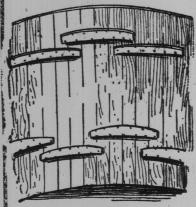
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SILO BUILDING.

Useful Points From Experience at the Cornell Station.

The stave silo has leaped into such sudden popularity as to indicate that it justifies the claim that it keeps the ensilage perfectly and is easily and cheaply constructed. The great objection to silos has been their cost and the fact that much of the ensilage was liable to mold. The stave silo is designed to overcome both these defects. Cor-

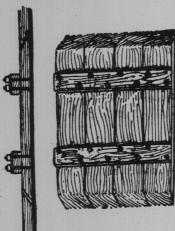


BARREL STAVES USED AS STAYS. nell station has lately issued a bulletin, No. 167, in which Professor Clinton gives a full and detailed description with many illustrations of the manner

of building a stave silo. Among points of interest is the use of old barrel staves to aid in maintaining a circular outline when setting up the staves of the silo. These are removed before the silo is filled. For a silo 16 feet in diameter flour barrel staves have the right curve. For a 12 foot silo the sugar barrel stave is well adapted, while cement barrels give good staves for a 20 foot silo.

Two men work, one at the top and the other at the bottom, to set up the staves of the silo rapidly. As soon as a stave is set in position it is toenailed at the top to the one previously set. One barrel stave reaches across several of the sile staves, to each of which it should be nailed with a shingle nail. One row of barrel staves is nailed near the top and another near the bottom of the silo. Southern cypress is called the best material for a stave silo. Sound hemlock, free from knots, is the cheapest satisfactory material. For a silo 12 feet or less in diameter staves should be 2 by 4 unbeveled, not tongued nor grooved, or 2 by 6 slightly beveled to conform to the circular shape of the silo. Where the diameter of the silo is more than 12 feet, 2 by 6 staves are recommended, neither beveled, tongued nor grooved, but surfaced on the inside, and hemlock should be planed on both sides.

The form of door recommended is shown in the second cut, together with a side view of a stave with saw cuts for door and cleats bolted on the outside. The doors may be sawed out wherever convenience suggests, but the lower door should be made between the second and third hoops from the bottom and the other doors in every second space between hoops, except that no door is needed at the top. The staves are sawed on a bevel, with the larger opening on the inside of the silo. The doors are planned for and the sawing started (to save boring auger holes) when the staves are set up. The door is usually 2 by 21/2 feet. Cleats of 2 by 3 inch stuff are sawed out with proper curve to fit and are bolted on the outside of the silo at the



GOOD FORM OF DOOR. top and bottom of the part which is to he the door, after which the door is cut. To prevent any entrance of air tarred paper is placed at the top and bottom of the door before the silo is

iron or steel rods usually serve as hoops. These are in three sections for pounds to the acre is not too much, and a 12 foot diameter silo and four sections for 16 foot or more. The hoops may pass through 6 by 6 uprights and fastened with nuts and washers. Hoops are drawn fairly tight, but not who adds: Where clover sown last entirely so, and staples driven over them to prevent them from sagging when the silo is empty. After the silo is filled if the swelling of the wood (from moisture absorbed) causes too great strain on the hoops they can be logsened as may be necessary.

Hard Macaroni Wheat It is reported that the work of the department of agriculture last year in bringing new species of grain to this country from Russia and Siberia is to be followed this season with observations of cereals in the west. A special agent will investigate with a view to introducing and establishing In New Mexico and Arisona hard wheats suitable for the manufacture of macaroni equal to the genuine Ital-

SUGAR BEET CULTURE. HII Early and Often to Keep Ahead

of the Weeds-When to Thin. The Cornell agricultural station has issued some observations and conclusions in regard to the sugar beet, based upon field work during 1898, the data being, much of it, the reports of farmers to whom seed had been sent for the purpose of carrying on this work. One point clearly brought out, according to the report, is the serious mistake made by many growers by deferring the first working of the soil till the plants had attained considerable size and strength.

