

history of animals, from the insect, the object of microscopic vision, through all their gradations, giving an account of their appearances, number, habits, ages, &c. Geology, imparting a knowledge of the crust of the earth, with the various formations; changes, hills and valleys, rocks and mountains, rivers, lakes, and oceans, the changes of climate, fossil remains, &c. Chemistry, pointing to the ultimate elements of which all things are composed, and which regulate their composition and decomposition. Natural Philosophy, treating of the laws of motion and rest, in masses or bodies of matter. Astronomy, teaching the magnitude, motions, distances, periods of revolutions, and eclipses of the heavenly bodies,—unfolding to the mind the most stupendous works of God. Physiology, showing us the wonderful mechanism of our frames, with their organs, and the laws of health. Botany, giving a knowledge of the curious structure of plants, with their uses, and showing the wisdom and goodness displayed in their formation. The evidence of the truth of our holy religion. Intellectual and Moral Philosophy, treating of the powers and reflections of the mind, and showing our duties towards God and man." Excellent as the above outline may be, it is not well adapted, we think, to the daughters of farmers.

AN OLD FARMER.

Yarmouth, Jan. 20th, 1854.

To be continued.

ON FATTENING ANIMALS.

To the Editor of the Canadian Agriculturist.

DEAR SIR,—The insertion of the following remarks in your columns, would much oblige the writer.

Having, through a few years of observation, become cognizant to a certain degree, of the way in which animals are generally fed for the slaughter, and being led by these observations to the conclusion, that, in one or two points at least the farmer seriously neglects his own interests. I have thought that it might be advantageous to some to point out these errors, and to explain their detrimental mode of action.

The first to which I will allude, is the want of cleanliness and dryness; and this is more especially overlooked in the case of pigs, which are generally placed in very disadvantageous circumstances in this respect—so much so, indeed, that I am of opinion no small quantity of their food is, owing to neglect of this indication in the fattening process, completely wasted.

In order that the reason of this waste may be made palpable to all, it is necessary to state that the fat which is to be deposited in the interstices of the body of the animal, to render its meat marketable, is composed chiefly of hydrogen and carbon, the very elements which support almost entirely the animal temperature; and in the care of animals which are kept shut up, where the disintegration of the muscular structure is small, these elements must be derived directly from the

fatty deposit; so that anything which has a tendency to lower the temperature of the animal, must detract in a corresponding ratio from the fat, which is in this case taken up by the circulating blood,—conveyed by it to the lungs, and is thereby, being brought in contact with the inspired oxygen of the air, burnt off—by which means, as in ordinary combustion, heat is eliminated, and a mean temperature continually kept up, while the products of the combustion are expired in the form of carbonic acid gas, and watery vapor.

Now it is obvious from this, that if the animal be exposed to the keen blast of a wintry wind, the loss of heat by radiation must be great, and consequently the waste of food must be great also. But although from this cause (exposure) the principles of the economist must suffer great damage, yet there is another which far surpasses it in its injurious and wasteful tendency,—and this is, allowing animals to remain in a damp state, either by the non-removal of their own excrementitious matter, or by the non-prevention of the ingress of extraneous moisture upon them.

But it may be asked, "How does this moisture reduce the temperature?" It is thus:—

The animals lie down in a damp place, the animal heat warms the moisture in contact with them, and at this increased temperature it is turned into steam, it rises into the ambient atmosphere, a fresh modicum of water takes its place by the animal, and in a similar manner is also raised into steam. Now if water be at the temperature of 212° , in order that it may be turned into steam, it is necessary that it should first absorb a thousand degrees of heat, and this becoming latent in the water, imparts to it the property of elasticity,—in fact it becomes steam. But if the water is not so hot as 212° , more latent heat will be required to produce steam, and it is found that the quantity of latent heat is always in an inverse proportion to the sensible heat at which the steam was made; so that to produce steam at ordinary pressure of the atmosphere, the same quantity of heat is used whether the sensible heat be high or low.

What heat does thus exist in steam is easily proven, for it is only necessary to put a certain quantity of water, in a suitable vessel, upon a fire which is sufficiently hot to raise the temperature of the water one degree per minute; its temperature will continue to increase until 212° are obtained, then no matter how much the heat be augmented, the water will become no hotter; but it will be observed that after the lapse of a thousand minutes, all the water will be converted into steam; but one degree per minute must have been taken up by the water, and as its presence cannot be detected by a thermometer, it is but reasonable to suppose that it must exist in the steam, in a latent or hidden state; and other experiments indeed, fully demonstrate this to be the case—for example: if steam be suddenly condensed into water, a great quantity of heat is let free, sufficient, under favorable circumstances, to set fire to tinder or other easily ignited substances.