled to present our readers with this charming periodical free of all cost.

Who Has Not Heard of the

....Ladies Home Companion?

Hundreds of thousands are familiar with this magnificent publication, and its beautiful colored covers, containing a new and attractive design for each issue. Issued twice a month; its twenty or more pages are filled with illustrations, stories, sketches, poems and practical suggestions of the most absorbing interest to every member of the household.

The various departments, each under the direct supervision of writers especially adapted to them, are as follows:

Housekeeping This department is full of valuable suggestions on domestic economy and preparation of the daily meals.

Fancy Work The numerous illustrations and practical instructions of this department will delight all lovers of this dainty art.

Decorations, Etc. This department is invaluable to those wishing to furnish apartments according to modern tasty ideas.

In addition to the above there is "Children's Corner," "Mothers' Chat," "Knotty Points," "Knick-Knacks," and "Miscellaneous."

OUR OFFER! In order to secure this Magazine free, send us two subscriptions for KANSAS FARMER and \$2, and we will order Ladies' Home Companion sent to your address one year, free to you. Or, send us your own subscription and \$1.35, and it will pay for KANSAS FARMER and Ladies' Home Companion one year. Add 10c. if "Modern Cook Book" is desired.

Address

KANSAS FARMER CO., Topeka, Kas.

TAKE THEM BOTH!

Perhaps you will prosper better and be happier and more thoroughly informed when you take both the KANSAS FARMER and the

Semi-Weekly Capital

When you can get both for little more than the price of one. The Semi-Weekly Capital is issued twice each week. Tuesday and Friday—eight pages, fifty-six columns of choice reading matter every issue. It contains the full report of the Associated Press and the full run of Kansas news, all while it is fresh and interesting, besides a large amount of bright, spicy and interesting miscellaneous reading matter. The KANSAS FARMER CO. has made arrangements with the publishers whereby it can offer The Semi-Weekly Capital and KANSAS FARMER for the very low price of \$1.50, or with Almanac and Kansas Year Book, \$1.65. Address KANSAS FARMER CO., Topeka, Kas.

The Veterinarian.

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

CALLOUSED SHOULDERS.—I have a mare that had sore shoulders three years ago; they healed up but left a knot on each shoulder. Last year they got sore again and the sores are about three inches in diameter and raised an inch. There is a raw spot on each one about the size of a silver quarter. Last winter I blistered them till they healed and now I am using a solution of sulphate of zinc and sugar of lead.

Alta Vista, Kas. F. A. D.

Answer.—If the shoulders continue to get sore, the best remedy will be to split the skin and remove all the caloused part with a sharp knife, then heal as any other wound.

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

Kalamazoo, Mich., is famous for celery—also as the home of Thos. Slater, whose advertisement appears on page 15.

Jack Needs a Vacation.

All work makes Jack a dull boy. He should leave the office a while this summer, take Jill along, and go to Colorado.

An illustrated book describing summer tourist resorts in the Rocky mountains of Colorado, will be mailed free on application to G. T. Nicholson, G. P. A., A. T. & S. F. railroad, Chicago.

Tourist tickets now on sale at reduced rates to Pueblo, Colorado Springs, Manitou and Denver, over the picturesque line, Santa Fe Route.

Low Excursion Rates to the East, via "Burlington Route."

HALF RATES.

Baptist Young People's Union of America, Milwaukee, July 16 to 19.

National Republican League, Milwaukee, August 25 to 27.

Ask ticket agent for tickets via Vestibuled "Elit" to Chicago, and via Vestibuled Limited to St. Louis.

Both trains supplied with the most modern equipment.

L. W. WAKELEY, Gen'l. Pass. Ag't., St. Louis, Mo.

No Room for Doubt.

When the facts are before you, you must be convinced.

The facts are that the UNION PACIFIC is leading all competitors, is the acknowledged dining car route, and great through car line of the West.

The line via Denver and Kansas City to Chicago in connection with the Chicago & Alton railroad, with its excellent equipment of Free Reclining Chair Cars, Pullman Palace Sleepers and Pullman Dining, demands the attention of every traveler to the East.

Ask your nearest agent for tickets via this route.