As soon as the rows can be followed a hand cultivator (or lacking this a hand hoe) should be used to loosen the soil near the plants and check any weeds that may be attempting to gain a foothold. Again, some failed to do the thinning till the plants were too large. Not only were the plants injured by the re-

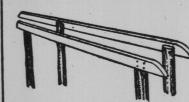
involved in thinning these overgrown beets is several times what it would be if the work were done at the right time. Bunch the plants with a narrow hos when they are from one-half inch to 11/2 inches high, and thin them to one in a lace when they are two or three inches

moval of those taken out, but the labor

Frequent light tillage is the secret of economically keeping ahead of the weeds, but as a rule beets receiving orse culture made better growth than those receiving hand culture only. The deeper tillage seems to be favorable for best results.

It is usually recommended that beets be thinned at about the time the second pair of leaves appear. It is found in practice that it frequently is impossible to thin the beets at the time recommended. From experiment at the sta-tion it appears that the yield per acre was considerably more where the thinning was delayed until the beets had made considerable growth. This indicates that where conditions are favorable considerable range may be taken as to time of thinning. With the weather cool and the soil moist thinning may safely be done when the beets have attained a height of three to four inches. However, thinning is such a slow process that it would better be commence on time-viz, when the second pair of leaves appear, the plants should at least be bunched. The bunches may then safely be allowed to remain for a week or ten days before the beets are thinned to a stand of one beet in a place. If one could always be certain that the weaththen there would not be the imperative necessity for beginning thinning early.
If thinning be delayed until there exists drought accompanied by hot weather, the growth of the plants may be seriusly impaired if the plants are not entirely destroyed.

Lifting a Hayrack Off and On. A correspondent sends the Iowa Homestead a device for unloading and putting on a hayrack, which has been of great help to him: To make this take two 2 by 6, 18 or 20 feet long. Spike each to posts, as in the cut. The shortest post or the top of 2 by 6 must be 3 feet 8 inches high or just high



DEVICE FOR LIFTING A HAYRACK. ugh to catch under the crosspiece of the rack. The highest end must be much higher. The post must be 5 or 6 feet high, owing to the height of standards on wagon or the height the rack must be raised to clear standards. Spike on some braces.

Set the posts so the team and wagon can pass between, which will be 6 or 61/2 feet. Take a chain or piece of wire and chain from end of tongue to front crosspiece of rack. This is to pull the rack on the inclined 2 by 6. Take the team by the bits and lead them through until the incline has raised rack high enough, unhook the chain and drive off. To put rack on, back under and chain hind axle to the rack. Be sure to chain wagon directly under rack. Back team and the rack will settle to its place on wagon without any lifting. I have used his for some time, and it is all right.

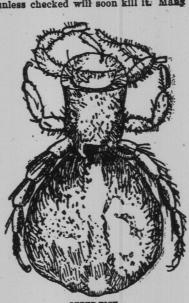
Sow Plenty of Clover Seed. The farmer who would keep up and ver be increasing the fertility of his land cannot well sow too much clover seed. In general, early sowing is best, especially if the ground is heaved or honeycombed with frost, as the seed will be well covered and thus protected from the late spring frosts. If sown late, the ground should be harrowed, even if it is in wheat, with a light slope toothed or common spike toothed harrow, as both the wheat and the clover seed will be greatly benefited by the if you do not harrow it will pay to sow at different times, some early and some later, cross sowing it. This is the advice of an Orange Judd correspondent, spring is much lifted or "spewed," as a great deal of it is this spring, the best reatment is to reseed the ground heavly with a mixture of red clover and crimson clover seed, and sow upon it some good brand of commercial fertilizer at the rate of 200 pounds to the

Preliminary estimates of spring wheat acreage from Orange Judd Farmer correspondents indicate very little material change from last year's breadth. Southern and central Minnesota and eastern South Dakota show a fair increase, while northern Minnesota and extreme North Dakota report inability to get in quite as much as intended. In Oregon and Washington there is a heavy increase in area due to the plow-

SHEEP TICKS.

---Something About Their Natural History and Habits.

