

Stock Department.

The Winter Management of Stock.

In a climate like ours, subject to such extremes of temperature, the management of the domesticated animals is a matter of the greatest moment to the farmer, and demands a large share of his time and attention. This is particularly the case during our cold and tedious winters, when all kinds of live stock are sure to deteriorate very seriously in condition and value if not properly cared for. As the present winter has been characterized by an unusually early and severe commencement, a few practical remarks on this seasonable subject may not be without their use to many of our readers.

We propose treating the subject under the following heads: (I.) The necessity of a sufficient and regular supply of nutritious food. (II.) The importance of wholesome water. (III.) The advantages of artificial shelter, in relation to the health and thrift of animals, and the economy of their food. (IV.) Ventilation and cleanliness.

(I.) **FOOD.**—The fact that animal life and growth depend on food is recognized by all; still there are comparatively but few engaged in the practical management of stock, that have any clear conception of the materials that enter the stomach, and the way they are converted into blood, and ultimately into fat and muscle and the bony skeleton. All the materials of which animal bodies are composed previously existed in the food they consumed; consequently, a knowledge of the nutritious qualities of the different kinds of food specially adapted to the varying wants and habits of farm animals is of the utmost importance to the grazier and stock breeder. Besides, it is not enough to know what kinds of food best nourish live stock generally, but we must become acquainted with the modifications in the food and management of the same animals under different and particular circumstances. The horse, for example, must be differently fed and treated, as he may be required for the turf, the dray, the pleasure carriage, or the plough. The ox also, for the yoke, receives a treatment very diverse from that which is necessary to prepare him for the shambles. Feeding and management, when conducted on correct principles, will always be so modified as to meet the variations of breed, constitution, temperament and practical uses of the domesticated animals.

These remarks have an important bearing on breeding stock. The mare in foal or the cow in calf certainly requires special feeding and treatment, that the purposes of nature may be realized in the fullest manner. The food of the mother during pregnancy should be specially adapted to the wants of the fetus, which derives the materials of its body from the blood, which undergoes during this period the necessary changes. What are called the proteino compounds, consisting of fibrine, albumen, caseine, or legumine, more or less found in good hay, oats, beans, peas, Indian corn, &c., are naturally adapted to the wants of animals during the period of gestation. The ordinary grasses doubtless contain the mineral matters necessary to the healthy development of the framework of the fetus, such as chlorine, sulphur, phosphorus, silicon, potassium, sodium, calcium, &c. A recent authority has suggested that a little powdered fluoride of calcium, mixed with the food of breeding mares and of foals, might ensure more perfectly the chemical composition of the young bones and teeth.

The different ingredients of food may be divided into two classes:—termed "flesh formers" and "heat givers," the relative proportions of which must be determined by experience, and the age, condition, and purposes of the animals to be fed. The fat, starch, and sugar, which the food contains, are principally expended by a sort of combustion in the system,

in sustaining animal heat and the formation of fat, while the nitrogenous compounds build up muscle, and contribute mainly to animal strength. Horses, and young growing animals, require a large amount of flesh formers, which are to be found in oats, bran, and well cured hay, and they should be allowed sufficient exercise in order to effect their muscular development, and secure a sound constitution. Fattening animals, on the contrary, should be kept as quiet as is compatible with the condition of health, as all motion involves waste, and their food should be rich in oily and saccharine matters. Thus oilcake, or flax seed, is highly fattening, a moderate quantity of which, with Swede turnips and good hay, are most efficacious in bringing animals into the ripest condition for the butcher. As a general thing, a judicious mixture of food is much to be preferred to any one single kind, however excellent, and in the case of grain, bruising or grinding has been found a practice of great advantage. Cooked food in some cases is exceedingly beneficial; such as the steaming of turnips, cabbage, chopped hay or straw, with linseed and other kinds of meal, and those who have practised these processes pronounce them very economical.

At this distance from the sea, salt is essential to the healthy digestion of farm animals; and although this compound (chloride of sodium) is more or less found in all food, yet our experience shows that small quantities periodically given tend to promote complete digestion, which modern research has proved requires the aid of hydrochloric acid. Large quantities of salt have been found to retard the growth and fattening of animals, but the most desirable amount can be in most cases determined by careful observation and experience.

