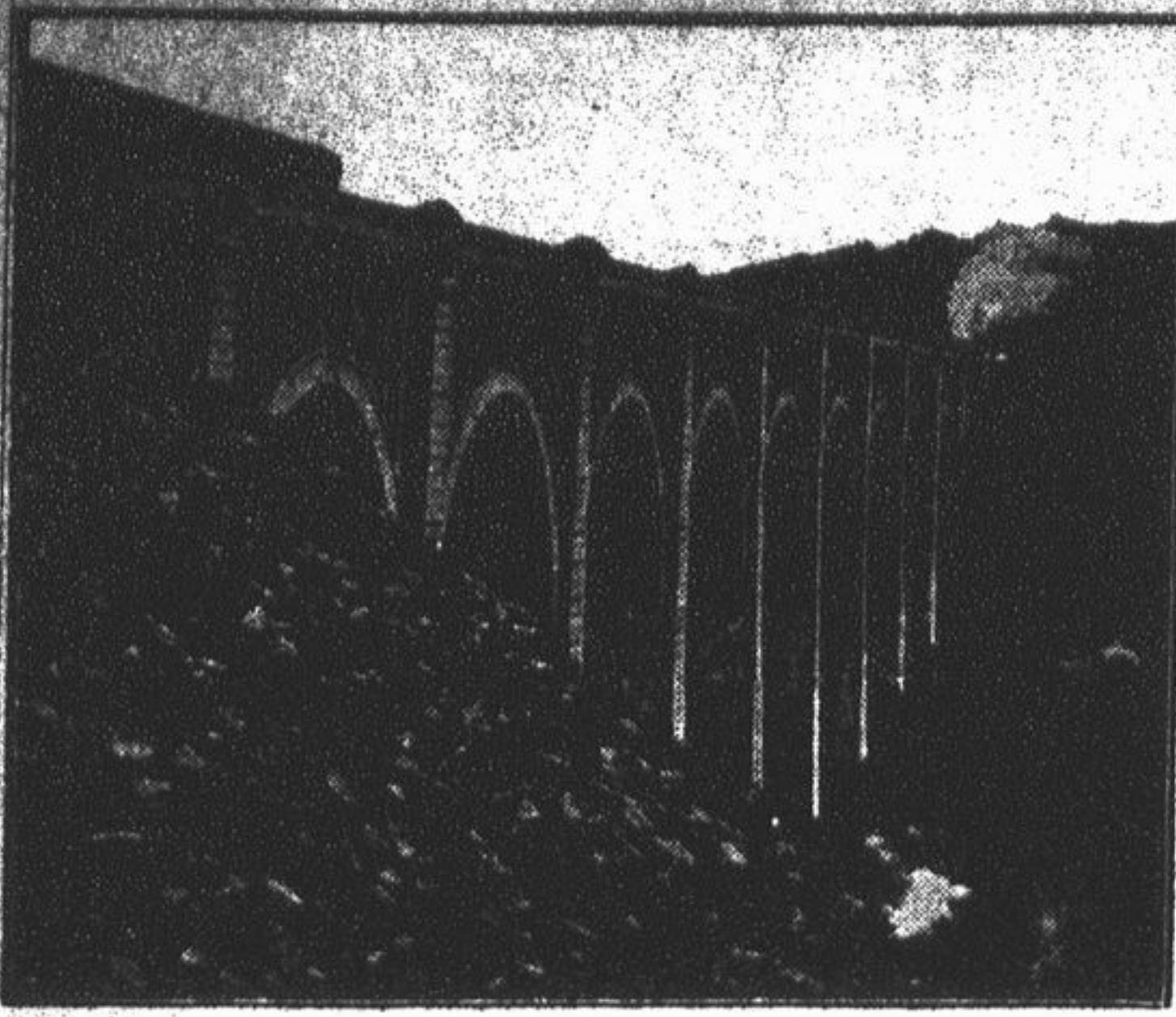


VIADUCT THAT COST \$12,000,000



The Great Tunkhannock Viaduct on the Delaware, Lackawanna and Western Railroad, Half a Mile Long and 240 Feet High.

COST LARGE AMOUNT

OUTLAY OF \$12,000,000 ON LACKAWANNA VIADUCT.

Materially Reduces the Route Between New York and Buffalo, and is Considered a Triumph of Engineering Skill.