The sheep tick does its evil work under cover, hiding in the fleece and quietly sucking the life blood of its victim, who may suffer seriously without the knowledge of the shepherd. It hides, and fixes its proboscis or sucker in the skin of its victim. It lives on the blood which it is constantly draw- head, or 1.12 pounds per day. ing from the veins. Its voracity is normous, and a few of them will easily stop the growth of a lamb, and unless checked will soon kill it. Many



SHEEP TICK. a lamb is supposed to be suffering from the common pale skin, thought to be due to the anemia or bloodless condition consequent on the effects of the throat worms, but in reality a result of mere loss of blood resulting from the constant sucking of it by the ticks, which hide themselves from sight in the fleece. It is only when the heat overcomes them that these pests loosen their hold on the skin in which they have imbedded their sharp claws and their proboscis or sucker and appear on the outside of the fleece, where they the shepherd may not have suspected the presence of a single one.

The ticks are really flies, but without wings. They belong to the family known as hippoboscidae, so called because they live in the woods, and the most conspicuous family of them infest horses and mules as well, and one | D. H. Otis. of the class which infest cattle.

The well known cattle tick, as it is called, has been discovered to be the cause of the southern or Texas fever of cattle, one of the most virulent of contagious diseases to which cattle are subject. This tick is not really deadly to acclimated cattle of the south, but is almost universally fatal to northern cattle, either infected by southern cattle brought to the north or when they have been taken south. The fact is we do not know enough of the life history of the sheep tick to follow all its probable mischief to lambs and sheep or identify it as the cause of diseases to which sheep and lambs are subject and supposed to be due to other causes. We need, in fact, to study this creature more closely before we can say what its actual character in this respect is. But we may believe all we may think of it and so take every possible means of exterminating it along with such well known enemies of the flock as the scab mite.

And dipping the flocks, whether the scab is present in it or not, or whether the tick has fastened on it or not, but simply as a precaution and a means of safety, is the peremptory duty of the shepherd now, at the beginning of the summer and the breeding season of these pests. One dipping is not sufficient, for the eggs of the tick, as they seem to be, and which the larvae of the creature may be, will not all be killed by the first dipping, and a remnant of them will be left to supply the places of those destroyed unless the dipping is repeated in ten days or two weeks after the first. And as this interval is about the time for the repetition of the dipping to destroy the second brood of the scab insects both will be destroyed at the same time. And it is very sure and clear that if this second dipping is neglected all the good done by the first goes for nothing. To be quite sure we would, and we have so done, make a third dipping at the end of the summer, so that the lock goes into the winter free from tormentors to which thousands of dead sheep are owing, which may be supposed have perished of some other

Teach Colts to Walk Fast. There is no pace so valuable or so nuch appreciated and so practically useful in a horse as a fast, fair, square walk, and there is nothing that will cause an animal to be driven harder and kept so continually on the other paces as a deficiency in this respect, says The Horse Fancier. Months of time and hours of patient, intelligent effort are expended to make the horse a fast trotter, a high actor, a perfectly gaited saddle horse, but so far as the walk goes, he is generally put upon the market as nature made him and rolls along at the pace his ambition dictates ommended by his owner as a wonder if he happens to walk fast, and sworn if he happens to walk fast, and sworn at and overdriven by every one if he chances to be lasy and slow. The fast walker is often made so by being put with a mate while breaking which happened to be a quick, free mover, and no harmer or breeder can be too careful in seeing to it that he coit of his is ever driven or led hinde a sluggish, intuity parties.

DOES EDUCATION PAY?

The Kansas College Dairy Finds That It Does. Before the 1st of April, 1899, the herdsman at the Kansas Agricultural college was a man with no special training along agricultural lines. He was a good man to do what he was told and to draw his salary, but there his interest ended. When asked how the recent snowstorm or change of feed affected the milk yield of his cows, he didn't know, although he had weighed and recorded each milking. takes refuge, after the shearing, on During this time the college was feedthe lambs, in whose closer wool it ing four head of calves on skimmilk, and this herdsman made them gain at the rate of 33 pounds per month per

