

tioned after a good deal of thought and study on the part of experts to decide exactly the size and location of these holes. These are provided to admit exactly the quantity of air necessary to perfect combustion of the coal oil burning, and to produce the whitest flame possible. During the experiments necessary to decide exactly the size and position of these holes, it has been found that too large or too small holes, or too many or too few of them, will tend to deteriorate light received and the wind-proof quality of the lantern, and it has also been found that in certain cases an explosion would eventually follow the enlarging of these holes.

We would, therefore, suggest that your readers do not monkey with the working parts of the lantern, but that they, rather, buy a better quality globe from the dealer, as globes can undoubtedly be found which will stand many times the wear of those in general use, if the consumer can be induced to pay a reasonable price for them.

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HORSES.

If you have never tried feeding a few roots to the idle horses, do so now. A good turnip, mangel or a few carrots will be greatly relished.

There is nothing like a variety of foods to keep the horse's appetite keen, and there is nothing like a good appetite to aid in keeping the animal in condition. It is difficult to fatten a horse that will not eat.

Remember that horses which are being highly fed and fitted for sale are more susceptible to thrush than those on a more scanty diet. It is necessary to take greater precaution in keeping the animals' feet clean and dry.

In exercising the horses during the winter months, it must be remembered that an amount sufficient for one animal will not always be the correct amount for another. Study the animal's needs in this matter as you do their feed requirements.

According to the Oregon Experiment Station, a horse which receives a larger quantity of hay than he needs cannot do as much work as one receiving just the required amount, because an over-distended stomach imposes greater work upon the respiratory system, and indigestion in some of its many forms is also likely to follow. Fifteen pounds is given as a better feed for a 1,000-pound horse than twenty pounds, and it is said that a horse of this weight fed five pounds in the morning and ten pounds at night, will be able to do more work than one which has a manger of hay before him at all times. For a fifteen to eighteen hundred-pound horse, twenty pounds of hay is given as enough roughage, and the remainder of the ration should be grain.

A Lack of Good Brood Mares.

Horse-breeders are, as years go by, putting forth extra efforts to improve the class of horses in the country. No amount of money is spared in the purchasing of good sires, and considerable is also spent in bringing good fillies into the country, but it is quite noticeable in most show-rings, as well as in travelling throughout the country, that the stallions are of a higher order than the fillies; that is, proportionately, there are more "top-notchers" amongst the males than amongst the females in our heavy-horse breeds. True, there is an improvement noticeable in the quality of some of the best fillies exhibited, but many are somewhat plain. It is not so apparent, perhaps, in the show-ring as on the farms. Buyers come and offer a seemingly large price for the good young filly, and, after hesitating a short time, she is sold, and a few nondescript cross-breeds or "scrubs" kept for breeding purposes, and the owner wonders why he doesn't get a prizewinning colt from mating this class of mare with the champion stallion of our largest shows. The stallion will do his part, but he is not the only influence exerted upon the colt. The maternal influence cannot but be great, and it matters not how prepotent the sire is in transmitting his desirable quality and conformation to his offspring, eleven months spent in the fetal stage, together with all the inherent qualities of the dam's ancestors passed down through the ovum to the foal, must have their effect, and a very noticeable effect it is. It is just about as possible to get the best colt from a good sire and a poor dam as it is to get a good machine from an expert mechanic and defective material.

To obtain the highest possible level in our horse-breeding, the fillies which are being raised

for breeding purposes must receive the attention they merit. Select the mares as scrupulously as stallions are selected in the districts where the best of our drafters are bred, and see how quickly an improvement will be noticed. The remedy is in the hands of the farmers and horse-breeders. The time is approaching when buyers will be scouring the country for horses. They will offer good prices, but turn a deaf ear when they insist upon purchasing your brood mares or good fillies.

Keep them. They are valuable in your horse business. Too many make the mistake of breeding to defective stallions, but far more are guilty of the fault of breeding too few mares, and these often of a very faulty type. Why is this so? Mainly because they feel that the risk in keeping the mares for which a high price has been offered is too great. "She might die," is the common comment, "and see what I would lose." If kept, there are fifty chances to one that she will live, if she is healthy and well cared for. This being so, wherein is the gain from selling? A brood mare in foal and a good breeder is a developed gold mine to a farm. The young filly which gives promise of becoming a satisfactory breeder is an exploited mine of wealth which it will pay the owner to develop. Do not sell the good fillies, and be equally tardy about breeding the undesirable mares.

LIVE STOCK.

Co-operative Live Stock Shipping

Co-operation in the shipping and marketing of live stock is being taken seriously in some of the States. In Minnesota this co-operation has reached the second stage—that of organization of the scattered local co-operative associations into a central body, "The Minnesota Co-operative Live-stock Shippers' Association."



