

more liable to be beaten down and blighted in the straw; it is always made more hazardous by dressing.

"9. Were farmers to buy all their manures, they would find that the cost of maintaining their lands in fair heart would be about £1 per acre per annum. The quantity of dressing this sum represents, every farm in fair productive cultivation would supply of itself, if a proper use and economy were made of its material to form manure, and a due care taken of it afterwards; but from misapplication and waste of straw and fodder, and from negligence in the preservation of the dung and urine, at least half is usually lost, and the arable land of England may thus be said to be prejudiced at least 10s. per acre.

"10. Were no other injury done to the crops by trees and hedges in small enclosures than that which arises from their mischievous shade and shelter, it would be equivalent to the ordinary rent of such fields; but farmers sustain a further loss in the additional occupied in tillage from the more frequent stoppages and turns the cause, and the encouragement to idleness that their cover affords. I believe arable fields with large hedges and hedge-row timber round them, whose dimensions are under eight acres, are seldom or ever worth a farmer's cultivation. I see much poor open down land in profitable cultivation, and large districts of enclosed land of far better quality, ruinous to the occupiers, and I have not a doubt that to the difference in the size of the fields this may be principally, if not entirely, traced.

"In this way I have more than doubled the former produce of the farms I cultivate, and have grown above five quarters of the best white wheat, and above thirteen quarters of oats, and above eight of barley, to the acre on very inferior land; and my clover and turnip crops are generally remarkably good."

THE MODES OF APPLYING GUANO.

From the Philadelphia Sat. Courier.

SIR:—"The Communication in your paper, headed *Guano*, contains much interesting information, relative to the history, composition and relative values of the different kinds, but omits to describe the best modes of applying it to crops. To those who have had no experience with this extremely powerful fertilizer, the following directions may be useful. The quantity necessary for an acre varies with the crop and mode of application. If used in the hill, one-half the quantity may serve to what would be requisite when scattered broad-cast. About ten pounds of the best Peruvian Guano are reckoned equal to a common one-horse load of barn-yard manure. Consequently, where from 20 to 40 loads are applied per acre, 200 lbs. to 400 lbs. of Peruvian Guano would produce the same effects upon the crop. Although highly beneficial when applied as a top-dress-

ing to grain and grass, paying well the first crop, still the durability of its effects are greatly promoted by having it well covered under ground either by the plough or harrow. The different kinds of Guano are more or less lumpy, and in using them it is extremely important to reduce to powder and pass through a sieve such as would be used in cleaning wheat or oats. Sometimes there is so much moisture as to make it quite difficult to break down the lumps, an evil from which the Peruvian is exempt, as besides being less lumpy than other kinds, it is always perfectly dry, very much resembling scotch snuff. When scattered broad-cast, it may be sown on the unbroken ground and immediately covered under by the plough, or the ground may be first ploughed, and the guano sown and ploughed or harrowed in, after which the sowing or planting may take place.

Every subsequent harrowing or ploughing assists in covering and mingling the guano with the soil. The rain does the rest in dissolving and bringing its fertilizing principles into a state adapted to the wants of the growing plants.

When used in the hill, some care is required to prevent guano from doing injury to the very tender sprouts and rootlets of corn or other plants. If not well mixed in a compost with from 10 to 20 times its bulk of earth or mould, it should be well scattered in the hill previous to planting, and some earth drawn over it so as to prevent contact with the seed.—When thus judiciously used, guano is a certain preventive of the worms which commit such devastation upon crops, especially corn planted on a sward. For this last purpose, the most efficient plan is to sprinkle a little of the powder upon the hills, either just before or after the plants come through the ground. The quantity required to secure this great advantage is very small, and the expense would be amply compensated by the security of the crop, to say nothing of the enriching qualities for which guano is mainly prized. Some who have used this great fertilizer extensively, and in various ways, give the preference to the broad-cast method of application, even in the hill crops. There is perhaps no way in which guano can be made to pay so well as to apply it with wheat or other grain, sown with grass seeds in the fall or clover in the spring. In this way it is certain to pay for itself, and yield a handsome interest from the grain crop, besides sustaining heavy crops of hay.

A PRACTICAL FARMER.

From Bell's Weekly Messenger.

ELECTRICITY AND THE POTATO DISEASE.

In a letter addressed by Sir R. Meyrick to the *Hereford Times*, we find the following interesting statement:—"A valuable piece of information was communicated to me yesterday, by the Dean of Westminster. He had been a day or two before informed of the following

interesting fact:—On my stating my belief in the injury having been effected by a fly, he said I was right, and that the conclusion came to by the various committees of savans abroad was, that we knew nothing about the matter, and that it must therefore have been caused by a peculiar state of the atmosphere. This induced a scientific gentleman, living at Kensington, to enquire what had occasioned any such state in the air. On examining the meteorological tables, he found that during the last two years there had been a much greater quantity of lightening than previously. Then came the question, would that injure the potato plant? Lightening being electricity, to ascertain the point he enclosed some atmospheric air in a receiver, and having insulated it, applied the electrifying machine. The potato plant being then introduced into the receiver was immediately affected in the same way as those diseased ones of the last season. The potato was removed, and corn of various kinds, mangold wurtzel, and such like vegetable substances, subjected to a similar treatment. They were unskilled. A fresh potato plant was then put in and the effect was same as before. Thus was established the fact that potato disease was occasioned by lightening. Now to prevent it. The first thing necessary was to ascertain how the lightning acted. Mr. Adams found that it separated the air into its component parts, oxygen, hydrogen, and nitrogen, the first so requisite for animal life, and the last for that of vegetation; but this was not all, for it did the injury to the potato by converting the nitrogen into nitrous acid. Mr. Adams knew that quicklime was an antidote to nitrous acid; he therefore took a fresh potato plant, sprinkled it over with quick lime, and introduced it into atmospheric air electrified as before—the potato plant remained uninjured."

From the Scottish Farmer.

INSTRUCTIONS FOR MAKING UNFERMENTED BREAD.*

BY A PHYSICIAN.

A pamphlet has been sometime before the public under the above title, which has now reached the seventh edition.—The author is understood to be Dr. Darling, a physician in eminent practice in London; and the subject it treats of is not only of individual, but national importance, I hope you will not grudge a little space in calling public attention to it, as I feel persuaded that ere long the mode therein pointed out for making bread, will supersede every other.

The author's account of the discovery, if I may so call it, is in these words:—

"Dr. Thomas Thomson, Professor of Chemistry in the University of Glasgow wrote an Essay on Baking, for the Sup-

* This communication originally appeared in a letter addressed to the Editor of the *Ladies' Journal*.