

promotes cleanliness, and conduces to the healthy and consequently the comfort of animals. The "tie-ups" and "stanchels," as well as the mangers, cribs, &c., should be daily cleaned out and frequently washed. An occasional whitewashing should be given to the ceilings and partitions; its sanatory effects are well-known, and of a nature too indisputably obvious to admit of doubt. Vermin rarely infest barns or animals treated in this way. The floors of all "tie-ups" should always be of stones—large flags—which can be thoroughly cleansed by the diffusion of water, and which do not become impregnated with the ammoniacal matter contained in the urine, and the fetid animal matters of the excrement.

MANURES

VEGETABLE AND ANIMAL.

Every thing which has grown in the soil, even to the comparatively dry and unsucculent haulm or straw which most crops leave behind them is capable of being transformed, by the chemistry of nature, into manure, or the pabulum of vegetable life.

By the term *humus*, we understand that portion of the vegetable structure, or organization, which is resolved, by fermentation, into mould; such as the foliage, the stems, and succulent parts of the stalks of plants and even those portions of the more perfectly liquified or woody organism which are broken up by the play of chemical affinities, and made capable, when rendered soluble by water, of contributing to the development and sustenance of plants. It is rarely the case, however, that mere vegetable matters are applied to the soil artistically. They are, for the most part, used in conjunction with animalized particles, which render them

more energetic, efficient, and salutary in their effects.

Even the manure from the stable is by no means a purely vegetable substance, although formed of hay and grain. In every case, portions of matter rejected from the animal system, are mixed up with the vegetable mass—worn out, abraded particles, which are no longer of any service, and which are thrown into the common receptacle which receives the residuum of the food that has not been digested, and from which it passes in the form of excrement.

The poorer an animal is, the less of this animalized matter does it throw off; hence the well-known fact that the manure made by cows, oxen, horses, sheep and hogs, which have been well kept, is much more energetic and valuable than that furnished by those which have not been supplied liberally with food. The urine of every animal contains a certain portion of this animalized matter, and hence its superior value for agricultural purposes, and the high degree of vegetable fecundity resulting from its application to most crops and soil. The ammonia contained in this liquid manure also contributes, very essentially, to its fertilizing powers; but the animalized matter is that which chiefly produces its fermentation and putrefaction, without which it would be nearly or quite useless for manurial purposes, at least in its immediate effects. Other principles highly beneficial to vegetation are also contained in urine, many of which are derived immediately from the food upon which the animal is kept. This remark applies also to the solid voiding, and is illustrated by the following table, showing the constituents of feces and urine.

In one hundred parts of horse dung in a fresh state,—there were,
 3.7 of biliary matter and coloring matter in state of alteration.
 6.3 of mucus, (crude,) &c., &c.