The new "cut-off" of the Lackawanna railroad, between Clark's Summit and Hallstead, Pa., by which the distance between New York and Buffalo is reduced 2.5 miles, was formally dedicated a short time ago.

The Scranton-Binghamton cut-off is 29.5 miles long. The Lackawanna has always been the shortest route between New York and Buffalo and the opening of the new double-track road reduces the distance to 394 miles.

The work of moving mountains and filling valleys in order to shorten the route and cut down grades cost approximately \$12,000,000. By taking a short cut from Clark's Summit, seven miles west of Scranton, to Hallstead, 14 miles east of Binghamton, N. Y., a maximum grade of 1.23 per cent was cut to .68 per cent. Formerly the curvature was 3.970 degrees. Now it amounts to only 1.570 degrees.

Time, however, means money in the operation of railroads and the "cut-off" means the reduction of 20 minutes in the running of each passenger train between New York and Buffalo. A saving of one hour in time is made in each freight train passing over the division. Freight trains that required five to six hours to be moved at the same speed now take two hours.

The big feature of the "cut-off" is the Tunkhannock viaduct crossing the valley of Tunkhannock creek near the village of Nicholson, Pa. It is a reinforced concrete bridge connecting mountain with mountain. It is half a mile long and 240 feet high, or more than 100 feet higher than the Brooklyn bridge. It consists of ten spans of 180 feet each and two spans of 100 feet each. The mammoth viaduct contains 4,500,000 cubic feet of concrete and 2,280,000 pounds of reinforcing steel. Parapet walls three feet thick rise above the tracks to a height of four feet, insuring safety without cutting off the wonderful view from the car windows.

The Flatiron building were extended up Broadway from Twenty-third to Twenty-second street the structure would take up about the same space as the viaduct.

The Martin creek viaduct on the "cut-off" is 1,500 feet long and is 150 feet above the bed of the creek. Were it not for its bigger brother, the Tunkhannock, it would be the biggest concrete viaduct in the world.

The entire work of building the "cut-off" was planned and executed by George L. Ray, F. L. Wheaton was chief engineer of construction in immediate charge of the work. The Tunkhannock viaduct was built under the personal supervision of F. M. Talbot.

Tries Woman in Her Cell.
"I took a sight. No, I will not appear in court in this condition. The judge will have to come down here if he wants to see me."

That was the dictum of Pauline Miller, a prisoner in police headquarters on the charge of intoxication.

So Chief Justice W. H. McGannon, Prosecutor George Folk and the court clerks made their way to Pauline's cell, where the judge heard the case.

"I'll give you costs and 30 days at the workhouse to straighten you up," said the judge.—Cleveland Plain Dealer.

Well Advertised.
"Mary had a little lamb," began the poet.

"I once knew a woman who owned 20,000 head of live stock," interposed the other fellow. "And yet the great advertising queen never got half the advertising that Mary received through the ownership of one lamb."—Louisville Courier-Journal.

Will Cost Much Money.
Six per cent of the line of a railroad being built in Switzerland will be over bridges and 12.5 per cent through tunnels.

Offer as to Earth's Age.
Scientists differ greatly as to the earth's age, estimates varying from 20,000,000 to 150,000,000 years. One of the first estimates was that of John Phillips, who in 1830 based on a study of stratified rock his assertion that the figure lay somewhere "between 20,000,000 and 24,000,000 years."

Beginning of Pigeon Power.
The first power was established in 1811 at the Niagara Falls of Rome.

ORCHARD TOPICS

CONTROL THE PEACH BORERS

Thick, Heavy Coating of Asphaltum Serves to Exclude Insects—Material is Applied Warm.

In a bulletin of the California station E. L. Morris calls attention to the use of hard asphaltum, grades "C" and "D," for the control of the peach tree borer. This material was applied early in the spring to badly infested trees from which the borers had been dug.

It was found that a thick, heavy coating prevented both the issuance and the entrance of about 95 per cent to 98 per cent of the insects, the degree of efficiency depending upon the thoroughness of the application. Asphaltum does not penetrate, crack, deteriorate or bind the tree, since it yields to the slightest pressure. Four years of experimenting have not shown the least injury.

The material is applied warm with a brush from five inches below to five



Female Beetle Placing an Egg in Tree Below Surface of Ground.

inches above the ground. It is easier to apply two or more coatings than to try to put on more at one time than will adhere firmly. The first coating will harden very quickly and the second can be applied without loss of time. Two coatings are generally sufficient unless the bark is very rough. But in any case a thick, uniform covering is absolutely necessary for the best results.

