HORSES AND CATTLE.

BOX-FEEDING.

A SURE METHOD OF SAVING MANURE.

The manure of the stalls and stable may be profitably treated in three ways: it may be carried to the field as fast as it accumulates, whatever be the season of the year; it may be allowed to undergo a more or less complete fermentation or rotting in the yard; or it may be suffered to accumulate under the feet of the animal for several weeks at a time, as in the system of box-feeding. There is more or less danger of loss of fertilizing matters in following either the first or the second course; water flowing over the surface of the ground from a sudden thawing of much snow, or a heavy rain coming before the ground is thawed, would carry off soluble matters in the first case; in the second case, unless the manure pile is put on an impervious bed, unless all drainings from it are carefully saved, and unless the pile is kept from becoming dry, the loss is likely to be more serious than in the field; a pile of rotting manure must be cared for; it will not take care of itself. On the other hand, in a properly prepared stall, and with the right management of the litter, but without, after all, any more attention in this respect than the proper care of an animal in any kind of a stall requires, all the fertility there is in the manure at the outset is absolutely safe; nothing soluble need be lost even if the stall has not an impervious bed, for enough litter must be used to keep the animal dry and clean, and this will take up and hold all liquids within the mass of the manure; no ammonia will escape, because the manure has no chance to become dry or to get overheated.

Analyses of box-feeding manure made in Germany within the past two years gave results that sustain the theory in regard to this matter; although an extra large quantity of litter, which is poor in nitrogen, must be used, the manure was found to be richer in nitrogen than that which is well kept in the ordinary manner. In one of these cases, instead of a stall for each usimal, the manure of seventy head of cattle, comprising milch cows, oxen and young cattle, was allowed to accumulate under foot in a large covered stall, with a few partitions dividing the animals into families of such as would live peaceably together; the manure contained 27.5 per cent of dry substance and 0.66 per cent of nitrogen, while twenty-five per cent of dry substance and 0.45 per cent of nitrogen are as much as can usually be allowed for the manure of such cattle. Professor Way, of England, found in the manure of box-fed fattening oxen almost one-third more nitrogen than in a similar manure stored in the yard in the ordinary manner. As to immediate availability of the plant nutrients in the two kinds of manure, there is no proof of any essential advantage possessed by one over the other; and to the proportion of phosphoric acid and potash there is no essential difference, if reasonable pains are taken to prevent leaching in the pile; if such precautions should not be taken, the box-manure would be not only richer in these nutrients, but its superiority in respect to nitrogen would be increased in still greater proportion.

Box-feeding is considered as specially fit for fattening cattle; the proper ration for fattening is particularly rich in nitrogen, but nearly all this nitrogen, about ninety-five per cent, reappears in the manure; and no other system of managing the manure so easily and so completely preserves this valuable nitrogen from loss. It is objected by some that the health of the animals must suffer from the exhalations of the mass of manure over which they live; but there are, I think, no authentic observations in support of this objection. A more important difficulty is found in the first cost of the stalls, since the floor must be lower than the general level of the floor for other cattle, in order to give space for the accumulation of the manure, and the cribs must be adjustable at different heights; more space must be allowed to each animal than in ordinary stalls, and it is considered as important that the floor and lower part of the box should be watertight. But these obstacles being once overcome, those who try the system are well pleased with the results. The writer of a Prize Essay on farm buildings in the Journal of the Royal Agricultural Society for 1850, says that no plan "has so completely answered the prime object of converting the vegetable productions of the earth into food for mankind in the shape of flesh as that of feeding in boxes or loose stalls," and he proceeds to give a very full account of the construction of the boxes, about ten feet square being allowed to each animal. In an Austrian Agricultural Annual for 1870 it is stated that notwithstanding the greater first cost of the stalls the system is finding increasing favour there. Dr. G. C. Caldwell in N.Y. Tribune.

FARROWING COWS.

PHYSIOLOGY AND ECONOMY OPPOSE THE STSTEM.

Those who keep only a single cow, as is often done by residents of towns and cities, are, by some, advised to farrow her for the purpose of securing a continuous supply of milk. The propriety of farrowing is further urged upon those who keep a Jersey cow, for the reason that it does not pay to raise Jersey steers for beef nor Jersey heiters for farm dairies. So far as raising Jersey steers for beef has any connection with the matter, the advice is well enough. Jerseys are unprofitable animals for beef. A most essential element in beef production is muscle. An abundance of muscular tissue forms the basis not only, but the great bulk of beef. In Jersey stock this important element is deficient. There is no other breed in which it is so defective in comparison with other parts, as in the Jerseys, to say nothing of their diminutive size, which is also a serious objection. This defect is the natural result of their treatment. Reared upon an island too limited to admit of allowing them to roam, like cattle elsewhere, over the fields to graze, they have been tethered out for generation after generation and thus denied the exercise necessary to a full muscular development and size of frame. Jerseys raised in this country, where they have the liberty of the fields, are gradually overcoming the defects of their treatment at home, but it will be a long time before it would be sound advice to urge either | be content to use milk depressed in flavour

towns-people or farmers to raise Jersey steers for beef.

With heifers it is different. If it does not pay the townsman, it does pay the farmer to raise a good heifer, be it Jersey cr any other breed. No one need feel any alarm about having his dairy injured from the presence in it of Jersey blood, whether in the veins of grades or herd-book animals. But the soundness of the advice to the owners of single cows to keep them farrow as long as they will continue to give milk, does not depend so much upon the disposition that is to to be made of their calves, if they should have one every year, as it does upon the modifying influence which farrowing has on the secretion of milk. The production of milk is not a spontaneous effort of the mammary glands. Those glands constitute a part of the organs of reproduction, and the secretion of milk in them is the result of the stimulating influence of the other generative organs when in a high state of activity excited by the act of reproduction. A feeble secretion may be induced by other agencies, but the rule is-no young, no milk. It must be one of the plaines: of inferences that the amount and character of the milk secreted must vary continually as the stimulating cause which has produced it dies away. It is so in fact. As soon as the mother has recovered from the shock of parturition, her milk is most abundant and most perfect in quality. It is then that the fat globules have the largest size and the highest flavour, the aromatic oils-butyrine and its associates-being then in their highest state of perfection and largest in quantity. It is then also that the albuminous matter in milk is in the most perfect state of solution and is the most easily digested and assimilated.

From this stage onward milk steadily changes, diminishing in quantity and depreciating in quality till in the end it dries down and acquires conditions quite different from those it started with. The fat globules diminish in size and delicacy of flavour, and the cheesy matter which was at first in a state of complete solution, is found, as the distance of time from parturition lengthens, to be gradually assuming a solid condition, and more and more of it to be diffused, like the fat globules, in a state of suspension through the milk in the form of minute fragmentaryappearing solid particles. If, in the early part of the milking season, we remove all the cream from milk, the serum, or skim-milk, though rich in cheesy matter, appears blue or transparent, showing that its caseine is in a complete state of solution. As the season advances, this transparent appearance of the serum, after the cream has been removed, diminishes, and the skim-milk appears thicker and whiter from the presence of an increasing quantity of solid albuminous particles. These increasing atoms of solid matter in milk, are believed to be insoluble and indigestible; at any rate, cows which have been giving milk for a year or more, generally have their milk become so difficult of digestion that infants and invalids cannot use it, when they can use that from cows which have recently come in.

The .nan who keeps but one cow to furnish his family with milk and farrows her for the purpose of having a continual supply, must