> On the 1st of April a graduate of the college and a special student in dairying took up the work of herdsman. He is a man that is constantly on the alert for new developments. When milking a fresh cow; he can scarcely wait until the milk is weighed in order to see if there is a gain or loss . from previous milkings. When the calves are weighed, he wants to know mmediately how much they gained. With the same feeds at his command he made the four calves mentioned above gain an average of 53 pounds per head per month, or 1.8 pounds per day, an increase of 60 per cent. This was done by carefully watching the calves. The moment one of them began to scour he saw it, reduced the supply of milk, gave a little castor oil when the calf would keep on gaining at the rate of a pound and a half or

two pounds per day. Yet there are farmers who say that education don't pay and that book learning is a farce. There is no pro-fession in the universe that allows a greater display of intellect than, farming, and nowhere is it needed more in order to increase the profits. The farmer is called upon to solve questions in soil physics, in chemistry, botany, entomology, bacteriology, veterinary science-and, in fact, can call into play a knowledge of all the sciences and arts. To do this he must be educated. This education not only makes him a better farmer, but makes his work a pleasure. No one who has not experienced it is appreciate the satisfaction that comes from seeing a plant, an insect, a bird or an animal of Boston ivy has the power of living upon may be seen sometimes by scores when any kind and to be able to name it, tall something of its life hi especially to know of its economic value to the farmer. Such education helps the farmer to realize the dignity of his calling and helps to place his profession in the front rank of the world's industries, where it belongs .-

> Renovated Butter. B. D. White describes in The Dairy Reporter a recent visit to a renovating establishment. It must be understood that no one not connected with the concern was allowed admission, but being armed with the necessary credentials-a search warrant-we were not refused admission to this secret den where loud butter was hushed and green, white and gray butter made yellow, sour butter made sweet, and, in fact, everything that was not butter

was turned into butter. The first floor had the appearance of an ordinary butter store or commission house. A long whiskered man in charge was asked to lead the way, which he did after some hesitation. A door leading into a dark hall was opened, and immediately behind it was another leading to the cellar. There was only room enough for one man at a time, and the first door had to be closed before the second could be opened, leaving one in perfect darkness. A long, narrow, dark stairway led to the basement. After reaching first drew our attention. With a dim from the variety being of rather slow light of a kerosene lamp we commenced the search and found what renovated butter was made from. Butbutter, brown butter, soft butter, butter old enough to talk loud, butter old enough to walk, butter in jars, boxes, tubs, tins, cans and barrels.

A door was discovered, pushed open and we were in the workroom where the secret process was carried on. A ameter and 6 feet high was in one corner. A trapdoor from the floor above climbed, after slipping back two or three times on account of the grease on them, and there is where the melting or renovating was going on. This was heated with a set of steam pipes leading from a boiler in another corner. From the tank the oil was drawn off and cooled in another set of tanks, and from there it was put into a churn and churned in buttermilk, washed, colored, salted and worked, then packed into tubs and put upon the market and sold for what it would bring.

Milk For Making Growth. The milk of the Jersey and Guernsey breeds of cows averages higher in butter fats than that of the larger breeds. But this richest milk is by no means the best for babies, and those who in mistaken kindness order pure Jersey milk find that it needs to be largely diluted with water, or it will curdle in the stomach. The milk is too rich is the reason why so many babies sicken when fed on cow's milk. The milk from a mother's breast has less casein and fats than that from a cow. Even for the calf the milk from its dam is generally too rich. It will fatten the calf, but it will be at the expense of growth. One reason perhaps why the Jersey breed is undersized is because its calves are for a time allowed to suck undiluted milk from their dams until their digestion is injured .- Boston Cultivator.

RUITMELOWER

BOSTON IVY.

Spreads Rapidly, Is Uniformly Beautiful, Insects Do Not Harm It. Boston ivy is only one of several names given to the Japan ampelopsis, A veitchii. Rural New Yorker says: Other botanical names are A tricuspidata and Vitis japonica, for it is nearly related to the grape. Our own ivy, Ampelopsis quinquefolia or hederacea, is best known as the Virginia. creeper. How the Japan species came to be called the Boston ivy is because the Bostonians were the first to appre-ciate its value for covering brick and stone houses. It is probably employed more in Boston than in any other American city, though New York in its up town residential quarters is not far behind.

We feel that we are quite safe in saying that there is no other vine that will so completely change the appearance of walls, dead trees, fences, rocks or woodwork, etc., from forbidding objects to objects of rare beauty as the Boston ivy or effect the change in so short a time, for its growth is of sur-

prising rapidity.