E. L. LOMAX, Gen. Pass. and Ticket Agent.

A Look Through South Missouri for Four Cents.

The Kansas City, Fort Scott & Memphis Railroad Company has just issued a magnificent book of sixty or more photo-engraved views of varied scenery in south Missouri. From these views an accurate knowledge can be obtained as to the productions and general topography of that highly-favored section that is now attracting the attention of home-seekers and investors the country over.

The title of the book is "Snap Shots in South Missouri." It will be mailed upon receipt of postage, 4 cents. Address

J. E. LOCKWOOD, Kansas City, Mo.

Ho! for Cripple Creek.

Remember that the Chicago, Rock Island & Pacific is the only line running directly from the East to Colorado Springs, the natural gateway to the Cripple Creek District. Colorado Springs lies at the foot of Pike's Peak at its eastern base, and Cripple Creek is part way down the southwest slope of Pike's Peak and near its western base.

Two all rail routes from Colorado Springs are offered you. One by the Midland railway up Ute Pass, via Summit, to Cripple Creek. Another over the Denver & Rio Grande, via Pueblo and Florence, to Cripple Creek. Take the great Rock Island Route to this wonderful gold mining camp. Maps, folders and rates on application. Address

JNO. SEBASTIAN, Gen'l. Pass. Ag't., Chicago.

MARKET REPORTS.

Kansas City Live Stock.
KANSAS CITY, July 6.—Receipts since Friday, 6,801; calves, 542; shipped since Friday, 1,004 cattle, 15 calves. The market was steady on desirable weights on the native side and weak to 10c lower on the extremely heavy cattle. Texans are generally steady. The following are representative sales:

SHIPPING AND DRESSED BEEF STEERS.			
No.	Ave. Price.	No.	Ave. Price.
88.....	1,475 \$4.35	140.....	1,458 \$4.25
43.....	1,145 4.05	19.....	1,045 4.00
14.....	1,080 3.95	40.....	1,143 3.75
1.....	1,320 3.25	1.....	1,000 3.00

TEXAS AND INDIAN STEERS.			
No.	Ave. Price.	No.	Ave. Price.
79.....	1,069 \$3.20	41.....	1,039 \$3.10
25.....	984 3.00	97.....	941 2.85
27.....	860 2.65	36.....	811 2.60
1.....	760 2.35	37.....	928 2.30

COWS AND HEIFERS.			
No.	Ave. Price.	No.	Ave. Price.
1.....	1,070 \$3.25	25.....	1,080 \$2.95
1.....	1,130 2.60	3.....	840 2.50
1.....	1,080 2.25	1.....	890 2.20
6.....	883 1.85	1.....	1,220 1.75

STOCKERS AND FEEDERS.			
No.	Ave. Price.	No.	Ave. Price.
47.....	1,115 \$3.55	50.....	1,085 \$3.42½
7.....	705 3.50	2.....	510 3.45
31.....	799 3.15	1.....	920 3.00
2.....	640 2.65	1.....	630 2.00

Hogs—Receipts since Friday, 3,015; shipped since Friday, 2,220. The market opened a higher, and closed with most of the advance lost. Following are representative sales:

Following are representative sales:			
20.....	152 \$3.35	68.....	191 \$3.30
72.....	165 3.30	89.....	184 3.30
17.....	171 3.27½	93.....	24 3.25
67.....	185 3.25	81.....	142 3.25
45.....	198 3.22½	47.....	152 3.22½
65.....	197 3.22½	21.....	173 3.20
9.....	205 3.20	71.....	217 3.20
48.....	181 3.20	59.....	191 3.20
73.....	217 3.20	3.....	193 3.20
73.....	223 3.15	16.....	230 3.15
61.....	263 3.12½	30.....	287 3.12½
54.....	280 3.12½	74.....	233 3.12½
13.....	299 3.10	41.....	193 3.10
12.....	233 3.07½	27.....	326 3.05
4.....	305 3.00	1.....	380 3.00
1.....	350 3.00	3.....	335 3.00
2.....	445 2.85	1.....	340 2.85
1.....	470 2.75	1.....	420 2.75

Sheep—Receipts since Friday, 2,240; shipped Friday, 1,180. The market was generally 10c higher. Following are representative sales:

81 lambs.....	71 \$5.25	14 spg lbs.....	70 \$3.10
8 lambs.....	58 4.50	1 lambs.....	32 4.00

Chicago Live Stock.

