selves, but others are apt to ferment too much. Keeping the mass in a compact, solid form has the effect of preventing this, by excluding the external air. If the temperature stands higher than about 100, or if paper, dipped in muriatic acid and held over it, emit white fumes, we may conclude that it is decomposing too fast, and elements useful to the land would be lost. The white fumes are sal ammoniac, two gases formed by the union of the smmonia which escapes from the manure with the muriatic acid. The common test in practice, and there is no surer, is, when the particles can be readily separated with a pitch-fork; it is then fit for all Whenever the the ordinary uses of the farm. fermentation has been allowed to proceed much beyond this, or to such an extreme degree that it can be cut with a spade, like soft earth, it has been kept too long, and the management has been bad

Thus far we have been speaking of the ordinary manure of the farm, which consists as has been already seen, of a promiscuous collection of animal matter and vegetable substances; the former inducing the decomposition of the latter by mixture, or contact: but vegetable manure is sometimes used alone. Of these the most common are the various kinds of ashes obtained from the homestead, from burning vegetable refuse found upon the land, such as the rootweeds disengaged in the process of tilling and clearing it, and sometimes from burning uscless portions of the land itself, as the back of old ditches, &c. In the case of burning these and similar substances, the greater part of their organic structure is lost by evaporation; what remains, in the shape of ashes, being part of their earthy, alkaline, and saline constituents. But these ingredients supply to the soil the substances which the growing crops consume ; and acting, also, in some measure, upon the matter of some soils, constitute a manure of considerable efficacy. Turf ashes are a very compound substance, containing a large proportion of sand and various other earthy matters; sometimes they contain sulphate, and even phosphate of lime, in such quantity as to form sufficient manuring for turnips and clover; but, for the most part, they are very transient in their effects. Burning partially some kinds of clay increases, in a remarkable degree, the solubility of their alkaline constituents, potash and soda, especially the former; and the ashes of these, it is found, afford the substances especially required for promoting the solution of the vegetable matter in the soil. But though ashes produce a very immediate action on vegetation, still they are very inferior in value to cattle manure; they are sufficiently enriching to the crop to which they are applied, in the case of a single season, but they exercise little or no permanent influence on the soil.

The least valuable of the vegetable manure value of manures in proportion to the quantity is turf-mould; it is much used in this country, of this substance which they contain. But it especially in the western parts; but unless it would seem that manures act through the

has been freed from its pecular properties, it may remain for years exposed to water and air without undergoing decomposition, in which state it can afford no nourishment to plants. It should invariably be made to undergo a decomposition before it is applied to the soil, either by long exposure to the air, or by mixing it with urine, or with dung in a fermenting state, or with quicklime, which will break up its inert fibre, and correct its acid principle; but yet, even in these forms of compost, it is not great y valued, and often disappoints expectation, probably from its still retaining some principles unfavorable to vegetation.

Soot forms a more valuable manure of the same origin, though, from the small quantities in which it can be obtained, it is held to be of secondary importance. It may be applied to every kind of crop with advantage; though it is said to exhibit its greatest effects in the case of some of the grain crop and young grasses. A very small portion of it is sufficient to promote an immediate and vigorous vegetation of the stems and leaves of plants, a point of the first importance in the early stages of turnips and other quick-growing crops. It is sometimes used as a top-dressing; but it is better covered lightly with the mould, when it attracts moisture and speedily dissolves. It is a deposition of carbon in a minute state of division; but it contains, also, various compounds, among which are acetate and other salts of ammonia, to the agency of which, probably, it owes a considerable part of its fertilizing properties. But this and similar substances, of a strong, stimulating nature, are applied with more safety and advantage mixed either with ordinary manure or in the compost-heap. They exercise a most powerful action on the other materials with which they come in contact; and increase, in no ordinary degree, the fertilizing properties of the whole mass.

Speaking of composts, these form a valuable auxiliary to the farmer, at little expense, though there is hardly anything so ill managed. The great and common defect in them all is, their want of a sufficient quantity of enriching matter-vegetable and animal substances-especially the latter. Dry earth and lime merely are in no degree to be considered useful compost stuff except as affording bases of combination for the nitrogenized and other gaseous compounds, generated in the progress of fermentation. In a mass so compound as a well-formed compost, of course it is not possible to explain the chemical changes which the substances undergo-their modes of action and results. Nitrogen is probably one of the most active agents producing putrefaction not only in the compounds into which it enters, but also inducing similar action in the other substances; and hence, somo writers have been led to determine the relativo value of manures in proportion to the quantity of this substance which they contain. But it