united from the shoulder joint, there will then be room for the introduction of the hand, and by laying hold of the head, the ewe can be delivered.

The exact moment for rendering assistance to a lambing ewe can only be known by experience; it is necessary to watch and wait, for a hasty parturition often superinduces inflammation, if not of the womb, of the external parts of the ewe. When assistance should be rendered, the ewe is taken hold of as she lies, and laid gently over upon the ground on her right side, with her head up the hill, where the ground has an inclination. In aiding the ewe, it should always be remembered that the action of the hands must be made simultaneously with the strainings of the ewe, only to assist her, and keep good what is obtained at each strain, and not to tear the lamb from her prematurely by force. Whenever the lamb's head is clear, the attendant, seizing the upper part of the neck behind the head with his left hand, the right hand still holding the legs, he pulls out the body with ease. The lamb is then placed at the ewe's head for her to lick and recognize, which she will instantly do, if her labor has not been severe, but if so, she will likely become sick, and be careless of the lamb as long as the sickness continues, which is evinced by quick, oppressed breathing. If the pains have been sharp, and this her first lamb, and she is not overcome by sickness, the ewe may probably start to her feet, and run away from the lamb. The attempt at skedaddling must be prevented, and the end of the tail of the lamb put into her mouth, to make her notice it

## Care of Young Calves.

Farmers should raise enough of the best calves, or calves from their best cows, to keep their stock fully up. Endeavor to get good strains of blood into the herd by using a thoroughbred bull. Never use a half or quarter-blood bull if it is possible to obtain a full-blood. A cow before calving should be placed in a warm, dry box stall for the comfort of the cow and the safety of the calf. The practice of allowing a cow to have a calf while confined in the stanchions cannot be too strongly deprecated. Even if it is not desirable to raise the calf, it is an unnecessary cruelty to keep the cow confined. The practice is doubly unnecessary and cruel when the calf is to be raised If the calf comes early in the night, it is apt to be prostrate in water and filth until morning, when it is chilled through, and no matter how fine a calf it might have been, it is a mercy to kill it.

Therefore, presuming that the cow is in a comfortable and convenient place, as soon as possible after the calf comes, it should be rubbed perfectly dry Too many precautions cannot be taken to prevent the calf from becoming chilled, and it is more apt to become chilled while wet The calf should be fed, as soon as possible after birth, with milk freshly drawn from its mother, and should have the whole of its mother's milk for at least a week or ten days before it receives any skimmed milk. The change from new to skimmed milk should be gradual. Begin by mixing a little skimmed milk with the new milk. Feed regularly three times a day all the calf will take. Keep in a clean, dry pen, well littered with plenty of clean straw, to insure cleanliness and good health. Remember that if you slight the calf now, when it becomes a cow, it will slight you.—*Cor. Country Gentleman.*

## An Experiment in Feeding.

The following experiment in feeding hogs has been made at the Illinois Industrial University, under the charge of Mr. Lawrence, head farmer.

Two Poland Chinas and two Berkshires, a sow and barrow of each, were put in separate pens, Oct. 1st, 1874. Weight, per pair: Polands, 185 pounds; Berkshires, 183 pounds; and were fed to Dec., 1, 1874, two months, with the following results. Weight per pair; Polands, 320 pounds; weight per pair, Berkshires, 230 pounds. Corn consumed in 61 days; Polands, 8.13 bushels, Berkshires, 3.89. Polands, on 8.13 bushels, made 145 pounds; Berkshires, on 3.89 bushels, made 48 pounds. Polands, 1 bushel of corn made 17 83 pounds, gross; Berkshires, 1 bushel of corn made 12.34 pounds gross. Polands farrowed May 8, 1874, Berkshires farrowed April 15, 1874.

The pigs were fed on corn only, and of the crop of 1874, which had been gathered and cribbed Oct 1, and was of an average quality for the season, 80 pounds in the ear having been taken for a bushel, that being the market rate at the time. An equal weight of corn was put in separate bins. At the end of two months the Polands had consumed the whole of theirs; the Berkshires less than one-half; and to determine the amount they had eaten, the remainder was weighed back at the rate of 75 pounds per bushel. The Poland barrow was killed Dec. 1st, and weighed alive 175 lbs. at 207 days old, and dressed 134 lbs., shrinking 41 lbs. or 23.4 per cwt.