Borers are seldom uniformly distributed over an orchard. Small blocks of trees here and there may be badly infested, and the most of the orchard comparatively free from the pest. In such cases it is not necessary to treat all of the trees with asphaltum, but it is necessary to examine them carefully, for in no other way can the true conditions be known.

A convenient way to handle the asphaltum is to mount an iron kettle on the running gear of an orchard truck and suspend beneath it a sheet iron apron as a fire box. Keep hard asphaltum in the kettle all the time, so that the melted asphaltum will not get too hot to carry in small containers, and apply directly to the trees.

GERMS CAUSE APPLE BLIGHT

Only Known Way of Control of Disease is to Cut Out Affected Parts—Job Tedious.

Blight of pear and apple trees is caused by a very minute germ which works inside the bark and out of reach of any spray material that may be applied. It is spread from tree to tree by insects and gets into the trees through the blossoms. Here it is deposited by bees and other insects which visit the blossoms, and as conditions are favorable for the development of the germs, they pass from the blossoms through the stems of the flowers into the twig and then through the rest of the tree.

To control blight by cutting out the affected parts is a tedious job, but it is the only way known at this time for controlling it. Whoever will discover a better way than this will be a benefactor of humanity and do a wonderful work for the upbuilding of fruit growing.

PROPER SITES FOR ORCHARDS

Fact Often Overlooked That Cold Air Settles to Lower Levels—Frost Does Much Damage.

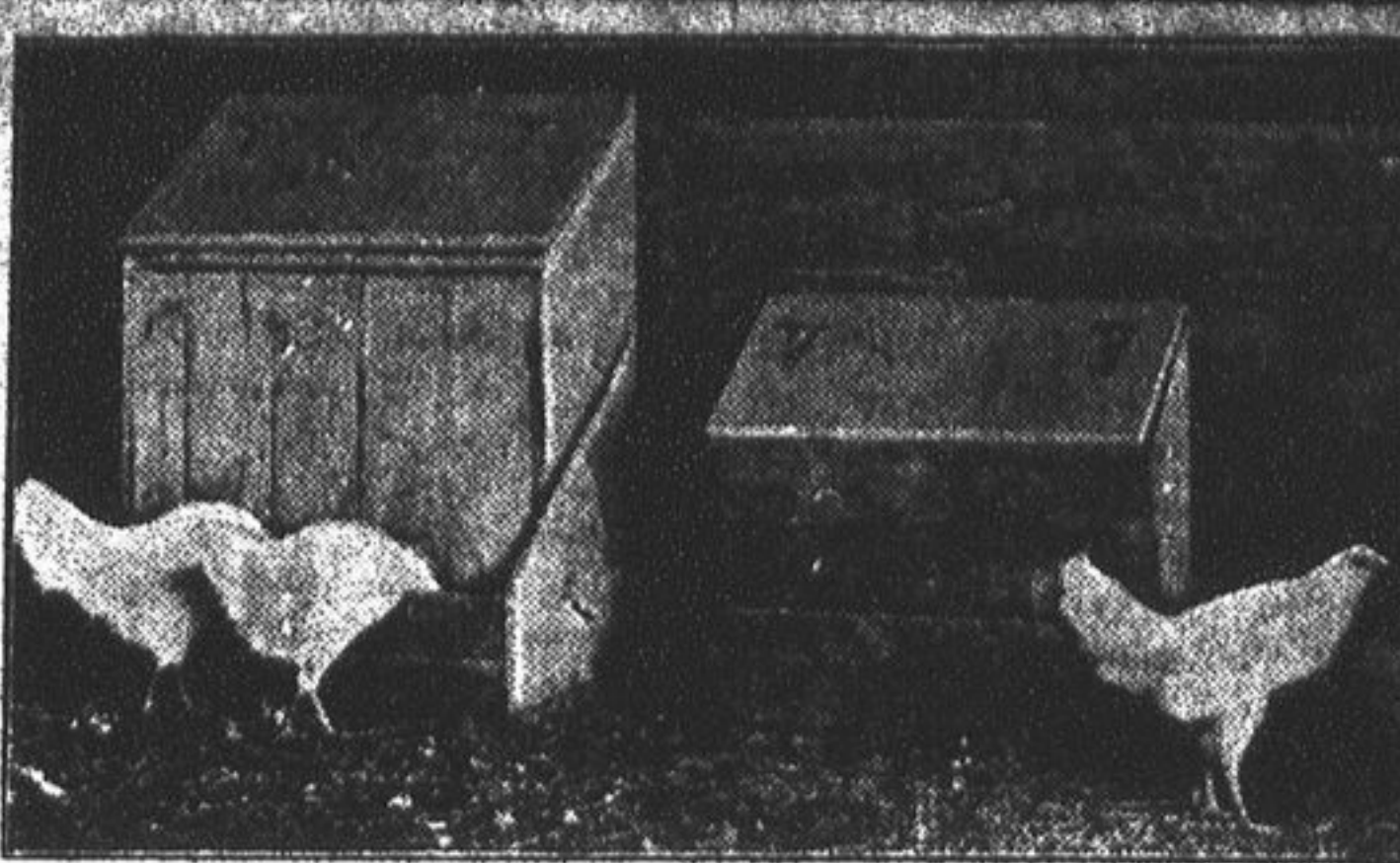
It is a well recognized fact, though one too often overlooked in selecting sites for orchards, that cold air settles to the lower levels. For this reason it is often colder at the lower elevations than it is at higher points in the same locality. This is what is meant by "atmospheric drainage." The occurrence of frost in low places when there is none on elevated areas is thus explained. For the same reason peach buds are often winterkilled or the blossoms are injured by frost in the spring in low places when nearby orchards on higher elevations are injured much less, or even escape entirely.

