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OLD PLOUGHS.

[*With a Plate annexed.*]

THE annexed plate, gives the form of four ploughs from Walter Blith, an author who wrote in the time of Oliver Cromwell; they had probably then been in use more than a century. The simple small plough, is that which we so often meet with at this day; and the Hertfordshire wheel-plough is yet in many parts, constructed almost entirely on the old model. Both the small, single, and two-furrow ploughs, have been eminently and effectively improved. We put it to those concerned, whether the old wheel-plough, of such indispensable use on certain difficult soils, be not equally susceptible of improvement.

ON THE COMMON DEFECTIVE MANAGEMENT OF FRUIT TREES, WITH THE OPINION AND PRACTICE OF HER SERENE HIGHNESS THE MARGRAVINE OF ANSPACH.

To the Editor of the Agricultural Magazine.

Sir, *John Street, Adelphi, London, July* 26, 1806.

THE management of fruit trees, notwithstanding the ingenious publications of the late Thomas Skip Dyot Bucknall, Esq. Mr. Forsyth, and other writers upon the subject, appears to me to be yet very imperfectly understood in England; and I have really been much surprised to observe in France, that though the northern parts of Normandy are generally colder than the western parts of England, yet the fruits in that district of France are superior to ours. I have observed the standard vines in the open fields in Normandy

produce good grapes in quantities; whilst the vines in England, even planted against walls, and in favourable aspects, have yielded but few grapes, and those of very indifferent quality.

The same remark holds good respecting peach, apple, and pear trees. In other branches of horticulture we have generally the advantage over the French, which evinces that *climate* is not of such very great consequence as has been supposed in conducing to those products.

On a visit lately to her Serene Highness the Margravine of Anspach, at Brandenburgh House, Hammersmith, I found her employed in examining a plantation of espalier fruit-trees, made a few years ago in front of the house. I noticed that though these trees were very low and near to each other, yet they bore very considerable crops of fruit, and that the trees were in a very healthy state.

This led me to a conversation with her Highness upon the subject, and occasioned so many judicious remarks from her respecting the management of fruit trees, particularly in pruning them, that I now take the liberty of requesting they may be noticed in your Magazine, as likely to be of much public utility.

It appears that the same ideas had a long time past occurred to her Highness, that I have just noticed, respecting our climate and management of fruit-trees; and that in consequence of such consideration on her part, she had, in her travels over a great part of Europe, minutely examined the management of fruit-trees in different kingdoms, and made the following observations:

That in France, the management of fruit trees was a business regular and distinct from that of a common gardener; that it was usual to have one person, known by the distinction of *tailleur des arbres*, in each village or district, whose whole employment was that of superintending all the fruit trees in that district, and was fully engaged in pruning and other necessary work to them, and well skilled in the business.

That it was found to be an injurious system to have lofty standard fruit trees, and wide expanding branches; as, in the first instance, the sap was exhausted in wood and leaves instead of fruit, and that the extending branches, by the violent action of the wind and their great length, were liable to be split and injured, and thereby the trees became cankered and decayed.

That even in fruit trees in espaliers and against walls, it is improper to have extensive branches, either perpendicular or horizontal; as in such long branches the sap is subject to

be checked in circulation by changes of the weather, and therefore in such cases, though the blossomed fruit might appear fair and promising early in the season, yet that very seldom any fruit came to perfection thereon, but, on the contrary, the trees became blighted and destroyed.

That to produce fine fruit, and to ensure good crops, it is necessary that the trees should be kept low, or in a dwarfish state, the branches to commence as near the ground as possible; that they should be cut shorter, and be closer than they usually are in England; that by this means the sap can circulate more quick and regular, without being liable to injury from changes in the weather, as the communication betwixt the roots and branches is thus nearer and free from impediment, and the fruit better screened from the inclemency of the weather.

The fruit trees, in her Highness's garden at Brandenburgh House, confirm the justice of these remarks; and similar instances may, I believe, be found both at General Conway's, Park Place, near Henley, and Lady Rivers's, at Wandsworth Hill.

