perience who has paid particular attention to the various conformations of hock, and the different kinds of lameness caused by the disease.

TREATMENT.—As with other bone diseases, treatment should be directed towards hastening on the process of anchylosis, thereby causing a subsidence of the inflammation and lameness. In all cases there is a union of two or more bones into one. There are really four articulations in the joint, the uppermost being called the true hock joint, where extensive motion exists. When this articulation is involved, lameness will be permanent. The articulation below this, while somewhat extensive, is simply gliding, the articulation below this is gliding and not extensive; while the lower one is also gliding, but quite slight. Either or both of the lower two may be destroyed by anchylosis, and make no noticeable alteration in action, but anchylosis of the third from below will cause a stiffness. Fortunately, it is usually the lower articulations that are involved. As stated, treatment should be directed towards terminating the process of anchylosis, and this can be best done by counter irritation in the form of blisters or the firing iron, followed by blisters. Unscrupulous or ignorant vendors of medicines claim to be able to remove spavin and leave the joint in a normal condition, but when we understand that the whole bone is involved, and the articular cartilage destroyed, we can readily perceive the fallacy of such claims. In quite young animals, repeated blistering will sometimes effect a cure (when the lameness disappears we claim a cure), but in the majority of cases it is necessary to fire and blister. As with ringbone, the lameness does not always cease as soon as the action of the operation ceases, but may continue for some months. If lameness has not disappeared in ten to twelve months after the operation, it is wise to fire again. We find some cases that cannot be cured, and the prospects of a cure cannot be determined by the size or situation of the enlargement. We simply have to operate, and wait developments.

WHIP.

LIVE STOCK.

A SHORTHORN YEAR.

The winning of the grand championship honors by a Shorthorn steer at each of the three greatest fat-stock shows in the world, namely, the Smithfield, of England, the Chicago International, and the Ontario Winter Fair, constitutes the present clearly a Shorthorn year. It has long been felt by breeders that, considering the preponderance of numbers of this breed, they were not taking the leading position in the competitions open to all that might reasonably have been expected, and it has often been pointed out in these columns that one reason for this was that so few bull calves of the breed were converted into steers, practically the whole male increase of the herds being kept entire for breeding purposes. This has been a mistaken course for more than one reason. It lowers the standard of quality of the breed as a class to put inferior bulls on the market, and it lowers the standard of prices by flooding the market with more bulls than can be sold for breeding purposes at prices sufficient to pay a profit on their production. On the other hand, it degrades the class of commercial cattle put upon the market for export beeves, or for home consumption. Where a calf takes all of a cow's milk for eight or nine months, as is commonly the case in the handling of this breed, if the cow be a fairly good milker, her product in that line should be worth as much or more than the average bull calf sells for at a year old; and if he is kept longer, his value, as a rule, does not increase, while the expense of keeping grows with his age. The reasonable inference is that, were fewer bulls kept, the range of prices would go higher. It is true that the future of a calf cannot always be foretold, and that an unpromising one sometimes turns out a superior animal or breeder, but such is not the rule, and there are many instances in which one that is off color, or of indifferent lineage, and not likely to sell at a paying price as a bull, would prove much more profitable as a steer. And, by good management, a steer calf may be raised by hand fit to make a winner in the fat-stock shows as a yearling or a two-year-old, and to sell for a fancy price. This has been proven more than once at the Guelph show, and doubtless elsewhere. In such a case, the cow which produced him, if a good milker, has proved a very profitable animal. There never was a better opportunity than the present for Shorthorn breeders to boom their favorite breed at the fat-stock shows, by trimming more of the bull calves, while prices for breeding stock are temporarily ruling low and bulls are a drug in the market; nothing will more quickly tend to increase the demand and enhance values. There is every probability that more tempting cash prizes will in future be given for steers in all the beef breeds, and for grades and cross-breds as well, and the prospect is that the raising of first-class steers will be a very profitable business, and that it will be well worth while to prepare to share in the good things in prospect in that line of live stock.

ECONOMICAL FEEDING OF SHEEP.

Address by Robt. McEwen, before the Ontario Winter Fair, December, 1907.

I am asked to introduce to you the subject of "Economical Feeding of Sheep," a matter of considerable importance, still not one that looms up as prominently as it does in the horizon of the feeders of cattle and horses. The very high values to which fodder and all grains have risen compel us to study the question very closely, and while sheep are, comparatively, very small consumers, yet it is none the less essential that they should show a profit on what they do consume. The stampede of cattlemen to get out from under the business this year has alarmed some branches of trade, which have gone out of their way to circulate their opinion that farmers are not wise to curtail their feeding operations by selling off their cattle. But whilst we hear so much of lean and immature cattle being marketed, there are no indications of the sheepmen following suit, their business evidently being sufficiently encouraging to stay with it. It has been pointed out to me that my subject should be treated from a feeder's rather than from a breeder's standpoint; but, in this Province of Ontario, only lambs are fattened for slaughter in any quantity, and, therefore, what is of more general interest is the economical feeding of the breeding flock, whether of grade or of pure breeding.