Ripening Pears.

Pears are best when ripened indoors instead of on the trees. The time to pick pears is determined first, by their known seasons of ripening; and, second, by the ease with which the stem parts from the branch when the fruit is slightly lifted. Most pears are marketed in a green, but mature, state.

Peach Responds Quickly.
The peach tree responds more quickly to good treatment than any other fruit tree.

REDUCE EXPENSES IN THE POULTRY YARD



Self-Feeders for Dry Feed; Hopper for Oyster Shells and Watering Device.

(By L. M. DENNINGTON.)
All kinds of grain, both whole and ground, are so high in price that it will pay us to study how to feed the hens as cheaply as possible and still secure good results.

Bran is a heavy expense, and the amount used can be greatly lessened by feeding cut clover, or cowpea hay. These contain the same elements as wheat bran and are very palatable for the hens, when steamed.

Cut or break the hay into small pieces, pack into a tub or bucket and pour over it all the boiling water it will absorb, then cover closely and let stand thirty or forty minutes before feeding. In the winter when the hens cannot get green grass they relish this very much.

Sprouted grains are another cheap food. This was sold a few years ago as a poultry "secret" of feed at 15 cents a bushel. Oats are generally used for this, although wheat, rye and other grains are as good.

The grain should be soaked for 24 hours, or even 36 hours, in warm water, when spread in shallow boxes and kept in a warm place. Keep moist by sprinkling two or three times a day with warm water. Feed when the sprouts are about two inches long.

The hens will eat grains and sprouts both, and by the process of sprouting the amount of feed is greatly increased without increasing the cost.

Sunflower seeds, if raised in the odd corners where nothing else will grow to advantage, really cost us nothing. Hang the heads up where the hens will have to work a little to get them, or scatter the seeds in the litter.

If these seeds are fed mixed with the other grains that are scattered in

the litter, or as a change from the others, it will of course not be necessary to feed so much of the expensive grains.

The small potatoes and the potato-parings used in the house can be boiled, salted and peppered, as for the table, and a little bran and cornmeal mixed with them, just enough to take up the surplus moisture, so that the mixture will not be sloppy. This makes a good, and also a very inexpensive mash feed. With it may be mixed the meat scraps.

Beef bones and scraps should be run through a bone cutter, or be chopped up by hand into small pieces, before giving to the hens.

Skim milk costs really nothing on the farms, and if the hens have all of it they will drink, they will not eat so much other food.

If these cheap feeds are handled right, it will leave only the last feed at night to be of the high-priced grains, and if well fed during the days on these other things, they will not eat so much of it then.

They should have a good feed of grain, mostly corn for their supper, in order to keep them healthy and supply bodily heat during the cold weather.

By following these suggestions, the hens can be almost entirely kept on the waste products of the farm, and what is received for the eggs will be nearly all profit.

If properly housed and given plenty of warm water to drink, they will lay well on this bill of fare, and we can rejoice over a good supply of eggs when winter is here and the price goes soaring.

