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These, then, are the outstanding facts which interest and affect the farmer. Hog-raising pays handsomely, and there is among packers that healthy competition for hogs which insures to the farmer the fullest value for his hogs week by week, no matter what the season or where he may market them.

THE WM. DAVIES CO., LIMITED.
(Per F. J. Smale, Ass't Gen'l Manager.)
Toronto, Jan. 3rd, 1906.

How to Increase Lean Meat.

Lean meat is muscle, and cannot be increased by any system of feeding, writes Mr. John Wrightson in the Agricultural Gazette. It is a desideratum that carcasses should be full of lean meat, and it is important to study how this can be secured, as it no doubt can be. There is one point which must be kept in mind, namely, that, although the absolute muscle cannot be increased, it can be so interlarded with fat, distributed between the bundles of muscular fibres as to be greatly enlarged in volume and weight. In this sense lean meat can be increased and rendered more palatable and digestible. Muscle, or lean, appears to be a matter of breeding rather than of fattening, and no doubt is affected by exercise, as in the case of wild animals. Patchy fat cattle are never admired by butchers. They lay on fat in lumps which destroy the symmetry of the carcass, and often leave gaps or hollows which want filling up. Firm handling, and a level, well-proportioned carcass, free from gaudiness, indicates fat well interspersed with lean, and are features which always command the attention of judges. To say that animals should be bred for lean meat, means that they should be bred to lay on fat in the proper places, so as to produce an economical carcass, or to develop what was termed by the early breeders utility of form. Like milk, this is more a matter of breed than of feeding, but, like milk, it depends a good deal upon feeding and management, as well as breeding. A young growing animal is more likely to increase in muscle than an adult animal, and hence the preference for young steers. Neither should exercise be forgotten. Pigs which are allowed to roam freely during their growth always develop hams abounding in lean meat; whereas closely-confined pigs yield hams which are often a mass of fat, with very little lean. Similarly, Welsh and other mountain sheep, and Down sheep, are full of lean meat, while the lowland breeds are disposed to accumulate fat in undue proportion on the loins and back. This may be said to be a matter of breed, but it is also a matter of activity. It may be lost by long-continued breeding under conditions which encourage indolence. Just as truly as exercise and freedom encourage muscle in horses, so must it with young cattle, and a natural free life and plenty of wholesome food, no doubt, encourage the formation and full development of lean flesh. On the other hand, confinement and fattening from birth must lead to atrophy of the muscles, fatty degeneration of the tissues, and an accumulation of fat instead of lean.

Animals should be bred for lean meat—that is, for the disposition to lay on fat in the right places—and this is within the powers of breeders, as it is indicated by the touch or handling.

Nitrogenous foods are called flesh-formers, and starchy or farinaceous foods are called fat-formers. For an adult animal flesh-formers are less necessary than for growing animals, because in youth the muscles are still growing. An adult animal uses nitrogenous or flesh formers for producing fat, as his flesh is already formed, and all he requires of nitrogenous food is sufficient to repair the waste of the system. This he can find enough of in barley meal, which, although farinaceous, contains a fair proportion of the nitrogenous element. Bearing in mind the fixed and anatomical character of muscle, it is difficult to see how any system of feeding can greatly alter it. Also, remembering the accidental, trivial and unorganized character of fat, it is easy to see how it can be encouraged at will, so that, as Sir John Lawes long ago stated, fattening is actually the accumulation of fat in the animal body. It would be evidently erroneous to say that it is the accumulation of lean in the animal body, and it never can be. We may, therefore, give up the idea that any special dietary can materially increase the amount of lean meat in an animal.

I like your paper very much indeed, and think it is constantly improving. I do not know of a general farm paper that is its equal. I can show it with pride to my friends here.
V. A. HOOPER.
University of Arkansas, U.S.A., Agricultural Experiment Station, Dairy Department.

The Four Great Beef Breeds.

IV.

SHORTHORNS.—Continued.

Favorite (252), a light roan bull, born in 1793, died in 1809, the greatest of old-time sires, and the most potent in improving the breed, has been described as "a large, massive bull, of good constitution, with a fine, bold eye, remarkably good loins, and long, level quarters. His shoulder-points stood wide, and were somewhat coarse, protruding into the neck; his horns were long and strong. Coates, the first editor of the herdbook, called him 'low in the back.' Waistell said he was a grand beast, with a good coat, and as good a handler as ever was felt." He was sired by Bolingbroke (86), called by Coates the best bull he ever saw, and the dam of Favorite (252) was Phoenix, daughter of Lady Maynard, by Fol-



Charles and Robert Colling.

