

and misery, or, perchance "betwixt the wind and our nobility," there comes some ragged wretch who has the bad taste not to go hid his head and die in his den—our sensibilities are shocked, we pull out some small coin, or order from the kitchen a basin of soup, or some "broken" victuals, which, by some menial hand, we bestow on the object of our charity; thus having done, we bless God we are not as other men, and rest content. Is it the mind's want or the soul's destitution to which our attention is turned? forthwith our name figures in the Bible Society's list of subscriptions for a guinea, we support the Sunday school, and help to pay a town missionary, and then we think we have done well. We hire others to do our work. Get drawn for the militia, and you may hire a substitute; but in God's army of fighters for truth against error—for light against darkness—no such thing is allowed. Some who do not neglect the poor and ignorant altogether, yet employ middle-men too much; they are delicate and weak, and must have pioneers to go before and clear the way, to "get things a little in order before the master comes;" as when Popes and Emperors wash beggars' feet, the worst of the dirt has been previously removed. A liveried lackey is a poor representative of the angel who came down to stir the pool in which the sick were to find healing and life. "What you want done well, do yourself," is an old saying. When the Sunday-school teacher is at work, he is doing only his own duty, not yours. There must be no proxy-duty-doing, till heaven can be won and enjoyed by proxy. He who lets others do his charity for him loses a most blessed part of that education which a wise man extracts out of life, and throws away the great antidote to selfishness, hardness, and coldness; like the pent up plant, he will lose his freshness and vigour, and become shrivelled and decayed.—*Birmingham Pilot.*

## AGRICULTURE.

### Progress of Scientific Agriculture.

On the 15th February we gave an extract from a singularly interesting and able article, under the above title, in the last number of the *Edinburgh Review*, and the importance of the subject tempts us to make a further extract, which will richly repay perusal:—

"The instructed look with amazement when, on the borders of the Roman Campagna, they see whole hills of dung, the long accumulating refuse from the stables of the post-house, or when, on the breaking up of the winter's frost, they see the yearly collections from the farm-yards floated away on the ice of the Wolga, almost literally realising the times of the *Ægean* stables. We never dream that any thing half so barbarous could by possibility happen among ourselves; and yet a visit to a hill-farm in Northumberland may show us the same winter accumulations emptied purposely on the side of a brook, that the waters may carry them off, or into some neighbouring hollow, where they are least in the way, and have been permitted to collect for entire generations. Such palpable waste is seldom seen, indeed, in the lower country, where intercourse is greater, and where knowledge and public opinion spread more widely, and exercise a more immediate influence; and yet the no less serious waste of the liquid from our farm-yards is still too widely prevalent, even in our better cultivated districts, and among our more improving and intelligent farmers. Within the last few weeks, we have walked over the farms of the first practical farmers of the Tyne-side, and of the most celebrated breeder in Yorkshire, and yet, from the fold-yard of the one, the liquid was conducted by a drain into the nearest ditch; and from the cow-houses of the other into a shallow open pond, where it stood reeking and fermenting beneath a blazing sun! What merit, as a farmer, can that man claim, who, though he annually lays five tons of guano or bones, or rape-dust upon his farm, yet allows what is equal to ten or twenty tons of the same, to run to waste from his farm-yard in the form of liquid manure?

It is such waste as this that the high price of portable manure tends to check. It is now happily checking it here and there in various parts of the island; but it will be long before the evil is remedied over the general face of the country.

But after he has done everything in the way of saving what he had hitherto inadvertently neglected, the enquiring farmer still finds that his wants are not all supplied; that if he would farm high—raise, in other words, the largest possible produce from his

land—he must still incur a considerable annual expense in the purchase of foreign manures. Can I not, he next asks himself. Can I not husband these manures which cost me so much? there is no way in which I can more economically apply them, as, from the same quantity of manure, to obtain a larger return of roots or corn? This enquiry leads him to three successive mechanical improvements, as they may be called, which are severally applicable to one or other of the crops he cultivates. *First*, To put his manure into the ground immediately before he sows his crop in spring or summer, rather than in the preceding autumn. This is a result of the same system of saving to which we have already adverted. By examining the waters which escape from the drains during winter—upon his thorough drained land—he finds that they actually carry with them a portion of the manure he had previously laid upon his fields in the autumn, and that thus he had unconsciously suffered a partial loss. To put it in, therefore, only when spring arrives, will ensure him a certain saving. *Second*, To deposit the manure in the drills when his seed is sown, putting it all thus within reach of the plant, and wasting none of it on the unprofitable or unproductive part of the soil. And third, with the drop-drill to bury it only beside the seeds it is intended to nourish, and thus more perfectly to effect what laying along the whole drill had only in part accomplished. These methods husband his manures, and, at the same time, call in the aid of the ingenious mechanic to furnish cheap and efficient implements, by which the several operations may be easily performed. They may not be applicable to all his crops, and there are certain circumstances under which the intelligent practical man will wisely refrain from fully adopting any one of them; but they are valuable illustrations of rural economy, nevertheless, and of the line along which improvement will proceed, in endeavouring to raise the largest amount of produce, in the shortest time, at the smallest cost, and with the least permanent injury to the land.\*

But the same desire to husband his manures, leads him also to what may be called a chemical improvement in the form in which he applies them. 'If,' says he, 'as chemists tell me, the roots of the plant drink in only that which is in a liquid form, the manures which are already in a liquid state, or in such a condition, at least, that the rains will readily dissolve them, should be more immediately useful in the nourishment of my crops. If I apply dry bones to my turneps, they must take a considerable time to become soluble, and may not yield all their substance to the growing crop before its period of maturity arrives; and though the residue of the bones left in the soil does benefit the after crop, still the rains of winter must wash away some of their constituents, and thus occasion to me a variable loss. Would not the same quantity of bones or rape-dust, or even of guano, go further in the production of corn, or potatoes, or turneps, if I could apply all their constituents to my land in a fluid form?' Theory and experiment both answer these questions in the affirmative. Recent experiments, especially upon the action of bones dissolved in sulphuric acid, have thrown new light upon this subject; and though too hastily inferences have by some been drawn from them, and the benefits to be derived from the new method have been exaggerated, and unreasonable expectations have consequently been excited, yet such good may fairly be expected from the use of the liquid form of applying manures as will encourage, we hope, the continuance and extension of experimental enquiry.

Here, also, the mechanical contriver has been called in, and premiums have been offered and received for liquid-measure carts and other implements for the economical application of manures in the fluid form. We should appear to be behind the knowledge of the day upon this matter, were we not to allude to the method which Mr. Smith and some of his friends have proposed for distributing liquid manures on a large scale, and over entire farms. He builds a tower 120 feet high; to the top of this tower he pumps up his manures—he conducts them by pipes to the several fields of the farm, and, without shifting his position, he squirts a fertilizing shower over whole acres at once. We are unwilling hastily to condemn, and more unwilling to ridicule, any thing which Mr. Smith proposes or supports; as we shall wait patiently, therefore, for the result of the trial he is about to make of an actual tower upon a farm in Lancashire. If any practical measure can be devised for working up the waste liquids of our large towns, a great national good will certainly be effected.

Yet all these contrivances does not materially reduce the price of our known and available manures; because, as we have seen, in an improving country like ours the demand increases as rapidly

\* Johnston's *Elements of Agricultural Chemistry and Geology*.