

them an account of falls and cataracts, the young people thanked him and left the shrubbery to join Mr. Lovel, whom they saw at a distance, to tell him about the rivers which had been described to them. As they ran off, in different avenues, pushing aside the branches that intercepted the pathways, the traveller thus mused to himself as he looked after them, "How delightful is youth, when cheerfulness lights up the features, and pleasure influences the heart. May guilt and crime never stain their cheeks nor lay a load on their bosoms! May they remember their Creator in the days of their youth, and a peaceful old age be followed by a blissful immortality."

AGRICULTURE.

The Management and Food of Domestic Animals.

It has been demonstrated by the most careful investigation, that an ox consumes, on an average, 2 per cent. of his own live weight per day of good hay, to preserve him in condition. To accomplish ordinary labour, he requires to have this food increased by one fourth, consuming 2½ per cent. per day. Now what is the inference deducible from this fact, and fact it is in principle, if not entirely in degree. Why, that every yoke of idle cattle consumes as much food as is expended in the labor of 4 yoke; that is, it requires as much to support 5 yoke idle, as 4 yoke at work; or, one yoke will perform 4 days' work with the food necessary to support them five days in idleness. The unprofitableness of allowing cattle to be idle is diminished in a great degree, when applied to such as have not entirely attained their growth, when of course a part of the food consumed goes to the increase of the animals. How vastly more economical, then, is that system which furnishes to working cattle a liberal quantity of nutritious food, and exacts from them in return, a far equivalent of labor.

A cow, not in milk, eats 2 per cent. of her weight in hay per day, yet when giving milk, she requires but 3 per cent. With a given amount of pasture, then, 2 cows may afford a good supply of milk, on what is necessary to support 3 which do not furnish any equivalent for the food consumed. The advantage of keeping a smaller number of cows full fed, in which the milking qualities are well developed, in preference to wasting the same food on a greater number of half-starved animals ill adapted to the purpose required of them, is perfectly obvious.

An ox eats but 4½ per cent. of his weight per day to fatten, when, as we have said above, he consumes nearly half this amount to support life. How important to an economical expenditure of food then, that the fattening animals have all they can eat, instead of distributing it among a greater number; for it should always be borne in mind, that the vital machine, must in all cases deduct a certain amount to support itself, before any thing is added in the shape of milk, labor, or fat, for the profit of the owner.

Another important consideration is, to adapt the food to the object desired. It is well known, that different kinds of food vary essentially in the principles which compose them. All kinds of grain, peas, beans, and ripened grass, contain a much greater proportion of nitrogen than fresh grass and hay cut in blossom, roots, fruit, &c. The fat of animals contains no nitrogen, and butter scarcely an appreciable quantity, while the lean or muscular portion of flesh and cheese, each contains a large proportion. It is well ascertained, that of all the carbon taken into the stomach as food, the horse daily expires about 100 ounces, and a milch cow, about 70 ounces, and an adult man taking moderate exercise, 13.9 ounces in the form of carbonic acid. The expenditure of the carbon of the food is under all circumstances absolutely essential to respiration. All action or motion, or force, requires an expenditure of the muscular portion of the animal, that is, the more highly nitrogenized part. It follows then, from the above principles, that for the performance of labour, well ripened grass and grain are required; and they are equally necessary to produce the maximum of cheese and wool, the peculiar principle of the former, casein, and all the latter, being highly nitrogenized; whereas, if fattening alone is the object, roots may be plentifully added to the hay and grain. Cows do not yield so much cheese when confined in a stable, as when rambling freely over a pasture, though they will yield much more butter on the same food when confined. It is very properly supposed that exercise is essential to the fullest development of the casein in the milk, it being produced by the consumption of the tissue, and its subsequent conversion into casein.

Another great consideration is the economical management of animals is, that they be as well protected from cold and storms as circumstances will permit. The propriety of this will appear from the fact, that the expenditure of the carbon of the food above stated, is required to sustain the animal heat at the necessary temperature, and if this heat be abstracted, from any cause; as exposure to cold, winds, or wet, an additional amount of food is consumed to supply the waste thus occasioned. This is an inevitable deduction from the most firmly established principles of science, and however the health and thrift of animals which are subject to such exposure may appear to controvert it, actual experiment has fully confirmed the absolute certainty of the conclusion. Animals may be as healthy, and thrive well when exposed to the inclemency of the weather, yet they will require a much greater quantity of food to produce the same effect, than when properly housed and protected.—*American Agriculturist*.

Winter Stall Feeding,

Is the only profitable mode, in this climate, of fattening cattle for the shambles in winter. Were they suffered to roam in the yard and field, exposed to the wet and cold, it is very evident they could take on flesh but slowly, and but illy compensate the owner for the expense of high keeping. A certain quantity of food is required to prevent their growing lean; all beyond this is the design of the feeder to have manufactured into meat and tallow; or as Bakewell was wont to say, converted into money. It is all important on the score of profit, that this process of converting herbage and other animal food into money, should be managed as expeditiously as a well judged economy will permit. Upon this, as upon every other branch of husbandry, we may profit from the experience of others, if we are not too conceited and fastidious in our own opinions. Young says, that "men farm without an idea of the necessity of knowing what others have done before them; and it is very right that thousands of pounds should be lost, by feeding beasts in open sheds, by men who think they can learn nothing beyond the practice of old women, their grand mothers; while the board of agriculture has annually brought to light practices unknown to the same men, who cannot see any use in such publications."

As to the relative advantages in the economy of feed, of having fattening cattle tied up, we have the declaration of Mr. Ellman, well known as a distinguished herdsman, "that nine oxen, fed loose in a yard, have by eating as well as destroying, consumed as much as 12 when tied up." Although much may be said in favor of keeping cows and store cattle, in covered sheds, instead of close stables, there is no doubt but fattening beasts thrive best when constantly confined in a warm stable, when proper attention to cleanliness is observed. We abstract the following rules, regarding the management of stall feeding cattle from the 12th No. of *British Husbandry*:

"The first point is the comfort or accommodation; for in whatever way they may be placed; whether under sheds or in close ox-houses, they should have the security of perfect shelter from the weather, with a certain degree of warmth; that is to say—if in open trammels, the sheds should be broad, the roof low, and the floor covered with an abundance of dry litter. We are, however, decidedly of opinion, that close stalls will further the objects more promptly; though we do not coincide with the idea that it will be promoted by too much heat, and we should therefore recommend a moderate degree of healthful ventilation. In these stalls litter is, indeed, very frequently dispensed with,—or else sand or any rubbish, is substituted for straw, but there can be no doubt that the animals enjoy the comfort of a dry bed as well as their master, and the more they seek repose in it the better.

"The next is strict regularity to the administration of food—both as regards the stated quantity and the time of supplying it. The periods may be afterwards altered. The ox is a quiet animal, and those which are fed in the house soon acquire a precise knowledge of the exact hour at which it is usually given: if that be transgressed, or the customary quantity be not furnished, they become restless; but if the time and quantity be strictly adhered to, they remain tranquil until the next period arrives. If no disturbance takes place, they then generally lie down and ruminate and nothing will be found more to forward the process of fattening than this perfect quietude; wherefore should the stalls be not only well bedded, but light should be very much excluded, the doors should be closed, all outward annoyances as far as possible prevented—and, in short, every means should be induced to promote complete rest, ease and contentment.