It was supposed by the late Mr. Bucknall, that each variety of the species of the apple tree flourished only for about a certain period of years, after which the whole of that variety became extinct throughout the kingdom; and therefore, that it is incumbent upon every planter to endeavour to raise annually new varieties from seeds, to compensate for the losses expected. Perhaps Mr. Bucknall's theory is not correct; it may probably be found, that if fruit trees in general are managed with that attention they usually are in France, that the present kinds of fruits will not become extinct, but be produced perfect in succeeding ages.

It is well known, that few common gardeners in England understand properly the pruning of fruit trees; and daily experience shows the terrible changes produced in fruit trees, where men not well acquainted with that business are employed. It is a matter, therefore, well worthy of consideration, whether it will not be of essential service in every parish or district in England, to give encouragement to one or two intelligent men, in such parish, to devote his whole time to such employment, and to have the whole management of the fruit trees within such district.

I ought, perhaps, to apologize to her Highness for the liberty I take, and my deficiency in abilities to do sufficient justice to her remarks; but I think her Highness hath too much public spirit to blame my good intentions. I sincerely wish that her Highness will, at some period, oblige the world

by those additional observations upon the subject, which no person can produce in a more interesting manner than herself.

I am, Sir,
Your obedient servant,
CHARLES TAYLOR, M. D.

ON THE MANAGEMENT OF LIME AS A MANURE, AND A QUESTION RESPECTING PEAT.

To the Editor of the Agricultural Magazine.

July 28, 1806.

SIR,

IN the Agricultural Magazine, for January last, A C. recommends a method of "preparing and dressing turnip soils" with lime, which must prove of very great advantage to those cultivators in possession of that description of land, and particularly where other manures are scarce, and where the situation, (as with me) on account of the steepness, renders the access difficult for the carriage of more bulky manure. Part of the farm I hold I have much wished to grow turnips on, but have hitherto been deterred, from the extreme labour attendant on carrying manure up to it. I am now, however, determined, if I live until next season, to try a crop agreeable to the method recommended by A. C.; and as he requests your correspondents to try to improve on his plan, I will thank him for his opinion, whether the method hereafter described will not in some degree do it.

A. C. has not said, how long a time the lime should lay in the "head rigg" before it is turned; but from the little experience I have had in the use of lime for my meadows, I find it a circumstance very necessary to be attended to, as the lime, if suffered to absorb much moisture before it is thoroughly mixed with the mire, is not only very difficult to separate, but, I believe, is much deteriorated. My method has been, to cart my lime and earth together in as dry a state as possible, and after forming the heap in a ridge, if the weather continued dry, to turn the whole in nine or ten days after, in which time the lime has become an extreme fine powder, and consequently was very easily mixed. If the weather proves wet, I let it stand a proportionably less time, taking care to turn it rather before than after the pulverization has completed, as, if it wants a little of that state, the air it receives on turning will finish it.

And now for the attempt at improving on the method of

administering the dose. Lime is a very dear article with us, there being neither lime nor coal within seventy miles, and therefore we must use it sparingly. The method I propose is, after giving the land the necessary *preparation by ploughing*, harrowing, &c. to plough into one-bout ridges of two feet four inches each, but this must be done with a small plough, which turns a furrow of about five inches, and that will leave a small empty space in the middle of the ridge, into which I mean to cart the finely pulverized lime, earth, and dung; and as our carts tread a space of four feet eight inches, each wheel will occupy one furrow, and the horse the middle one, without in the least injuring the ridges.

A. C. has not specified the exact quantity of lime and manure he uses per statute acre, but by the manner of describing the method of placing the lime in the "head rigg," Farmer Sandy has supposed he used an enormous quantity. I will thank A. C. to explain and to say what is the least quantity (in Winchester bushels) of lime and of dung mixed with mire, that may be used on poor old pasture land, with something like certainty of success for a crop of turnips; and whether, as the quantity of dung he uses appears very small, it may with any degree of safety be omitted.

I am, Sir, your, &c.

A. C. F.

P. S. In one of your Magazines last year, I saw the offer of a reward by the Board of Agriculture for the best method of converting peat into manure; I much wish to know the modes proposed, and which of them was approved by the Board.

