usually rank, unctuous, and bulky when turned over, emitting a highly disagreeable odour. These different conditions have a considerable influence in determining the value of such manures in a practical point of view.

Management of Manure.—This may be said without exaggeration to be the most important department of farm practice, and unfortunately one of which there is greater need of improvement than in any other. Notwithstanding the fact that the proper management of the manure heap has been explained and enforced by the teachings of agricultural chemistry year after year for the last ten years, the practical application to the lessons remains still in a great measure to be made. Farm-yard manure, as heretofore, continues to be carted out from rain-soaked straw-beds to the distant fields, and there deposited in large, ill-formed heaps; exposed to rain, wind, and sun for weeks and months, without even an attempt being made to keep the crows from scattering it about in their search for food. Many farmers, whose practice otherwise is unassailable, are yet strangely blinded to the great loss sustained by exposed manure heaps. On the great majority of farms, even in the best-farmed districts, there is a fearful waste of food-producing material. Badly constructed homesteads have, no doubt, greatly contributed to this state of things, and it is very seldom, even yet, that any provision is made, in the construction of new ones, for the preservation of liquid manure, or for protecting the straw-yard from being deluged every now and then by rain poured into it from the surrounding roofs. The very fact that about thirty inches of rain fall annually over Great Britain and Ireland, ought to have suggested the idea that an open straw-yard must of necessity receive its proportionate share; which however, is too often doubled by the rain poured down from a large surface of unspouted roofs.

It is to be hoped that landlords may soon see it to be for their own advantage, as well as their tenants, to make abundant provision for the complete preservation and protection of manure when constructing new steadings or repairing old ones. A loss of manure is equivalent to a diminution of produce, and this again, by lowering the profits of farming, necessarily depreciates the value of land. All manures should be made under cover, either in stalls, boxes, or sheds; if in the former, it must be removed daily so that a covered shed will be necessary for its protection; if in the second, it may be allowed to accumulate for two or three months; and by the latter mode, it may remain until required for laying on the land, provided the height of the roof will admit of its being so accumulated. How is it that we invariably find box-feeding or house-feeding of some kind or other always accompanied by bulky crops of corn, roots, and clover? – just because the manure so made is richer and more abundant than on those farms where the horse-pond receives the draining of the courts and byres. We need only point to what has been already said in regard to the quantity of urine voided by different animals, to prove that if there be no tank to receive the drainings of stall fed animals, the loss sustained will amount to one-third the weight of the whole dung, or twice that of the liquid part. Neither is the matter mended by allowing the urine to run into the straw-yard, because it is generally sufficiently saturated without the addition of more liquid, and hence room can only be made by the surplus finding its way out into that neverfailing receptacle, the horse-pond, or the nearest open ditch. Few who have not studied this subject are aware of the enormous quantity of fertilizing materials that accompanies the little black stream that oozes from a straw-yard where there is no tank to drain off the surplus liquid. Its aparent insignificance is its greatest bane; for were it more abundant and more offensive, it would more readily attract attention, and necessitate the adoption of active measures for its removal. We have endeavoured to show in a general way how much manure may be made on a farm annually, but of course the calculations are based upon the supposition that nothing is lost. Were we to take the case of a stall-fed cow, voiding only 60lbs. of urine per day, one-third of which is retained by the latter, and were no provision made for collecting the surplus, the loss in twelve months would amount to 40 x 365—6 tons 12 cwt. and 16 lbs., or 1 480 gallons, every 5½ gallons of which contain nearly 1lb. of ammonia. The loss from ammonia alone, calculating this substance at 6d. per lb., its recognised value in agriculture, would be 262lbs. at 6d.—£6 11s., which would purchase 24cwt. of guano.

Assumed numbers are ever open to be distrusted; but in this case, whether the quantites be right or wrong, the fact that the urine of the cattle and horses is a very valuable substance, is proved beyond all doubt by the test of experience, and consequently the loss sustained by allowing it to run away, will just be in proportion to the quantity so wasted.

In ordinary farm practice the manure from the stables and byres is all wheeled into the straw-yard, to be trodden down by young stock; and so far there can be no objection to its being so disposed of, as young cattle thrive remarkably well upon the refuse fodder of the stable, even preferring it to clean fodder; but the advantage of this practice would be greatly enhanced, if the straw-yard were completely roofed over, to protect both cattle and manure from rain. The expense of so doing would be repaid in a few years by the superior condition of the young stock and the improvement of the manure. Although it is the landlord's duty, and would be his interest ultimately to bear this expense, yet in the case of current leases he is not bound by any obligation to incur the expense without an equivalent; but rather than the improvement should not be effected, it would, in every case where the lease is not more than half run, be a profitable investment for the tenant to pay 5 per cent. on the outlay required, and few landlords, we think, would be justified in refusing to furnish the necessary funds.

The system of feeding in boxes, notwithstanding the opposition it has experienced, is steadily extending in England, and not a few farmers in Scotland have adopted it. One great error generally committed in the erection of boxes is that of allowing too little space for the animal to move about in. If smaller than 90 square feet of area, considerable difficulty will be experienced in keeping it sufficiently dry, unless at the expense of a large quantity of litter frequently applied. This is a serious objection to small boxes, and besides there is too much disturbance to the occupant.

The best litter for the box-fed cattle is wheat straw cut into three or four inch lengths. The practice of using cut straw in box-feeding is recommended by the fact that the manure thus made requires no turning or other preparation before being applied to the soil. The same reasoning holds good also in stall-feeding, and it will be found that the same weight of cut straw will keep the cattle cleaner than whole straw, because it is easily turned over by the slightest motion of their feet, and continually presenting dry surfaces until thoroughly saturated; whereas whole straw becomes consolidated when trodden or laid upon, and requires to be frequently shaken up and renewed in order to afford a dry lair. In stall-feeding the use of the grooved brick pavement will be found greatly to economise litter, while at the same time the cattle are very much more comfortable, as the urine passes away by the grooves into the gutters almost as soon as voided. While on this subject, we may remark that heifers feed fully as well in stalls as in boxes,