

stand sixty hours produced only twenty-seven pounds of butter, while an equal quantity standing only thirty hours produced thirty pounds of butter. It was found also that one hundred measures of new milk yielded thirteen and a half measures of cream after standing eighteen hours, and the same quantity after twenty-four hours, but less than thirteen measures after standing forty-eight hours. The same experiment was carefully repeated; when one hundred measures gave thirteen measures after standing eighteen hours, and the same quantity after twenty-four hours; but it gave only twelve measures after standing forty-eight hours. It was proved that eighteen hours, with milk standing in a temperature of sixty-two degrees, is better than any longer time, and that all the cream that is worth getting will rise in that time.

Milk that has been agitated or shaken up, as when sent by railway, throws up less cream than that which has been less disturbed. A careful trial was made to settle this point and here is the result. One hundred measures of new milk after standing twenty-four hours at sixty-two degrees, gave twelve measures or twelve per cent. of cream, while at the same time a like quantity of the same milk, after having been gently shaken in a bottle, threw up only eight per cent., a loss of one-third in the quantity of cream. This shows that the shaking the milk gets when transported by rail has the effect of breaking some of the cream or butter globules, the consequence of which is either that a portion of the fatty matter remains suspended in the milk, or which is perhaps more probable, the cream which is thrown up becomes richer in fat.—*Massachusetts Ploughman.*

"MAMMA, where do the cows get the milk?" asked Willie, looking up from the foaming pan of milk which he had been intently regarding. "Where do you get your tears?" was the answer. After a thoughtful silence, he again broke out: "Mamma, do cows have to be spanked?"

A COMBINATION ice and freezing house has just been patented. The freezing apparatus is on the top of the ice house, covered only by an awning. It consists mainly of a water tank, from which the water flows in a thin stream down to inclined "cooling places" into canvas boxes, in which it is left to freeze. The ice being solid, it is removed from the boxes by the application of steam, and deposited in the house beneath.

YIELD OF MILK.—One of your correspondents asks how much milk may be expected from a dairy of twenty-five cows. I have no data for the exact number of cows named, but give the following yield of a thirty-cow dairy in Delaware Co., Pa. The presumption from the figures is that the cows were fed high and kept fat, so that when one of them failed to pay for her feed by her milk she was sold to the butcher and a fresh one purchased. The yield, as given us, is, January, 7,131 quarts; February, 7,501; March, 8,588; April, 9,034; May, 9,945; June, 9,074; July, 9,134; August, 7,778; September, 7,284; October, 7,030; November, 5,910, and December, 6,202; a total of 94,525 quarts in a year, or 2,180 per cow per year—69 quarts to each cow per week—8.57 quarts per day. As a sequel, I may add that all these cows were selected by an expert, under the Guenon system of marking. If I knew the difference between the value of cows bought and cows sold, I would have data from which to answer your correspondent's second question.—*Buffalo Express.*

DIFFERENCE IN TASTE. CONCERNING CHEESE.—The question whether a cheese is a good or bad one is to some extent one of taste. There is a fine demand at good prices for Swiss and Lomburg cheese, yet the average American finds it difficult to eat either, often unpleasant to be near them. Even in American cheese there is considerable difference. Thus we have heard complaints by grocers of the cheese made by a Wisconsin factory which stands high, and cheese from which have been sold this season for the New York and European markets at prices equal to any that have been paid in the state. These same grocers report their customers well pleased with cheese which buyers for the English market would consider decidedly inferior to the other. The latter cheese is soft, ripens quickly and suits the taste of the average American when comparatively new, although it probably will grow sharp and perhaps disagreeable with age. The other is unusually solid and harder, made with special reference to the English market, and its mellowness, richness and agreeableness will increase with age, up to a reasonable time. Both of these makes are good cheese judged by different standards. Each suits the taste of a set of consumers, while each is unsatisfactory if offered to another class with different taste.

Veterinary Department.

Diseases of the Osseous System of the Horse and other Animals.

Spavins, Splints, and Ringbones.

By custom a bony tumor which on any of the bones of the trunk would be called simply a bony tumor or exostosis, is, when situated on the inner and lower part of the hock joint, termed a spavin. What may be the etymological value of the word no one seems to know, but all horsemen clearly understand its significance as applied to the disease of the hock. The situation of a true spavin has been arbitrarily assigned; it must occupy that part of the hock which is constituted of the small bones at the inner aspect, in junction with the head of the inner splint bone and a portion of the inner surface of the head of the shank bone. Certain limits are allowed, but they are very restricted. A spavin may be placed somewhat forward; but to be true to the definition, it must implicate the bones which have been named.

The term spavin is used, with qualifying words, to indicate enlargement in the joint structures of the hock; the result of synovial dropsy, which causes the protrusion of the capsular ligament in front of the chief articular surface; but this disease has nothing in common with true spavin.

It is a matter of dispute as to whether an enlargement in the bones of the outer side of the hock can be properly termed a spavin. As a matter of observation, we can affirm that such a deposit is not so called. The common expression, "a lump on the outside of the hock," is used often enough, but the term spavin never. Deposits on the outside of the hock are perhaps not so frequently seen as spavins are, but they are not so rare as some persons imagine; on the contrary, they may be looked upon as very common blemishes, seldom or never causing any inconvenience to the animal, and therefore attracting little attention unless they happen to have attained an unusual size.