Profitable sheep breeding and feeding depend upon the selection of a breed or cross that is adapted to the environment, and the providing of a suitable variety of feeds. In Britain we find distinctive breeds of horses, and, more especially, breeds of cattle and sheep, that have identified themselves with and often are almost wholly confined to certain counties or groups of counties similarly situated as to climate, soil, quantity and quality of pasturage. As a matter of fact, this is something that does not apply only to domestic animals; it is equally true as regards the human race and plant life as well. Exotics and the Codlie must have the heat, while the Eskimo revels in furs and an oily diet. The Highland cattle are no more to be found on the fens of Lincolnshire than is the Shire horse on the Shetland Islands. The black-faced mountain sheep of Scotland belong to heather-growing hills, and the delicate flavor of their mutton at once depreciates on change to wholly grass pasture. In our own Province, we find light horses and the smaller and more active breeds of dairy cattle preferred in the districts where scant pasture prevails, and, where the growth is abundant, our beef breeds develop robust form, wealth of flesh and mossy coats. We may therefore conclude that it is of the utmost importance, in order to most economically produce mutton, that a breed should be selected that is adapted to the soil upon which it must graze. In regard to supplementary green feeds, nothing appears to give better returns than rape and cabbage. During winter, for roughage, lucerne (alfalfa), red clover, and bright pea-straw, are best, with the addition of a moderate quantity of roots.

Except for fattening purposes, very little grain is required, and, when it is fed, a mixture of equal quantities, by bulk, of bran, oats and peas gives good results. The quantity of these to be given must be determined by the breed—that is, the size of the sheep. A ration for one sheep weighing 250 pounds would be sufficient for two sheep of the same age weighing 125 pounds each. A sheep will eat a little over one pound of hay, one pound of grain and five pounds of roots per day for every hundred pounds of live weight.

Amongst other essentials to economical feeding, are freedom from ticks, ample light and sunshine in quarters that are dry and well ventilated, free access to salt, and pure water.

Bardon Marion.

Shire filly, brown, foaled 1904. First and champion, Royal Show, 1907. Sire Lockinge Forest King. Owner, W. T. Everard, Bardon Hall, Leicester.

SOME POSSIBILITIES IN FEEDING PIGS.

Editor "The Farmer's Advocate":

Not being in a position to sell my grain when it was bringing the top price, I was beginning to get a touch of the "blues" on account of the drop, when I came across Prof. Day's article in "The Farmer's Advocate" of December 5th, which led me to look up some of my records in the same line. If you will kindly allow me space, I will give you the details in connection with the feeding of eleven pigs during the last winter and spring, which had been, so far as the price per bushel realized for my grain is concerned, practically overlooked until now.

The following are the most important facts to be noticed: The pigs were farrowed on Sept. 10th, 1906, by a Yorkshire sow bred to a Tamworth boar. They might be called an average lot for the purpose of an experiment, as there was a difference of 66 pounds between the heaviest one at seven months and the lightest one at eight months of age. Although the last winter was a mild one, yet this was partly offset by the pigs being kept in a cold pen. They were not forced until the last few weeks, their winter feed being the different grains, mixed with about the same quantity of pulped mangels and sugar beets, a few meals ahead of feeding, and in proportions to make an approximately balanced ration, according to the nutritive ratios of the different foods, as given by the O. A. C. Bulletin, No. 104, the ratio being widened as the pigs increased in age. The amount of skim milk and buttermilk fed is only approximately estimated at 2,700 pounds, but is practically correct at that figure. The other amounts were: Cull apples, 4 bushels; small potatoes, 2 bushels; roots, 86 bushels; shorts, 280 pounds; oats, 844 pounds; barley, 4,580 pounds; peas, 366 pounds; unsalable beans, etc., 145 pounds; total grain, including shorts, 6,780 pounds.

The best lot of five, on April 2nd, weighed, respectively, 229½ lbs., 206½, 206, 205, 174½, a total of 1,021½ lbs.; and on April 9th, one week later, 243 lbs., 226, 226, 223, 201, a total of 1,119 lbs., being a gain of 97½ lbs. for the lot, and 26½ pounds for the smallest sow. One reason for the latter gaining so much more than the others—her gain being nearly 4 pounds a day—is the fact of their being crowded somewhat heavily during the last week, to such an extent that they did not always finish eating before leaving the trough. This gave the "baby" her opportunity, and she improved it.

The amount of grain fed during the week was 283 pounds of barley and 32 pounds of peas, mixed in the form of a chop—a total of 315 pounds, or 3.23 pounds for each pound of pork made. The buyer weighed the lot at 1,100 pounds, and paid $6.65 per hundred, which brought $73.15.

The second lot of six, on May 13th, weighed, respectively, 247, 226½, 220½, 219½, 193½, 177 lbs., a total of 1,284 lbs., and the buyer's weight of 1,260 lbs., at $6.40 per hundred, brought $80.6C. One point of interest which is made prominent by giving the respective weights of each, is the fact that, although two or three mediums in each lot were fairly uniform in weight, yet, on the whole, they were a very uneven lot, and would probably not feed to as great an advantage as would be the case in a more even lot. It may also be noticed that the heaviest of the first lot, during the last week, made a much poorerer gain than any of the others, and only a little more than half of that made by the lightest one.

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