gambe (263), a white bull with a few red spots. It was in the breeding of Phoenix that the Bakewell system of inbreeding was first tried, and Favorite, having a double infusion of the blood of Foljambe and of Lady Maynard, represented the first fruits of the application of that system in Shorthorn breeding. So nearly did Favorite meet with Mr. Colling's views that he began with this bull a most extraordinary course of inbreeding, using the bull for years indiscriminately upon his own offspring, often to the third, and in one or two instances to the fifth and sixth generations. His get were the most celebrated Shorthorns of their day, and his descendants constitute a large percentage of the foundation stock upon which the herdbook record stands. He was bred back to his own dam, the produce being the heifer, Young Phoenix, who was then bred to her own sire, and the issue of that doubly incestuous breeding was the famous bull Comet (155), the first bull to sell for \$5,000.

The first calf got by Favorite was dropped by "The Duchess Cow," and the second was a bull that was afterwards castrated, and became famous as "The Durham Ox" (a roan, like his sire) who was prepared for exhibition. His dam was a grade cow, probably not highly bred, as her color was black. This steer was fed up to his greatest flesh-taking capacity, until, at nearly five years old, he had attained a reputed weight of 3,024 pounds, when he was purchased to be exhibited and carried throughout the country in a large van, making his owners much money, owing to the crowds coming to see him at an admission fee. After five weeks travelling, he changed hands at the price of £250 (\$1,250), and it is said, could have been sold a few months later for \$10,000, which was refused. He was travelled for six years, when he met with an ac-

cident, and was slaughtered soon after, his flesh, tallow and hide weighing a total of 2,620 pounds, at the age of eleven years, and after eight weeks of painful lameness.

"The White Heifer that Travelled," born in 1806, and reared by Robert Colling, was another of the get of Favorite (252). She was twinned with a bull, and failing to breed, was also placed on exhibition, her live weight being given as 2,800 pounds, and her dead weight 1,820 pounds. Her portrait shows her to have been very heavy in the front quarters, considerably lighter behind, and quite patchy on the rumps, but of great size and substance.

THE KETTON AND BARMPTON SALES.

The dispersion sale, in 1810, of the Ketton herd of Charles Colling, occurred at a time of extraordinary agricultural prosperity, and the sale, which was well advertised, marked an era in Shorthorn history, twenty-five cows and heifers selling for an average of £40 4s. 7d., or \$745 each, and eighteen bulls and bull calves for an average of £169 8s. (\$3,235). Three-fourths of the cattle were got by Favorite (252) and his son Comet (155), and a large proportion of the females were in calf to Comet, who sold for 1,000 guineas (\$5,000). The highest-priced female was one of his daughters; Lily, a white three-year-old, sold for 410 guineas. Comet was the great attraction of the sale, and his close breeding, being by Favorite (252), dam by Favorite (252), out of Favorite's (252) dam, it is said, did not detract from his value or appearance. He was a light roan, with red neck, and it was admitted by eminent breeders that he was the best bull they ever saw. He was purchased by a syndicate of four breeders.

Robert Colling, of Barmpton, in 1815, made a partial sale of his stock, at which 61 head of cattle sold for an average of £128 14s. 9d., the top price being 621 guineas for the bull Lancaster (360). While the Shorthorn history of this early period deals mainly with the work of the Colling brothers, there were many other breeders of the same period that were doing intelligent work in improving the breed. "Whether the Collings really earned the right to be called the first great improvers of the modern Shorthorn, or whether they gained their fame mainly by reason of the novelty of their methods and their superior enterprise as advertisers, the fact remains that more pedigrees in the English and American herdbooks trace to the Colling herds than to any other dozen herds of the same period combined, and their superior judgment and skill as breeders was generally acknowledged and admitted by contemporary breeders of their day.

Outlook for Sheep Industry.

A decline in the world's supply of sheep has been going on for a quarter of a century. Statisticians have been preparing figures regarding the number of sheep in various countries, which, in nearly every case show a falling off in recent years. That this decline can be suddenly arrested is not at all probable. It must naturally take time to restock. The demand for mutton and lamb is growing in this country, and will offset any tendency towards an oversupply for some time. Therefore, in spite of the pessimistic view taken by those who think it is high time to get out of the sheep business, we consider it a good time to stay with it. To those who intend to make a start in the sheep business, we would say: Begin on a good foundation, and stick to it through thick and thin. The sheep industry, like every other, has its ups and downs, but every "up" is higher than the previous one, and no "down" goes as deep as the one that went before. With very few exceptions, sheepmen have made money this year, the extensive flockmasters



Royal Hero 2nd and Victor's Favourite.

First-prize yearling Shorthorn steer and first-prize grade steer under one year. Ontario Winter Fair, Guelph, 1905. Bred and exhibited by Israel Groff, Alma, Ont.