CHICAGO, July 6.—Cattle—Receipts, 16,000; market steady to 10c lower; Texans 10c to 25c lower; first western ranges of the season, steers, \$3.60; heifers, \$3.25; fair to best beefs, \$4.00 to 4.50; stockers and feeders, \$2.50 to 3.75; mixed cows and bulls, \$1.00 to 3.50; Texas, \$2.50 to 3.35.

Hogs—Receipts, 26,000; market opened strong to 5c higher; closed weak with advance lost; light, \$3.30 to 3.60; rough packing, \$2.80 to 3.00; mixed and butchers, \$3.15 to 3.50; heavy packing and shipping, \$3.05 to 3.40; pigs, \$2.75 to 3.55.

Sheep—Receipts, 14,000; market strong; native, \$2.00 to 4.00; Texas, \$2.50 to 3.75; western \$3.00 to 3.50; lambs, \$2.75 to 6.25.

St. Louis Live Stock.

ST. LOUIS, July 6.—Cattle—Receipts, 4,000; native weaker, \$3.40 to 4.40; Texas 10 to 1 c lower, \$2.60 to 3.60.

Hogs—Receipts, 4,000; market 5c higher; light, \$3.30 to 3.55; mixed, \$3.10 to 3.40; heavy, \$3.20 to 3.50.

Sheep—Receipts, 1,500; market steady.

Chicago Grain and Provisions.

	July 6.	Opened	High'st	Low'st	Closing
Wht.—July...	54½	54½	54½	54½	54½
Sept....	55½	55½	55½	55½	55½
Dec....	58	58	58	58	58
Corn—July...	26½	26½	26½	26½	26½
Sept....	27	27	27	27	27
May....	29½	29½	29½	29½	29½
Oats—July...	15½	15½	15½	15½	15½
Sept....	15½	15½	15½	15½	15½
May....	17½	17½	17½	17½	17½
Pork—July...	6 65	6 67½	6 65	6 67½	6 67½
Sept....	6 87½	6 90	6 70	6 87½	6 87½
Oct....	6 80	6 85	6 70	6 80	6 80
Lard—July...	3 75	3 75	3 75	3 75	3 75
Sept....	3 90	3 92½	3 85	3 90	3 90
Oct....	3 92½	3 92½	3 90	3 90	3 90
Ribs—July...	3 57½	3 60	3 57½	3 60	3 60
Sept....	3 72½	3 75	3 67½	3 72½	3 72½
Oct....	3 80	3 80	3 75	3 80	3 80

Kansas City Grain.

KANSAS CITY, July 6.—Wheat met with little demand here and low grades were somewhat lower. Nearly all the receipts were new wheat. The old sold at some premium. Buyers showed a disposition to buy on the basis of Mississippi river. There was no new hard wheat on sale.

Receipts of wheat here to-day, 28 cars; a year ago, 12 cars.

Sales were as follows on track: Hard, No. 2, nominally 47c, 2 cars choice old 50c; No. 3, 1 car 44c, 1 car 42c; No. 4, nominally 35c to 40c; rejected, 1 car 32c, 1 car 30c. Soft, No. 2 red, 1 car new 50c; No. 3 red, 4 cars 47c, 1 car 45c; No. 4 red, 2 cars 40c; rejected, 2 cars 40c. Spring, worth about the hard wheat price.

The corn market was very weak. A good many samples were on the floor, offering at 21c, but only a few cars sold. Low grades were lower and hard to sell. White corn was firm. For July mixed only 20c was bid.

Receipts of corn here to-day, 56 cars; a year ago, 11 cars.

Sales by sample on track: No. 2 mixed, 6 cars 21c; No. 3 mixed, 2 cars 20c; No. 4 mixed, nominally 18c to 19c; no grade, nominally 16c; No. 2 white, 7 cars 22½c; No. 3, nominally 21½c; No. 4, nominally 20½c.

