

is that the cost of transportation is increased by the large proportion of water they contain.

COAL ASHES.

Now that coal has become the main reliance for fuel, not only in the cities but also to a considerable extent in the rural districts, there is produced a large quantity of ashes therefrom, amounting to from 5 to 10 per cent. of the coal used.

The composition of the ashes of two samples of coal among others, were determined by the late Prof. W. R. Johnson, to be as follows:

	Anthracite.	Bituminous.
Silica - - - -	50.0	76.0
Alumina - - - -	38.9	21.0
Peroxide of iron - - - -	8.0	2.6
Lime - - - -	2.1	0.0
Magnesia - - - -	0.9	0.0

There is some variety in the composition of coal ashes as shown by numerous results of analysis which need not be given. In some cases we find small proportions not exceeding 1 per cent. of potash as an insoluble silicate; in others the proportion of lime is greater which is in part combined with sulphur.

The chemical composition indicates that it is nearly, if not altogether useless as a manure.

The very few cases in which it has been of any service whatever, has been on stiff clays, which it tends to make more porous. I am sure, however, that those wishing to improve the physical structure of a stiff clay, can effect this purpose as well, or better by the use of materials on the farm or its vicinity, at much less cost.

It has been stated to me that sifted coal ashes have been used to adulterate wood ashes, as well as other manures, but so far I have no certain evidences of such fraudulent practices.

If any such are practiced, the detection is very easy with the aid of a common pocket magnifying lens, by which the smallest grains of coke or coal always existing in coal ashes will be exposed.

GYPSUM.

There are yet various opinions held in reference to the action of gypsum or plaster of Paris as a manure. It was formerly held by many farmers and others, that its principal office was to absorb moisture from the air and give it out to the plant. Direct experiment, however, proved this opinion