

better portions of farmyard manure by top-dressings. As the season will soon be here when these dressings are commonly applied to grass, it will be useful to remember this fact. The best time for applying the manure is held, by the great Cheshire farmers, to be in the end of September or the beginning of October, particularly in a showery period, as the grass soon covers it, and renders it less liable to be damaged by the sun or drying winds ("Jour. Roy. Ag. Soc.," vol. xix., p. 215). The most recently published report of trials upon the means best adapted to restore to the soil the ingredients removed by the grasses is that of the prize essay on "Top-dressing Pasture," by Mr. James Porter, of Moneymask, in Aberdeenshire (Trans. High. Soc., 1861, p. 455). The conclusions to which the result of his experiments led him were, 1, that on strong soils, on lands under cultivation, guano, sulphate of ammonia, nitrate of soda, and soot are the best, and most remunerative if the season is not too dry; 2, that on light soils in alternate husbandry, composts of earth, bone-dust, cattle urine, salt, sea-weed, and fish refuse are the most suitable; 3, for old grass on strong soils, powdered lime is the most effectual dressing; 4, for old grass on light gravelly soils, clayey compost, mixed with quicklime or bone-dust, makes a good dressing. It has been calculated, adds Mr. Porter, that a milk cow carries off annually 30lbs. of bone-dust from the land; and if this waste is to be supplied, as it certainly ought, there can be no better way of doing it than by adding bones or other phosphatic manures to the land.

But if it be true that we need not fear impoverishing our dung by exposure to the winds and rain, there is another common source of loss of the soluble portion of our farm-yard manure by soakage in rain-water, of which the chemist has no doubt. When dung is exposed to heavy rains, on certain soils, what the rain-water dissolves and removes from the dung the land receives, its aluminous portion, absorbs and stores up those soluble matters for the service of future crops; but there is in most farm-yards no provision for the richer soluble portions of the dung, which either soaks away or drains some neighbouring ditch or equally unwholesome pond. It is this fact which renders the dung of sheltered animals so superior to that produced in the open air. It is one of many advantages which attend the use of covered homesteads, and would lead to the general introduction of the box system of feeding, if the animals thus fed were improved at the same rate as the dung over which they are confined.

The advantage of preparing manure as little exposed as possible to the weather has been illustrated by Mr. C. Lawrence, of Cirencester (Jour. Roy. Ag. Soc., vol. xviii., p. 368). He gives the following analysis, by Professor Way, of box and farm-yard manure. He remarks that, "Those who have not previously inspect-

ed this system of feeding, and have had an opportunity of seeing at one moment the boxes full of the accumulation of some three or four months' manure, invariably express their surprise at the sweetness of the range of buildings; and in a few minutes afterwards, on setting the forks to work to empty the boxes, still greater surprise at the almost instantaneous evolution of volatile gases on the admission of air to the dense compound below." Box. Farmyard.

Water, per cent	71.40	71.00
100 parts dried at 75 to 80 deg. Fahr., gave of ammonia	2.37	1.70
Matters soluble in water, organic and inorganic	10.70	4.60
Which left on incineration a fixed residue of	4.28	2.78
This fixed residue consisted of—		
Silica	Not determined.	
Phosphoric acid	0.30	0.26
Alkalis, potash and soda...	2.00	0.80

It is from such practical inquiries that the farmer more and more clearly sees how dependent upon each other are the members of the vegetable and animal worlds, and how essential to the prosperity of the farm is the most anxious care that the food of neither is wasted. It is gratifying and encouraging to look back and note how much has been done in the last quarter of a century in thus economising the true riches of the farm. It is such reflections which will urge on the noble cultivators of our soils to other and still greater triumphs over the manifold and ever-varying difficulties which they have to encounter. Such conclusions will lead them to still more careful modes of preparing the manure of the farmyard. This will, sooner or later, cease to be impoverished by the rain; its drainage water will be systematically employed. That of our large towns no longer be worse than wasted. The farmer of a future day will, indeed, ask with some surprise how it happened in the year of grace 1861 that, while the drainage of Edinburgh, of Mansfield, of Croydon, and of other places rendered luxuriantly fertile so many of acres of valuable grass land, the drainage of millions of persons who dwell in our metropolis and other populous places should not only be utterly wasted, but that grave chemical persons should endeavour to show how useless it is as a liquid manure.—*Farmer's Magazine*.

Scientific Culture of the Strawberry.

[Concluded from page 550.]

It appears that a plain, uneducated market gardener, of the name of Abergust, removed some 46 years ago from Philadelphia to Cincinnati, and went largely into the cultivation of the Strawberry, in which he marvellously surpassed