The object of this experiment, to be followed by others of a similar character, was to help to determine how many pounds of pork a bushel of corn would make, and also get at the relative value for feeding purposes of pigs of different ages and breeds.

It should in justice be stated that one of the Berkshires did not prove to be a good feeder; and as respects the Polands, that as they showed a good deal of the characteristics of Berkshires, they have been tinctured with that blood. That they pass in this neighborhood as Poland-Chinas, is all that is known of them.

While it is the province of persons in charge of Experiments, to state facts only, perhaps it may be well to caution the reader against drawing definite final conclusions, until this experiment, and others as well, have been repeated and extended.—*Prairie Farmer.*

## Economic Horse Management.

At a recent meeting of the Newcastle-on-Tyne Farmers' Club, Mr. Hunting, V. S., read an exhaustive paper on the management of horses. We give the commencement of it below, and shall re produce a portion of it from number to number, until completed:

Economic horse management consists in obtaining the greatest amount of work at the smallest cost; but here, as in every other department, true economy depends, not upon niggardliness, but upon careful selection and well-judged method. Good food must accompany good work. Neither must be disproportionate. It is difficult to say whether too much or too little of either is the worst economy. But good food and good work are not absolute terms, capable of mathematical definition. What is excess of work for one horse, is not for another. What is excess of food for one horse, may be insufficient for another; or again, the food required by a horse doing moderate work is insufficient for the same horse doing hard work.

There is still another difficulty—viz., that equal weights of food of equal market value may differ indefinitely in feeding value. These few statements will show that careful selection of foods and well-judged method in proportioning them to the work done are absolutely essential to economic management, and this skill and judgment require some scientific knowledge, and some practical experience not always thought necessary in the horse manager of an establishment. My knowledge of the subject has only been obtained by long experience, by freely accepting the work of others, and by submitting each theory or statement likely to be of value to a practical test. The subject is far from exhausted, but I think that any further development must follow the lines we have laid down. Tabular statements of the cost of feeding show absolutely nothing, save by comparison with others, and a comprehensive estimate should include not only the cost of food, but the cost of horse flesh and the amount of work done. By keeping too many horses to do a certain amount of work, the bill for feeding can be made to look economical. By stinting the food an appearance of economy may be effected on paper, but the condition of the horses and the duration of their lives would soon dispel the illusion. Both these explanations have been offered to account for the statements of economy embodied in my annual reports to the various collieries at which I have charge. I quite allow their force, when true, but I shall shew to-day that neither by accident nor design have I adopted either.

Economic horse management requires care in the conducting of the smallest details. From the purchase of the animal onwards, every step must harmonize and be subservient to the general object—economy. I shall not detain you with an account of what I consider the necessary points of a horse for the various situations he has to fulfil, but simply say that the best animal fit for the work is the most economical. Age and soundness should always be attended to. There is one point upon which I venture to dwell, because it is often neglected, and then always entails more or less loss. Pit horses are probably the hardest worked animals in the kingdom, and hard work cannot be economically done by horses unless in condition. Every hunting man would cry shame on the folly displayed by a person taking a horse from grass or the dealer's stable and attempting to push it through a day with hounds. Pit work is little less severe than fox-hunting, and yet horses with no pretence to condition are expected to go to it at once and to continue at work daily. The result is that if these horses are not soon entirely knocked-up, they pass a period of two or three months during which enormous feeding is barely able to keep them at work, and from which many emerge with systems so damaged as never to recover the strength and tone necessary to produce the greatest amount of work. Their frequent and repeated bodily exhaustions render them prone to disease, to sprained limbs and to falls, which, in pits, occasionally end fatally.

As all collieries require not only cart but farm horses, this state of things might be easily avoided by passing all new horses—not in condition—through one or other of these departments The usual practice is to stock the carts with worn-out or partially disabled pitters, or with those animals which are guilty of kicking or jibbing. Instead of these departments being used as hospitals, economy would be best served by their acting as nurseries. In whatever way effected, certain it is that true economy requires horses to be in fair condition before being put to pit work. In practice, circumstances frequently occur in which we are obliged to place horses in the pit irrespective of their condition. We must then endeavour to conserve their strength as much as possible until food and work have produced that muscular tone we call condition.