In explanation of the more frequent development of bony tumors on the inside of the hock, it is suggested that the part is more directly under the centre of gravity, and thus more exposed to the influence of the animal's weight in progression. A more satisfactory reason, however, is to be found in the position of the bones in the inner surface of the joint, which permits greater freedom of motion, and renders that portion more liable to sprain and concussion during violent action. The influence of shoeing must not be lost sight of. It is our custom to alter the position of the hind foot entirely by elevating the heels, for the ostensible purpose of preventing the animal from slipping. How far we attain this object may be a matter of doubt; but there can be none as to the amount of mechanical derangement which calkins cause. The bearing of the articulation of the whole limb must to some extent be altered; and the hock, owing to its complex character, would suffer in proportion more than the other joints. If it be remarked that the influence of calkins is universal, while spavins are only occasional things, we can answer that a specimen of a perfectly healthy hock is not readily obtained; on the contrary, the anatomist is perfectly aware that he will be required to clean a good many hocks before he will obtain a set of bones perfectly free from ossile deposits, although the disease may not present the essential characters of the true bone spavin.

Conformation of the hock joint has probably something to do with liability to spavin; but, unfortunately, veterinarians and horsemen are not agreed among themselves as to the particular form of hock which is most likely to suffer. In fact, each observer bases his views on his own experience, and decides that the form of hock which he has seen most frequently affected with the disease is the objectionable one; and, as spavin occurs in all kinds of hocks, it is easy to understand the discrepancies of opinion which exist. Of two extreme errors in conformation, it is difficult to decide which is the worst—the very short, thick-set hock, or the long, thin, weak joint, which seems scarcely able to support the weight of the hind quarters. The short hock has the advantage on the score of strength, but is likely to be injuriously affected by concussion, while the long weak joint would most readily suffer from the effects of excessive flexion and extension. Thus, between sprain and concussion, there is not much to choose in the two forms of joint. Perfectly healthy and well shaped hocks are not exempt from liability to spavin; but

they are much less commonly affected than either of the two imperfect forms which have been referred to.

Constitutional tendency is generally admitted as a cause of the prevalence of spavin; but the grounds of this belief are not very well defined. It is asserted, no doubt with truth, that the progeny of certain well-known horses, whose hocks were affected with spavins, have become the subject of the disease at an early age. The cases, however, are very few, and the evidence is rather traditional than practical. There is no doubt of the existence of a constitutional tendency to ossile deposits, and the fact of the existence of spavin is often taken as evidence of this tendency; therefore, a stallion afflicted with the disease is considered to be ineligible for stock purpose, although the presence of numerous splints and other exostoses would not be held to disqualify him as a stud horse. The fact really is that spavins are so much more serious affairs than splints; that their presence excites alarm, and the animal affected with them suffers in reputation in consequence. But it is quite possible that a stallion may possess a constitutional tendency to ossile disease, evidenced by the existence of exostoses in various parts of the limbs and body, while the hocks are free. Another may be affected with spavins as the result of severe use of the hock, although free from hereditary taint. It is hardly necessary to remark that the last animal would be the safest to breed from.

Technically, a spavin is always an unsoundness, no matter whether it interferes with the animal's action or not. This is one of the clearest points in veterinary jurisprudence. The only difficulty is the proof of the existence of the disease; and, rather oddly, there is no affection to which the horse is liable which is the cause of greater difference of opinion among professional men.—*Field.*

How to Administer a Ball to the Horse.

A common form in which medicine is given to the horse is by means of the ball, an oblong mass of rather soft consistence, yet tough enough to retain its shape, and wrapped up in thin paper for that purpose. The usual weight of the ball is from half an ounce to an ounce; but they may be given of a larger size, if they are longer but not wider. Every man owning or handling horses should know how to give a ball, which is managed either with or without a balling-iron, an instrument which is seldom wanted, and which sometimes occasions considerable mischief to the roof of the horse's mouth. Occasionally a horse cannot be managed by any other means; but, generally speaking, they are only an excuse for bad management. In giving a ball in the ordinary way, the horse's tongue is drawn out of his mouth on the off or right side, and held there firmly with the left hand grasping it as near the root as possible, but to a certain extent yielding to the movement of the horse's head. While the tongue is thus held, the ball is placed between the fingers and thumb of the right hand, extended in a wedge-like or conical form, so as to pass as far down the swallow as possible, and the hand in this form, with the arm hared to above the elbow, is carried over the root of the tongue till it feels the impediment caused by the contraction of the swallow, when the fingers leave the ball there, and the hand is withdrawn quickly yet smoothly, while at the same moment the tongue is released, and the head is held up till the ball is seen to pass down the gullet on the left side of the neck, after which the head may be released.

When the balling-iron is used, the oval ring of which it is composed is passed into the mouth, so as to keep it open, being first well guarded with tow or cloths wrapped round it. The handle is then held in the left hand, together with the baller, so as to steady the head, and yet to keep the horse from biting; and while thus held the hand can freely be passed over the tongue, and the ball deposited in the pharynx.

In the usual way the horse to be balled is turned round in his stall, which prevents his backing away; and if the man is not tall enough, he may stand upon a stable bucket turned upside down. Balls should be recently made, as they soon spoil by keeping; not only losing their strength, but also becoming so hard as to be almost insoluble in the stomach, and frequently passing through the bowels nearly as they went into the mouth. When hard they are also liable to stick in the horse's gullet. If ammonia or any other strong stimulant is given in this way, the horse should not have his stomach quite empty, but should have a little gruel or water just before; for if this is put off till afterwards, the nauseous taste of the ball almost always prevents his drinking. When arsenic forms the principal ingredient of the ball, it should be given soon after the horse is fed; or a quart or two of gruel should be given instead just before the ball.—*Prairie Farmer.*