Oats were somewhat lower. Offerings were very large.

Receipts of oats to-day, 37 cars; a year ago, 6 cars.

Sales by sample on track: No. 2 mixed, 1 car 15½c, 5 cars 15½c, 1 car 14½c; No. 3, 1 car 14c; No. 4, 1 car 12c; no grade, nominally 11c; No. 3 white, 1 car 17½c, 8 cars 17c; No. 3 white, 2 cars 16½c, 3 cars 16½c, 5 cars 16½c.

Hay—Receipts, 80 cars; receipts were large and the market very weak. Choice new timothy, \$8.00 to 8.50; old, \$9.50 to 10.00; No. 1 new timothy, \$7.00 to 7.50; No. 2 new timothy, \$5.00 to 6.00; No. 3 new timothy, \$4.00 to 4.50; choice prairie, new, \$3.00 to 3.50; No. 1 new, \$4.00 to 4.50; No. 2, new, \$3.00 to 3.50.

AFTER THIRTY YEARS

Continuous experience in the Wool Business we should be in a position to serve your interests in the most acceptable manner. We sell direct to the manufacturer, and charge as small a commission as is consistent with good business principles. We make liberal advances on consignments when desired. We furnish free use of sacks to all our shippers. We keep you informed at all times as to the latest and best points on the wool situation, prices, etc. As to our responsibility, we refer you to any reputable business house or the Chicago banks. Can't we correspond with you?

SILBERMAN BROTHERS,

122-128 Michigan St., CHICAGO, ILL.

St. Louis Grain.
ST. LOUIS, July 6.—Receipts wheat, 111,116 bu.; last year, 94,000 bu.; corn, 38,000 bu. last year, 45,350 bu.; oats, 131,000 bu.; last year, 40,000 bu.; shipments wheat, 158,900 bu.; corn, 8,280 bu.; oats, 18,900 bu. Closing prices: Wheat—Cash, 52½c; July, 52½c; August, 52½c; September, 53½c bid. Corn—Cash, 24½c; July, 24½c; September, 25½c. Oats—Cash, 15½c; July, 15½c; September, 15½c.

Kansas City Produce.
KANSAS CITY, July 6.—Butter—Creamery, extra fancy separator, 13c; firsts, 12c; dairy, fancy, 12c; fair, 10c; store packed, fresh, 7½c; packing stock, 7c.

Eggs—Strictly candled stock, 6½c per doz.; southern, 5c.

Poultry—Hens, 5½c; roosters, 15c each; springs, 9c per lb.; turkeys, hens, 6c; gobblers, 5c; old, 4½c; spring ducks, 10c; old, 7c; spring geese, 9c; pigeons, \$1.00 per doz.

Berries—Blackberries, shipped, 50¢ per cask; home grown, 50¢ per cask. Raspberries, red stock, \$2.50 to 3.00 per cask. Gooseberries, Michigan, \$1.50 per 16-quart crate. Currants, Michigan stock, \$1.75 per 16-quart crate; \$2.50 to 2.75 per 24-quart crates.

Potatoes—Home grown, plentiful, 12½c to 15c per bushel. The home potatoes are supplying the market and foreign stock is practically out of the market. Sweet potatoes, 50¢ to 75c in a small way.

Tomatoes—Home grown, 75¢ to 85c per peck for fancy; culls and inferior stock, 50¢ to 60c; Arkansas, Texas and Mississippi, 4-basket crate, 75¢ to 85c for choice stock; seconds, 50¢ to 75c.

Homes for the Homeless.

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

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

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"The Land of Big Red Apples," is an attractive and interesting book, handsomely illustrated with views of South Missouri scenery, including the famous Olden fruit farm of 3,000 acres in Howell county. It pertains to fruit-raising in that great fruit belt of America, the southern slope of the Ozarks, and will prove of great value, not only to fruit-growers but to every farmer and home-seeker looking for a farm and a home. Mailed free. Address, J. E. LOCKWOOD, Kansas City, Mo.

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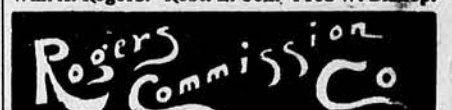
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The Poultry Yard

A WORD ABOUT ROOSTS.