Shorthorn Bull Evander.

Which has been sold out of the King's herd at Windsor, to R. O. Lamb, Cumberland. See Gossip note, issue January 11th.

The Association's object is such a unification of forces in gathering information, securing fair transportation, and influencing legislation, as shall insure to every local organization, along with the best returns from every shipment, just treatment from railroad and packing interests, and protection against abuses of all sorts. Such a state-wide organization can naturally accomplish more, and at smaller expense, than any number of local associations working each independently of the others. And unless they thus are united, the local associations may often be placed in the unfortunate position of competing with one another.

The Association at Cannon Falls, Minn., is an example of a successful association. This organization pays its manager or buyer 10 cents per hundred weight on all live stock handled. This price secures a thoroughly competent man. This is a new association, and, according to C. R. Barns, of Minnesota Agricultural College, the first four carloads of hogs shipped netted the farmer 39 cents per hundred pounds more than was being paid by local buyers. Also, it is stated, instead of a deduction being made for shrinkage in transit, the hogs were reported as having actually gained in weight, to the further advantage of the co-operative shipper. These associations claim to have proved that, by simply getting together co-operatively, stock raisers can everywhere realize from 5 to 20 per cent. more than by the old plan on their cattle, hogs and sheep. Such an increased return is no mean consideration, and this would make a good topic for discussion in the Farmers' Clubs of our country during the winter months. Other organizations have been successful, and, if properly managed, there is no reason why they should not prove equally successful in this country

THE FARM.

Gasoline and Electric Power.

Editor "The Farmer's Advocate":

I have read with attention the various articles on electric power for the farm, as the question of farm power is becoming of greater moment every year. For myself, I thought I had solved the problem three years ago, when I bought a gasoline engine. The machine I got was one of two horse-power, and air-cooled. At first I thought the engine too small, and was doubtful about the air-cooling, as I had been warned that this type was not very satisfactory. The makers of the engine agreed to allow me to try it, with the understanding that I could return it if not entirely satisfied. As it did all the work I wanted in a satisfactory manner, I kept it for two years. When I decided to try grinding my own grain, I took a four-horse-power engine of the same make, and on the same terms; it was to suit me, or no deal.

Now, in the articles on electric power, I have seen no statement as to the cost, except that it is the cheapest power known. Therefore, I will give the figures as to cost of my power, and would like to hear from farmers who are using electric power, for I am willing to change, as I am told it is more convenient than the engine.

To begin with, the two-horse-power engine cost \$135; 36 feet line shaft, hangers, pulley and belt, \$35. When I changed to the four-horse-power engine, I paid \$100 additional, so that at present my power plant has cost \$270. This does not include the machines I am running, as all of these I had before, with the exception of the grain-grinder.

The two-horse-power engine was used to run cream separator, churn, bone-cutter, fanning mill, root-pulper, grindstone, cutting-box and wood saw.

My average stock is seven horses, forty cattle, twenty pigs, and two hundred hens and turkeys. Now, I ran all these machines with the small engine for 25 months on a cost of \$8.00 for gasoline and oil. A year ago I got the larger engine, with which I have run all these machines and, in addition, have ground two thousand bushels of grain, and my expense for the year is less than \$25. During the winter months, or while I am feeding all my stock in the stables, the engine is used an average of two hours a day, while in the summer it is run about one-half hour night

and morning. I have had some trouble, but have always had the power to run separator twice a day for the past three years.

There are quite a number of gasoline engines in this locality, and most of the farmers report experiences similar to my own, both as to the service given and the cost.

Now, I would like to know the cost of an outfit such as Mr. Clark describes in "The Farmer's Advocate," issue of December 14th, five-horse-power motor, also small motor for the house; how far the wires were run to his place; the cost of wires, poles, etc., and who pays for the wires, etc. How much does it cost for light per month? How many lights are used? How much does it cost for power, and is the power available while the lights are lit, for, with the engine, during the winter months, especially, I use it almost entirely by lantern light? Then, is there likely to be any danger from fires, as I notice from time to time the mention of fires from defective wiring? As my silo is a long way from where I would place a motor, I would want to move it, too, if possible, for filling the silo, and also for cutting wood, as I do with the engine. J. MORGAN, Huron Co., Ont.

[Note—In the September 21st issue of "The Farmer's Advocate," page 1571, there appeared an article, "Silo Filling by Electric Power." This explains how the line was secured. The distance is, we presume, between two and three miles. The motor could be mounted on wheels and moved from place to place. The wiring, if properly done, should not be dangerous from a standpoint of fire. The Government has decided to extend the hydro-electric power to rural districts. High-voltage lines of 13,000 and 2,200 volts will be