Regularity in feeding is a matter of much more importance than most persons would imagine who have not directed their thoughts or observations to the subject. Animals in a state of domestication, when regularly fed, naturally adapt themselves to their meal hours as do human beings. But when their food is supplied at irregular and uncertain intervals, they, like their feeders, evince uneasiness, and often excitement, indicated by lowings and restlessness, conditions unfavorable either to healthy growth or economical fattening. Animals in the latter condition especially, should be punctually fed at least three times a day. We have often seen bad effects from giving animals too much hay or other food at a time, so as to produce a satiety of the appetite. Quantity, even in case of fattening animals, should be regulated according to their disposition to clear up each meal. Mr. Stephens, in his *Book of the Farm*, gives the following incident in reference to punctuality in feeding:—

"I had a striking instance of the bad effects of irregular attention to cattle. An old staid laborer was appointed to take charge of cattle, and was quite willing and able to undertake the task. He got his own way at first, as I had observed many laboring men display great ingenuity in arranging their work. Lowings were soon heard from the stock in all quarters, both in and out of doors, which intimated the want of regularity in the cattle man: while the poor creature himself was certainly in a state of bustle and uneasiness. To put an end to this disorderly state of things, I appointed his entire day's work by his own watch; and on implicitly following the plan, he not only satisfied the wants of every animal committed to his charge, but had abundant leisure to lend a hand at anything that required his temporary assistance. His old heart overflowed with gratitude when he found the way of making all his creatures happy; and his kindness to them was so unobtrusive, they would have done whatever he liked. A man better suited, by temper and genius, for the occupation, I never saw."

(II.) **WATER.**—The importance of a copious supply of wholesome water to stock could hardly be exaggerated, and can only be adequately appreciated by

those who tend immense herds and flocks on arid plains, such as exist in many parts of our Australian colonies, and in other parts of the world. Water is the drink rather than the food of animals, yet it constitutes the greater part of their weight, and performs the most indispensable functions in the economy of all organized beings. The arrangements of farm buildings should be made so as to admit in the most convenient manner an ample supply at all times of this essential fluid to the confined animals, which require to receive it in as regular a manner as they do their food. It is to be feared that this punctuality is frequently neglected, and the consequence must be an injury to the animal that no amount of food can compensate. Water supplied to stock should, as in the case of man, be as free from all organic impurity as possible.

III. **SHELTER.**—There is no department of Stock management so little understood, and consequently so generally neglected in this country, as that of shelter. Subjected as we are to such extreme degrees of temperature, how to best protect our animals from the injurious effects of both winter's cold and summer's heat, involves questions of practical and even scientific interest. The natural temperature of the horse, ox, and animals in general, is what is termed blood heat, 98° of Fahrenheit's thermometer. Now as our winter temperature is generally much below the freezing point, 32°, and occasionally sinks to and even below zero, it is obvious that the bodies of animals must be continually losing heat, as it is constantly radiating into the cold atmosphere. If this process had no limit, or was not arrested by vital forces, it is evident that the blood and other fluids of animal bodies would soon be converted into solids, and life would consequently cease. The discoveries of chemists and physiologists have, of late years, thrown much interesting light on this hitherto complicated and difficult subject. The temperature of animal bodies is kept up to a pretty uniform standard of 98°, whether exposed to the excessive heat of the tropics, or the equally excessive cold of the polar regions; and this uniform condition of animal heat is essential not only to the health but also the life of animals in all parts of the world. Heat is kept up in the bodies of animals to about 98° by the combustion in the lungs, or in the capillary vessels generally, occasioned by the chemical action of oxygen on the fat, starch, and sugar, contained in their food, something similar to the burning of coal in the furnace of a steam-engine,—the matters expelled being in both cases precisely similar, viz.:—carbonic acid, water, and vitiated air, escaping in the former instance by exhalation from the lungs, and in the latter from the furnace of the chimney. Animal temperature, therefore, is entirely maintained at the cost of the blood, which is formed exclusively from the food. Nor does the blood fail to suffer loss even in the preparation of such substances as starch, sugar, and oil, before they become fit to generate animal temperature. It seems possible that an excess of such kinds of food as are merely fitted to maintain animal temperature might sometimes be afforded, when the temperature derived from the ordinary disintegration would be sufficient, so that all the labor of the system would be expended in vain. No doubt this can hardly occur when oxen are in the course of being fattened for slaughter, since, if the present amount of muscular disintegration be sufficient for the maintenance of the standard of temperature, any superfluous starch and sugar being changed into fat will be deposited in the tissues, and improve the animal's condition. But in the simple rearing of the young animal, during the period preceding the preparation for the shambles, it seems that attention should be given to adjusting the due proportions of azotised and non-azotised aliment—that is to say, of flesh-forming and heat-giving food. There is, no doubt, an appropriate amount of muscular exercise required for the proper growth and development of