Some Think They Should Be Round, Others Favor the Half-Round.

Roosts in shape should be round or half round. It is a question which of these two forms is best. We have always supposed that the all-round roost was the kind meant by nature, as the feet of all roosting birds are so constructed that they naturally grasp a round object. An Australian poultry keeper, however, believes that a roost flattened on the under side is preferred by the birds. He put both kinds in his hen house and the fowls left the round ones for the ones that had been partly flattened. He believes that the toes of the birds can grasp the latter kind of roost much better than the all-round ones.

As to the size of roosts, that must depend somewhat on the age and size of the bird. Most of our poultry houses have roosts of one size, and the fowls are expected to like them, whether they fit or not. A chick that weighs one pound must certainly find some discomfort in clinging to a roost made for a rooster weighing eight pounds. The roosts of our poultry dealers vary in diameter all the way from one to three inches. What is the best size? Probably it would be better to have different sized roosts in every pen and let the birds choose for themselves.—Farmers' Review.

COOP FOR CHICKENS.

Half of a Sugar Barrel Is All That Is Needed to Make One.

A half of a sugar barrel, or two-thirds of an ordinary flour barrel, cut in the manner shown in the cut, makes an excellent chicken coop. One end is left in and nailed tightly to the staves before sawing. A narrow strip is nailed to the other end to hold the staves and hoops in place, and to receive the lower



ends of the slats. The board in front can be hinged to this strip if desired. If one or two hoops on either side be left two or three inches long, the ends can be sharpened and forced into the ground when placing the coop in position. This will prevent animals or the wind overturning it. The coop has no bottom and can be moved to a new bit of greensward every day or two. To keep the whole coop from spreading, pass wires around the whole, along the center of the middle two hoops, then underneath to the other side, twisting the ends of the wires when they are brought together.—N. Y. Tribune.

Eggs Indicate a Hen's Condition.

A hen will lay the largest egg and the most in number, when she is in perfect health and not over-fat. There is no one grain that we can feed to hens with which we can force them without getting them too fat; that is my only reason for giving more than one kind of grain. I wish more muscle-makers and less fat. The size of the eggs will make no difference in the number laid; in fact, from my experience, it is the reverse. A hen that lays large eggs shows that she is in better condition, but it is more likely to cause diseased oviduct than smaller eggs.—James H. Seely, in Rural New Yorker.

Sunflower Seed for Poultry.

There is not much of a boom at present for growing sunflowers, but the time will come when they will be largely grown here, as they are in Russia, to press into oil. Even now a few should be planted every year to grow for poultry during winter. They are excellent for moulting fowls, because of the oil they contain, but when fowls are not moulting the sunflower seed should be fed sparingly, so as not to fatten them. They are better feed for laying fowls than is corn.—Rural World.

Profit Depends on Management.
Profit in fowls depends on management. Few realize how much profit may be made from a small flock of hens. One farmer's wife began last year with 50 hens and ended with 73. The account of expenses and receipts foots up a profit of \$56.73, and the eggs sold for one cent each, and the chickens disposed of brought only five cents a pound. This little flock is, then, clearly worth as a money breeder the sum of a clear \$1,000 for it brought in the interest on that sum at 5% per cent.

LOCATING AN APIARY.

Colonies Should Not Be Placed Too Near a Highway or Street.

The person who wishes to make beekeeping a sole means of procuring a living will do well to study well the honey resources of a locality before locating an apiary. Too many colonies must not be kept in the immediate vicinity, as there is danger of overstocking, and if a location can be found where there will be a succession of bloom from early spring until late in the fall, success, with the right management, will be assured. But if the design is to combine beekeeping with some other pursuit, or branch of farming, it matters but little where the apiary is located, as in almost any location a few colonies of bees can be kept with both pleasure and profit, especially so when it is remembered that bees often go miles to gather honey. So I would advise that no person who has a desire to have the most healthful of sweets to use in the family be deterred from keeping bees on account of what, to them, may appear to be an unsuitable location.

