

of the base, or the lime. In this case the lime would be 7 1-3 per cent.

To ascertain if earth contains iron, stir the muriatic acid and water with a strip of oak bark, and if iron is present in the liquid the bark will turn dark. To ascertain the quantity, put in prussiate of potash till it no longer forms a blue precipitate, let it settle, heat the deposit to redness, carefully weigh the remainder, which is oxid of iron.

To determine the presence of gypsum, take 400 grains of earth, mix one-third the quantity of powdered charcoal, keep it at a red heat in a crucible for half an hour. Then boil the earth in a pint of water for 30 minutes, filter the liquor and expose it for some days in an open vessel. A white deposit will be sulphate of lime and the weight will determine the proportion.

These processes are all simple, and can be performed by any one. By them we obtain—1st, the absorbent power; 2d, the amount of animal and vegetable matter; 3d, the silica or sand; 4th, the alumine or clay; 5th, the carbonate of lime; 6th, the oxides of iron; and 7th, the gypsum, or plaster of Paris. The salts exercise a great influence on vegetation; but as they principally depend on the animal and vegetable matter in the soil, and as the determining the qualities and kinds are too difficult for the analysis of the farmer, the processes are omitted. The above ingredients are all that exert a marked influence on the fertility of soils, and on their proper proportion its goodness depends. If soils contain too much silica or gravel, they are porous; and if too much clay, retentive. The last is usually the worst fault, and may be known by the water standing upon it after rains remaining unsettled for a long time, owing to the clay held in solution. Wheat winter kills on such soils; on calcareous gravelly ones rarely. Good soils usually contain from 65 to 75 of silica; 10 to 16 of alumine; from 4 to 10 of lime, and varying proportions of vegetable matters, animal, and mineral salts, &c. The analysis of soils forms one of the most decided steps in the improvement of agriculture, as it clearly points out what is wanted to remedy any defect, and give ease of working, and abundance in product. Every farmer