VALUABLE FEED FOR LAYERS

Missouri Agricultural College Expert Recommends Giving Hens Sour Milk in Their Rations.

(By H. L. KEMPSTER, Professor of Poultry Husbandry of the Missouri College of Agriculture.)

Milk or meat in the ration may make all the difference between profit and loss. We know from our tests at the experiment station and from the experience of poultry men everywhere. We got only 945 eggs from a pen of hens that ate no animal food, while another pen of hens, no better in any way, but fed sour milk, laid 1,783. Those fed beef scrap laid 1,802 eggs.

A Good Sour Milk Ration.

- Corn 4 parts.
- Wheat, 2 parts.
- Bran middlings, 1 part.
- Cornmeal, 1 part.
- Sour milk separately.
- Give 100 hens 2 1/2 gallons of milk and from 15 to 25 pounds of other food a day.

SHIP EGGS LONG DISTANCES

Good Results Can Be Secured by Using Excelsior for Packing—Jotting Causes Trouble.

If hatching eggs are carefully packed in a basket with a good cushion of excelsior in the bottom, they will carry great distances and give good results. It must not be expected, however, that they will give as large a percentage of hatch as might be the case nearer home.

It is the jolting eggs are apt to get by transportation by rail, that is likely to weaken a strong germ or kill a weak one. For that reason they should be well packed in excelsior. Excelsior is to be preferred to any other material, as it is of a springy nature; and baskets are better than boxes, for the reason that being more convenient to handle, railroad employees are naturally more careful with them.

Bones Are Good Investment.

A good investment is 100 pounds of bones bought at the market in town. They sell for a cent or a cent and a half a pound. They can be chopped so that the hens can get hold of the pieces, and they will do the rest. Blood meal could be fed in small quantities to satisfy the chicken appetite.

Shipping Live Poultry.

When shipping live poultry to market, be sure it is not crowded in the coops, for stock that suffers en route will lose considerable weight.

WINTER QUARTERS FOR HENS

Make Sure Houses Are Free From Vermin and Disease Germs by Thorough Cleaning and Spraying.

Are you sure the winter quarters of the layers and breeders are free from lice and disease germs? Better make doubly sure by cleaning all manure, rubbish, dust, and litter out of the houses, then spray the walls, ceiling, floor, roosts and nest boxes with whitewash made thin and strained so that it will spray readily. This formula (government recipe) is one of the best:

- 1 Sixty-two pounds (one bushel) quicklime, slake with 12 gallons hot water.
- 2 Two pounds common table salt.
- 3 One pound sulphate of zinc dissolved in two gallons of boiling water.
- 4 Two gallons skimmed milk.
- 5 Pour 2 lbs. 1, then add the milk (3), and mix thoroughly.
- 6 Into each five gallons of whitewash the one quart of sulphate of zinc and 2 lbs. of the lime should be added.

Apply liberally. The spray should be made with a sprayer and applied to the walls, ceiling, floor, roosts and nest boxes.

STOCK

CARING FOR THE BROOD SOWS

Give the Animals Good, Heavy Ration, Strong in Protein and Rich in Fat-Making Foods.

People will tell you that a brood sow should not be too fat at farrowing time. That's true; but that doesn't mean that she should be starved to a shadow. She should be fed a good, hearty ration, strong in protein, and not rich in the fat-making foods. She should have plenty of exercise. She should be in that thrifty condition which makes her as strong as a bull—but not fat.

There's no danger of her having too much bone and muscle. The heavier she is the better—provided that too much of her weight is not fat. An all-corn ration robs her of the strength she will need at the time of her trial, and fills the cavities of the body with fat. Then she will be fat and lazy and will kill her pigs by lying on them. Or she may never be able to bring them forth. Or her appetite for bone and muscle-forming foods may be so abnormal that she may eat them up.

But if she is kept from being too fat by the simple method of starvation, she will not give the litter the proper amount of milk.

If the sow becomes constipated before farrowing, as some sows do, epsom salts may be given in the sloop for three or four feedings—just enough so that the taste will not repel the sow and keep her from eating.

At farrowing time occur the most of the pig losses. Some of them come from the absence of the owner when the pigs arrive, and some from his presence. The sow should be carefully watched, but she should not be disturbed. In other words, no dogs should be allowed anywhere near, and she should not become aware of the presence of those who watch her. A good brood sow stealing her nest in the grove or fields will on the average bring to the feed trough a better litter than the one which is fussed over by a solicitous owner. Yet she sometimes needs help. Combine the merits of the two methods.