In all large establishments diseases and accidents cause horses to be at times "off-work. When the number of animals kept is just equal to the amount of work done, this event necessitates either loss of work or excess of labor for the other horses. Now, excess of labor invariably means loss. To make twelve horses do the work of fourteen is certainly not economy. First we lose condition, then health, and lastly life, and this follows unavoidably. It may not be so immediate as to attract the notice of the unskilled, but it is so far from remote as to surely affect the cost of horses throughout the year. This cause of loss is entailed in all establishments where spare animals are denied; one spare animal—horse or pony, as may be necessary—is required for every twenty on the colliery, and it will not be kept idle. In fact, what with lameness and illness among the others, it will be nearly constantly at work.

Having thus got a fair stud properly proportioned to the work, our next task is to keep them as economically as possible. Let me repeat—this requires that they be kept in condition. What is this "condition" upon which I insist so strongly? It is that state of the system in which nerve and muscle are braced to their fullest extent; that state in which the animal body is capable of performing its greatest amount of work, and in which alone it is capable of sustaining prolonged efforts. If we look upon a horse simply as a machine for work, this state is the only one in which we can use him for hard work economically. With it we obtain the greatest amount of work of which his muscles are capable. Without it we have, so to speak, a certain amount of mechanism lying idle, *i.e.*, muscular structure useless for want of tone. Yet we must not abuse this state, which depends entirely upon a proper balance, and enter a state in which economy is no longer attainable.

There are two events necessary to produce condition in horses—work and food—or rather, I should say, hard work and high feeding. The former we never lack in collieries, and the latter can easily be attained, if cost is no object. A sufficiency of oats and hay with plenty of work will produce condition, but at a cost we consider most extravagant. But high feeding can be economically attained, and we shall shew how horses may be kept in the highest condition at a cost very much below what is usually incurred for animals doing only light work.

There are three events which render high feeding economical: 1st, the selection of the cheapest but best food; 2nd, giving that food in a form most favorable to digestion; 3rd, the prevention of waste. The selection of the cheapest and best food is, of course, a matter to be settled by experiment. In this way the results I shall lay before you have been arrived at; but as I wish not only my conclusions accepted, but the plan understood I shall ask you to follow me through an outline of the rudiments of feeding, ignorance of which reduces even the most extensive and careful practice to the blind rule of thumb.

*(To be continued.)*

A VERMONT sheep-breeder recommends a tablespoonful of sulphur to two quarts of salt as a feed to sheep that will exterminate ticks. Feed this twice a month.

JOSEPH HARRIS gives this axiom:—Butter and tallow are not economical foods for cows and sheep. When we let an animal grow thin in winter, we are feeding fat and flesh. It is injurious to the animal and a great loss to us.

AN ENGLISH FARMER who has "used wheat as food for his horses for some time," tells the *Mark Lane Express* that he allows "ninety pounds per horse for the week, soaked in a cistern for forty-eight hours, in cold water. The water is then run off, and the grain allowed to remain twenty-four hours to create fermentation."

A BREEDING MULE.—It is now well established that mules do sometimes produce young. The instances are very rare, but some are well authenticated. In the famous acclimatizing garden near Paris there is a mare mule which has had two foals sired by an Arabian stallion, and is now in foal by a jack. The two foals are living and much resemble the sire.

GAIN IN WEIGHT OF CATTLE.—A Canadian farmer says: that, in order to ascertain the gain in weight of growing cattle, he tried an experiment as follows. he weighed a Short-horn bull calf on the 12th of April, 1874, when he was just 4 months old, and found his weight to be 503 lbs. May 12th he weighed 593 lbs; June 12th 703 lbs; July 12th, 801 lbs.; August 12th, 886 lbs., and September 12th, 966 lbs.; a total gain in five months of 463 lbs.; or 92½ lbs. per month.

GRADE HOLSTEINS FOR BEEF.—A Syracuse correspondent of the *Country Gentleman* writes:—Hon. C. B. Sedgewick of this place sold a heifer calf, eight months and twelve days old, to Holden & Wood, butchers in this city, which dressed as follows: meat, 552 pounds; hide, 63; rough tallow, 40; a total of 655 pounds. Its live weight was 875 pounds, and the beef was very fine and well matured. The heifer was half Holstein and Half Short-Horn, from pure-bred parents on both sides.