

off during heavy rains, leaving a portion which is absorbed and retained in the soil. This is going on whenever the ground is wet, so that when the soil is not frozen in winter, the ammonia is passing off and there is no crop growing to appropriate it.

When bones are applied, either dry or in the manner I have suggested, (3,) they are giving out their ammonia as the crops require it, but in cold weather the putrefaction is nearly or quite suspended, according to the temperature, and again resumed in the spring; at first slowly and then rapidly in hot weather, when it is most wanted by the crop.

I have very rarely met with those who have used bones for manure without being satisfied with their effects. Experience has shown, however, that their effects are not so promptly evinced in stiff clay soils as in those of a more porous character. The compactness of very stiff soil prevents sufficient access of air to assist in the decay of the bones. When applied to *very* wet soils the animal matters decompose so slowly as to produce little benefit to crops.

#### BONE BLACK OR ANIMAL CHARCOAL.

In former days bullock's blood was largely used in refining sugar, but in the improved modern process very little blood is used. The principal reliance is upon animal charcoal through which the hot syrup is filtered for the purpose of being decolorized. It is coarsely crushed or ground and the finer portions and dust sifted out, which would otherwise clog the filtering cloth or pass through with the syrup. After each operation the charcoal is again exposed to heat in closed iron vessels, and the dust, etc., sifted out as before. It is this material that is sold for manure under the name of bone black.

All the animal matter, except a portion of carbon, has been expelled by heat, leaving the carbon with the phosphates and other earthy matters of bones, and is, of course, valuable as a manure.

I have been informed that the refineries in Baltimore dispose of their bone black to manufacturers of fertilizers in Philadelphia; the whole amount being annually about half a million of pounds.

A sample which I obtained from Dougherty & Woods, of Baltimore, was analysed by Dr. Piggot, with the following results, viz :

Phosphate of lime,	. . . . .	70.10
Phosphate of magnesia,	. . . . .	.15
Carbonate of lime,	. . . . .	11.85
Charcoal, (animal,)	. . . . .	10.98