LIME—GYPSUM.

To the Editor of the Agriculturist.

Mr. Editor,—I should like to have your opinion on the two following questions:

1st. What is the least, and what the greatest quantity of lime; and whether roche or slack; that may be applied with beneficial effect to land, supposed to be deficient in that necessary aliment of plants and vegetables?

2nd. Whether you think that the pretty generally popular opinion is correct, that gypsum or plaster is an exhauster of the soil? or whether the continued cropping of the land, without rest, rotation of crops, or manures, is not the real exhauster of the soil? May not gypsum or plaster be a stimulant; and under the present system, or rather want of system,—by causing a more abundant yield in the crops, the sooner deprive the soil of those ingredients which are the necessary food of plants, than if plaster had not been used; but which, nevertheless, would sooner or later, be the inevitable result, without rest, rotation and manure,—and so far, and no farther, may be considered an exhauster of the soil?

2nd April, 1857. Yours, &c., PLOUGHMAN.

REMARKS.—Experiment and science both teach that lime is most beneficial when applied to soils rich in vegetable matter in its *caustic* state. When slaked by means of water, it still retains its quick or caustic quality; but when left uncovered in the air, after it has fallen into a powder, it slowly absorbs carbonic acid, and becomes re-converted into dry carbonate of lime. Its chemical action is then the same as chalk or crushed limestone. The use of caustic lime on certain soils has been found beneficial in a high degree. Its *modus operandi*, as laid down by the best authorities, would take more space to describe, than we have now at command. We advise "Ploughman" to procure Johnston's "Elements of Agricultural Chemistry and Geology," where the latest and most reliable information on the subject will be found. The advantages of *mild* lime, or carbonate, are also considerable, and is a good form in which to apply it to soils deficient in lime, and not rich in organic matter.

As to *quantity*, everything depends upon the condition of the soil. Land that is wet, or badly drained, requires a large application, and frequently repeated. Upon a thin soil, less will answer. On pasture lands, small and frequent doses are found most beneficial. In arable culture, larger and less frequent applications are necessary; on light soils it is preferable to apply the lime in the shape of a compost, and in smaller quantity. In England, the quantity applied in *ordinary* cases amounts to from seven to ten bushels a year. We are not aware of any reliable experiments in this country, for the purpose of determining the effect of lime upon our ordinary soils, or the quantity per acre that ought to be used. This is one of the points which the Board of Agriculture ought to ascertain by careful experiments.

The exhausting effects of lime, as well as gypsum (or plaster), depend evidently upon the same principle. Professor Johnston puts the question in a common-sense view as follows—"It is conceded that the crops we grow rob the soil both of organic and inorganic matter. A double crop will take twice as much, a triple crop three