Water, rinse thoroughly with water and place them where they come in contact with the skin of the sow.

EXPENSE OF KEEPING HORSE

Cost is Much More Than Many Persons Usually Believe—Estimate Placed at 75c Yearly.

The cost of keeping a horse for a year on a farm is much more than many persons usually suppose. In an estimate of such cost it was found that a horse weighing 1,300 pounds and kept at moderately hard work costs \$76 a year for board. Foods, of course, are usually higher in some places than others, where it would not cost so much.

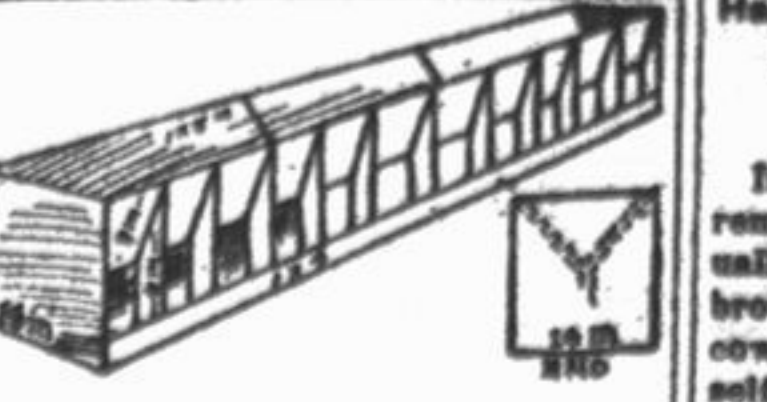
Taking one horse with another, as kept on our farms, and allowing for the period of idleness in the winter season, the cost to keep would not be more than \$50. Larger horses would, however, cost relatively more than those of lighter weight.

PARTITIONS IN HOG TROUGH

Device Prevents Young and Small Animals From Being Crowded Out of Their Allowances.

Partitions in a hog trough will save the owner much trouble in feeding. Where there is nothing to prevent the young and small pigs are often crowded out of their rightful allowances by the older and bigger animals.

The trough shown in the illustration is partitioned off to save this trouble. The bottom of the one I made was a 1-inch board 14 inches wide. The



Side and End View.

sides were 4 inches high, partitions 8 inches wide. For the V sides on top I used 1 by 3, and at the lower edge of these nailed strips of 1 by 4 to keep the slop from running. Write Odum Tyson of Lee's Summit, Mo., in Missouri Valley Farmer. The partitions were spaced 10 inches apart. They were cut sloping across the top, and from the bottom of slop to bottom of trough is 6 inches.

ERADICATE LICE ON CATTLE

Frequently Serious Pest in Winter—Any of Various Dips Will Prove Quite Satisfactory.

Lice on cattle and young stock are frequently a serious pest in winter. Any of the various dips advertised or sold for this purpose are effective. They can be put on with a sponge or brush and worked in thoroughly to the skin, but it is not always safe to wet an animal all over in cold weather.

Kerosene and lard rubbed in from horns to the tail is a safe and sure remedy. An even better one is to use powdered sulphur. Rub it in well with the hand and repeat in two weeks. There is no danger from using this.

Protect Horses on Ice.

Now let those who have been careful to put chains on the wheels of their automobiles every time it rains see to it that their horses' feet are provided with something to keep them from slipping on the ice.

Keep Lenses Clean.

Don't let the lens of your camera get a rubber stamp on it. It will ruin the picture.

Plenty of Sleep.

The quantity of sleep should be enough to make you feel as if you had a program for the next day.

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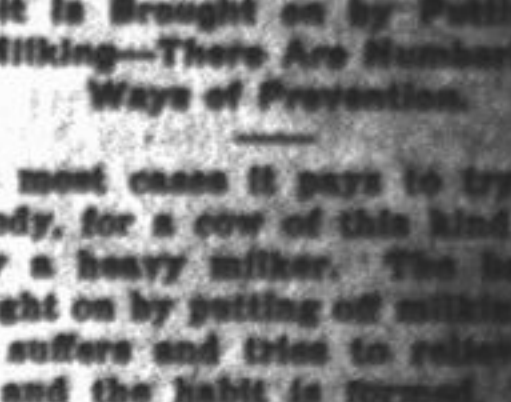
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