

Water,	13.00 per cent.
Lime as carbonate,	68.75 “
Lime as sulphate, (gypsum,)	9.30 “
Lime as phosphate,	1.90 “

Gas house lime is obtained from oyster shells, and is used to cleanse the carburetted hydrogen, (the gas used for light,) from sulphuretted hydrogen, (that which is easily recognised by its smell, in the neighborhood of the gas house.) This lime always contains a portion of sulphuretted hydrogen, depending on the quantity of sulphur in the coal from which the gas is made.

When exposed to the atmosphere, the sulphuretted hydrogen, (hydro-sulphuric acid,) loses one of its elements, and becomes converted into sulphur. The sulphur thus formed, by further exposure to the air becomes changed into sulphurous acid, and whilst in this state, would rapidly evaporate, but lime being at hand, it unites with it, forming a salt of lime, called sulphite of lime. On more prolonged exposure, the sulphurous acid becomes changed into sulphuric acid; (oil of vitriol,) which unites to the lime, and forms sulphate of lime, (gypsum.)

There not being a sufficient quantity of sulphur present to make enough of sulphuric acid to unite with all of the lime, a part remains as carbonate of lime.

It will be seen from the above short description of the changes going on in gas house lime, that at certain periods we have in it:—1st. Sulphuretted hydrogen;—2nd. Free sulphur;—3rd. Sulphite of lime; and 4th. Sulphate of lime;—at one and the same time. Phosphate of lime is always present, and undergoes no change.

When it has been exposed for some time, we then have in it only gypsum, air slaked lime, and the phosphate of lime. Should this lime be applied when first taken from the gas house, after being used to purify gas made from coal, containing a large proportion of sulphur, its action will be as follows:—whilst the sulphur remains unchanged, the usual effects of lime will be produced; when it becomes converted into sulphurous acid, it will not only counteract the good effects of the lime, but destroy all vegetation; when the sulphurous acid becomes changed into sulphuric acid, gypsum is formed, and we have its effect superadded to air slaked lime. Gypsum as has been *demonstrated* by Liebig, is decomposed by contact with the ammonia of the atmosphere, one of its elements uniting itself to it, thereby *fixing* it:—in other words, destroying its volatility. But its use does not stop here:—*it also affords sulphur, which is absolutely necessary to the formation of the nutritious part of all substances used as food by men or animals.*

That the above will be the effect of gas house lime, under certain conditions, there can be no doubt. It contains sulphuretted hydrogen:—This sulphuretted hydrogen *must* become converted into sulphur;—this *must*, and does become converted into sulphuric acid:—but sulphuric acid, and its salts, we have the highest authority for saying, will, “even in very minute quantities, destroy all vegetation.”—*Christison on Poisons*, p. 750. And I am