

soils, and if their fertility depended solely on lime, if it was the only element to enter into the calculation, we might very readily solve the question. But the fertility of a soil does not depend upon the quantity of any one constituent, but upon the proper proportion of them, and also upon the mechanical texture of the soil. To arrive at conclusions, then, we must not only have examined very many different soils of known fertility, but also be cognizant of the action of different quantities of lime upon soils of known composition. From all of the examinations and practical observations which I have made, I do not believe that a greater quantity than seven-tenths of one per cent. is ever necessary in the soil. I now speak of this quantity as obtained by the usual mode of analysis of soil, by their solution in muriatic acid. Soils having this amount naturally, are not improved to the amount of its cost by lime, and after two hundred bushels have been applied, any additional quantity does not compensate for the trouble and expense of its application. I have been frequently asked whether it be best to apply all the desirable quantity of lime at once, or the same quantity in divided doses. The proper solution of this question depends on the ability of the farmer; that course should be always followed which, with the smallest outlay, will give the greatest return, and I would advise all who cannot apply the necessary quantity of lime to all of the soil which may need it, to apply from twenty to forty bushels per acre, and repeat this for every rotation until about two hundred bushels be applied. The profits of a small quantity of lime extended over a large surface will be greater than a large quantity applied over a small surface.

GUANO.

The spirit of progress, lately manifest in political science and in most of the useful arts, has extended to agriculture, and it has sought not only for correct theories, but improved instruments of culture, and new manures to aid it in its operations and perfect its results. There is every year heralded forth to the tiller of the soil some panacea to enrich him, but experiment and science sweep away the baubles when worthless, and in many instances, however, to make way for others, with as little or less merit, and as little deserving public attention or public patronage as those which preceded them.

Guano, however, has had a more enduring foundation, being of real value, a value sustained by scientific investigation, and proved by the sure test of experience. Guano has, does, and will continue to be worth its transportation through a long and dangerous voyage, securing for itself extensive use in our country, and giving in return abundant profit. This manure is one very familiar to our citizens, and one whose history, composition, and best modes of use I design to point out as fully as I can, and at the same time, by facts and common sense arguments based on them,