Our native Virginia creeper is inferior to the Boston creeper in that the leaves of the latter overlap one another and in various other ways sought to bring it back to normal condition. This was accomplished in about 24 hours, the bring it back to normal condition. This was accomplished in about 24 hours, the bring of the latter overlap of the shingles of a roof, forming a mass of rich, lustrous green leaves that the property of the latter overlap of the shingles of a roof, forming a mass of rich, lustrous green leaves that the shingles of a roof, forming a mass of rich, lustrous green leaves that the shingles of a roof, forming a mass of rich, lustrous green leaves that the shingles of a roof, forming a mass of rich, lustrous green leaves that the shingles of a roof, forming a mass of rich, lustrous green leaves that the shingles of a roof, forming a mass of rich, lustrous green leaves that the shingles of a roof, forming a mass of rich, lustrous green leaves that the shingles of a roof, forming a mass of rich, lustrous green leaves that the shingles of a roof, forming a mass of rich, lustrous green leaves that the roof of erwise penetrate the bricks, stones or wood and cause more or less dampness. It clings with great tenacity by its footlike tendrils, so that neither wind nor storm, unless of cyclonic destructive ness, ever detaches it from the object to which it has become attached. The spread of this vine from a single root is almost incredible, covering in one case that the writer has in mind no less than

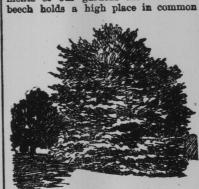
3,000 square feet.
This plant covers the entire side wall of a brick house in upper New York, where the area in which it grows as well as the sidewalk and street is en-tirely covered with flags and asphalt. The "opening" in which it is planted is only one foot in diameter. Whence Boston ivy has the power of living upon

Of the many merits of this vine not the least is that it rarely dies or from any cause is killed out in patches. Insects do not harm it. When growing over the front of houses, the ivy is cut out to conform to the windows, so that otherwise the house front seems a living mass of delicate, glossy, exuberant, refreshing foliage.

In the fall no other vine, tree or

shrub whatever changes to more glowing contrasts of crimson, orange, yellow

A Beautiful Ornamented Tree. Among the especially beautiful orna ments of our gardens the cut leaved



CUT LEAVED BEECH with its ally, the fern leaved beech. the bottom no one can imagine what | fine specimen is the more highly valued growth Few finer specimens may be seen, says Meehan's Monthly, than the one here illustrated, which is growing ter and butters, white butter, green on the grounds of a rare lover of gardening of Wynnewood, Pa.

In September an enemy to be guarded against by the fruit grower is the fruit bark beetle. Professor J. B. Smith of New Jersey says this little large wooden tank about 5 feet in di- borer is almost omnipresent, but becomes most abundant in September and will at that time try every tree was discovered, which probably was that offers the least chance of sustainused in filling the tank from above. ing it. Its hope is to find some weak or Steps leading up to the tank were injured tree, low in vitality and in climbed, after slipping back two or general poor condition, and into this it bores, makes its galleries and starts the tree on the road to certain death. Where entirely suitable trees are not found the beetle does the best it can and bores into healthy peaches, for these offer the best chance of giving way to it. A real healthy young tree will easily dispose of a dozen or 20 borers without difficulty, but when 50 or 100 come in there is serious danger for even a sound tree unless it is unusually vigorous. Practically, according to Professor

Smith, there are only two ways of preventing injury from this insect The first is to have no old dying trees to breed the beetles in quantities. The second is to keep the young trees as vigorous as possible to prevent a foothold from any reasonable attack. An apple or pear tree injured by blight or by ac-cident may live for two or three years under the attacks of these beetles and will then die, liberating thousands of specimens that will bore into whatever happens to be nearest at hand.

Currant Leaf Blight.

Leaf blight often appears on currant bushes about midsummer. It begins as whitish spots with dark centers, which apread over the leaf, causing it to drop prematurely, often leaving the bush entirely naked by September. As a pre-ventive, spray with bordeaux mixture, ammoniacal carbonate of copper or potossium sulphide solution.

ATAVISM IN ANIMALS.

A Scientific Explanation of Many Traits of Character.