Of course, any farm, no matter how small, has plenty of room for a few colonies of bees. But many readers are engaged in mechanical and other pursuits and are living in towns. It may be well to assure them that they can, right where they are, keep a colony or a few colonies of bees, and, besides the pleasure in caring for them, they can secure for themselves honey to use, and perhaps some to spare. This, of course, if bees are properly managed.

Even in our largest cities bees are kept with profit. C. F. Muth, of Cincinnati, O., has for many years kept bees on the roof of his store building with profit. Thomas G. Newman, of Chicago, Ill., has for years successfully kept his bees near one of the main thoroughfares of the city where street cars pass every few minutes. Other instances of keeping bees in cities could be cited both in New York and Philadelphia. In one of the larger towns in this county a person has been keeping from 50 to 100 colonies of bees on a small lot, and without gaining the ill will of his neighbors.

The ideal location would be one with woods on the west and north for protection of the apiary from the cold wintry winds, especially if said woods contained maple, basswood and chestnut timber. Such a location would furnish honey and pollen in abundance. A gradual slope of the land to the south southeast or east would also be desirable.

Where only a few bees are kept they should be located near the house where the boys and girls could see when a swarm issues. If an orchard is near the apiary it would be a great help, as the nearer they are to the field the better.

Apple bloom and good weather will help toward building up colonies for the white clover crop. It is often the case that persons fail in getting a yield of white clover honey because of weak colonies. Without a hive overflowing with bees a large yield of honey need never be expected.

It might be well to not place colonies too near the highway or street, unless there is a high fence or hedge which would cause the bees to rise in their flight to and fro, and so fly over the persons passing.—George Spitler, in Ohio Farmer.

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HOOD'S PILLS cure nausea, sick headache, indigestion, biliousness. All druggists. 25c.

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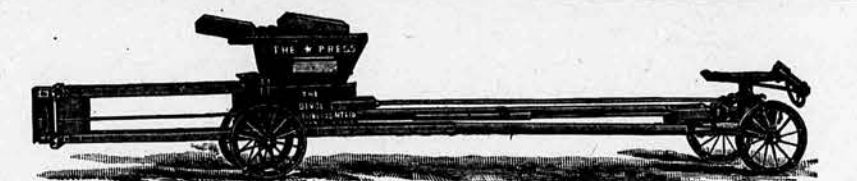
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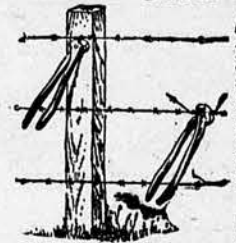
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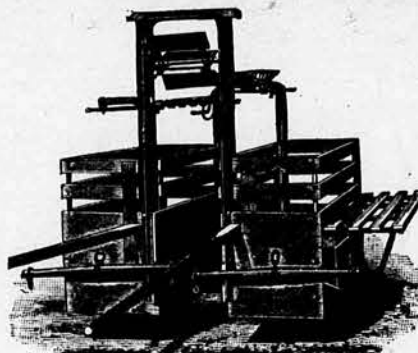


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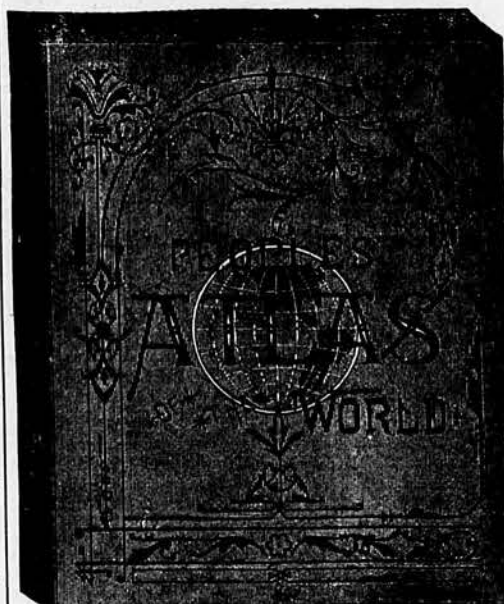
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SHORT-HORN BULLS FOR SALE.—Cruckshanks and Bates breeding. Sired by Valley Champion 110477. Address C. Chambers, Mont Ida, Anderson Co., Kas.