Dr. Louis Robinson, an English zoologist, has just given to the world an account of his investigations as to the origin of the habits and mode of life of certain animals and the conclusion at which he seems to arrive is that all such phenomena may be explained on the ground of atavism. Thus he claims that the horse of our day derives his swiftness and power of endurance from the fact that his ancestors in former days were obliged to flee from and frequently to defend themselves against their great enemies, the wolves. In like manner he claims that the reason why the horse shies is because his ancestors were forced to be constantly on the alert against hidden enemies and that the reason why he rears and plunges is because only by pursuing such tactics could his force fathers shake off wild animals who

had leaped upon their backs. Sheep when frightened immediately rush off to the highest point they can reach. The reason, says Dr. Robinson, is because all sheep originally inhabite ed mountainous districts. And this, he claims, is also the reason why they wear a thick fleece of wool all the year through, the summer temperature in mountainous districts being almost as cold as that of winter. Finally, we are assured that the reason sheep invariably follow a leader is because their ancestors were obliged to go in Indian file through the narrow moun-

tainous passes. Pigs have also engaged Dr. Robinson's attention. He was puzzled for & good while as to the cause of their grunting, but now he thinks he has discovered the real reason. The pigs of today, he says, evidently grunt because their ancestors made their homes in thick woods, and only by making this sound could they keep track of each other and guard the common herd. Commenting on this latter exe planation, a scientist suggests that Dr. Robinson might now do well to spend some time in trying to find out why the horse neighs and why the dog barks.

Reports as to winter losses on sheep are rather more definite than on cattle and indicate a loss of from 12 to 30 r cent. Probably 15 per cent might nights were bad on lambing in nearly every section, and losses have been heavy, few sections reporting over 50 per cent of a crop and some as low as 40. per cent. Idaho, Wyoming and Montana report most successful lamb crop; Utah only fair; New Mexico Colorado and Arizona and the extreme western Texas very bad. In the southwest the drought left so little feed for the ewes that in many sections the lambs were killed to save the mothers, and the herds are kept alive only by cutting down brush and young trees along dry creeks or the foothills forthem to browse upon. A heavy loss will result to the Utah sheepmen by the action of the government in excluding them from forest reservations, where hereforoe they have found summer range. They are now thrown upon the desert, which, at this season of the year, will cause the destruction of thousands of animals from heat and lack of water. Reports from Arizona. and New Mexico indicate less than half a lamb crop and heavy losses in ewes. Movement of lambs to feed lots from south will be late, and lambs will be poor. Western lambs will be in better demand for the feed lots than southern stuff, owing to the fact that there has been better feed in the northwest.—Bulletin National Live Stock Association.

Green Corn as Forage. If we were called upon to provide green forage during the months of August, September and October and had no alfalfa, we would plant sweet corn, which is no doubt the best crop for such a purpose. It is much better than common field corn, as it contains more sugar and less starch and remains succulent much longer. Plant Stowell's Evergreen in drills 21/2 to 8 apart and kernels 6 or 8 inches apart and irrigate two or three times. It is best to feed when in the roasting ear stage, and hence, if to be fed through September, and October, it should be planted different times so as to have a succ sion. As it requires about three month for this variety to be fit for table use plant a part of it about June 1 and 15 and July 1. It will not injure cows after they become accustomed to it, and then an ordinary cow can be fed 100 pounds a day and gradually increase the amount. Some bran, cornemeal or other grain food should always be fed with green food in this way.-Denver Field and Farm.

Grasses For Swine Pasture. I can conceive of nothing better for swine pasture than alfalfa. Its tender. succulent stems are full of sugar and protein. They are not only delicious to the palate of the growing animals, but they promote growth and digestion as no other grazing with which I am acquainted does. It is especially valuable for young pigs or for any growing animals. It starts very early in the spring and continues to grow until after hard frosts in the fall. Tramping It in dry, warm weather does it little injury, although the tramping done in winter is very destructive to it, and live stock should be carefully restrained from treading upon it when it is frozen. One beauty of alfalfa is that, while drought checks it, it does not entirely prevent its growth, so that we are sure of having more er less succulent grazing even during the hottest periods and the longest droughts.—Cor-