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The undersigned, having used Bannerman's Phenyle, writes to us as follows: "I have used it on my hogs that had lice on them. In forty-eight hours after applying it I could not find a live louse on them, but plenty of dead ones. It worked equally as well in the hen-house, and no bad odor is left about the pens." E. J. SCHOFIELD, Breeder Poland-Chinas and fancy poultry, Hanover, Wisconsin.

"I bought 100 pounds of your Phenyle for sheep ticks, and used it during the fall and winter on my sheep and find it is a first-class article for killing the ticks, and as a disinfectant it cannot be beat. I also used it in my poultry-house, and it will knock lice every time." W. N. SMITH, Ohio, Illinois.

For prices and other information, address
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DISEASES OF YOUNG AND OLD MEN.—Private and skin diseases a specialty. Wm. H. Righter, P. O. M. D., 338 Kansas Ave., Topeka, Kas. Correspondence solicited.

EGGS FOR HATCHING.—See advertisement elsewhere. Belmont Stock Farm.

WANTED.—Readers of the KANSAS FARMER to try our "Special Want Column." It is full of bargains and does the business. For less than one dollar, 2-cent postage stamps are acceptable.

LADIES To sell toilet soaps, etc. Outfit free. Send two references from business men. The Minto Soap Co., Cincinnati, Ohio.

FOR SALE!

Dairy of thirty choice cows, with well established route in city, fine farm, with large apiary and stock of pure-bred poultry. Horses, hogs, etc., if desired.

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The Kansas City Stock Yards

are the most complete and commodious in the West, and second largest in the world! The entire railroad system of the West and Southwest centering at Kansas City has direct rail connection with these yards, with ample facilities for receiving and reshipping stock.

	Cattle and calves.	Hogs.	Sheep.	Horses and mules.	Cars.
Official Receipts for 1895.....	1,689,652	2,457,697	864,713	52,607	103,368
Slaughtered in Kansas City.....	922,167	2,170,827	567,016		
Sold to feeders.....	392,332	1,376	111,445		
Sold to shippers.....	218,805	273,999	69,784		
Total Sold in Kansas City, 1895.....	1,533,334	2,446,202	748,244	41,588	

CHARGES: YARDAGE, Cattle, 25 cents per head; Hogs, 8 cents per head; Sheep, 5 cents per head. HAY, \$1 per 100 lbs.; BRAN, \$1 per 100 lbs.; CORN, \$1 per bushel.

NO YARDAGE CHARGED UNLESS THE STOCK IS SOLD OR WEIGHED.

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WILD TOM 51592.

Sweepstakes bull Wild Tom 51592. Weight when thirty-four months old 2,205 pounds in show condition. He is the best living son of Beau Real 11055. Dam Wild Mary 21289. Warnings:—Iowa State Fair, 1895, first in class, first in special, first in sweepstakes, and Silver Medal; Kansas State Fair, first in class, first and special at head of herd, first bull and four of his get.

FARM—Two and a half miles northwest of city. We furnish transportation to and from the farm if notified.

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Sunny Slope Farm is one of the largest breeding establishments in the United States. Three sweepstakes bulls in service—Wild Tom 51592, Climax 60942, Archibald VI. 60921, also the great breeding bull, Archibald V. 54433, who was the sire of two sweepstakes animals (Archibald VI., sweepstakes under one year of age, and Miss Wellington 5th, sweepstakes heifer over all beef breeds when twelve months and twenty days old. We have thirteen serviceable bulls for sale, ranging from eight to twenty months old. We also have forty bulls for sale, ranging from five to eight months old. Also a choice lot of heifers and cows. We combine the blood of Anxiety, Lord Wilton and Grove 3d. Breeders are invited to inspect our herd.

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Italian Bees



Full colonies of Italian Bees shipped to any point, and at any time during the summer. Safe arrival guaranteed. Bee-Hives of the latest pattern. Smokers, Extractors, Comb Foundation, Books on Bee Culture, and everything pertaining to bee industry. Circular free.

Address **A. H. DUFF & SON, Larned, Kas.**

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