ON TREATMENT OF THE LABOURERS IN TIMES OF SCARCITY —STATE OF THE CROPS IN NORFOLK—SMUT IN WHEAT.

To the Editor of the Agricultural Magazine.

Norfolk, Aug. 5, 1806.

Sir,

VERY happy am I that R. W. in your 82d Number, page 317, has shewn the public what some of our magistrates have done, to ruin the independent and industrious minds of our labourers, and I can assure you the picture he has drawn is by no means exaggerated; they certainly acted not consistently with the spirit of our poor laws, but the remedy a farmer had of appealing to the quarter sessions against their orders, was not likely to do him any good, therefore

seldom attempted. In some of these parishes, the allowance to the poor for one year has been considerably more than the rent paid to the landlord—happily for the parish in which I reside, the acting magistrates for the hundred were men who would hear both parties patiently, and determine according to the proofs laid before them.

At the beginning of the high price of wheat, in the year 1799, several of the most lazy of our labourers, hearing how magistrates allowed others, as mentioned by R. W. went to those acting for our hundred; I being then overseer, was desired to allow them (over and above what they earned) sufficient to support their families, or immediately to appeal before the magistrates. Having reflected that the gentlemen before whom I was to appear would look at what I had to state, I directly put pen to paper as well as I could, shewing my plan was to encourage men with families to be industrious and sober, and by all means to keep them from any idea of becoming paupers; that the allowing them money from the parish was very bad; for when they once became accustomed to be relieved as paupers, they would naturally say, 'What signifies our working so hard? we shall not be at all the better for it, as the magistrates will allow us sufficient to make up a certain sum weekly, whether we earn it or not.' Therefore, that industry might not be checked, I proposed to the justices that our labourers, with more than one child, should have barley-flour and wheat-meal,* in certain proportions, mixed together, and *sold* to them at two shillings per stone of fourteen pounds, allowing the labourer to buy, at that price, seven pounds a week for each child in his family, and that the loss on the wheat and barley should be paid by a rate among the farmers only; this was agreed to by the magistrates, and recommended by them to other parishes. I then requested the justices, if any poor person from the parish in which I resided should apply to them for relief, that before they ordered it they would summon me, and I would certainly attend; and if I *knew* when any one was coming before them I would appear at the same time with such person, my object being not to *oppress* the poor, but to encourage *industry*; the magistrates said they were satisfied, and would attend to my request.

Now, Sir, the result has been, that only *one* person, of any description, has been before the magistrates for relief from our

* Since the first dear year, we have not mixed any barley-flour with the meal that we sell to our labourers for their children—we now allow them as usual, viz. a man with four children, has twenty-eight pounds of wheat-meal weekly for four shillings, and with two children, fourteen pounds for two shillings.

parish ever since, and not one of the labouring poor, though I then had ten labourers, who had forty-eight children at home with them to support, and have now about the same number—they have continued very industrious, as the man for his family had, and now has, the same quantity of meal at the price, whether he earned ten or twenty shillings in the week. I never make any such observations to them as, 'You earned great wages at that piece of work'—or 'You earned a great deal last week, when I put you out another piece of work, I must not give you so much;' or, 'You earn so much, you do not want the meal at the same price as such a one, though he has the same family as you have, for he does not earn near so much as you do:' this I know has been too much the case with some farmers, and it is a sure way to make the poor, poorer still. It is a mean spirit, which cannot bear to pay a man more, who works very hard for fourteen or sixteen hours in a day, at taken work at the usual price, than he pays another who works lightly, and earns about day wages at the same work. This spirit, Sir, of grudging to pay the over-earnings of industrious labourers, and of not giving them piece instead of day work, causes the labourers to fly to the ale-house, and from thence to the magistrate for relief; who too often, instead of instructing the farmers to encourage industry, immediately orders the parish to pay him such relief every week, as would make him, with what he earned, a sufficiency for his support.

Now, as industry meets with so little encouragement, I agree with R. W. in the plan he has proposed for supporting the poor, as it would encourage industry, which is always favourable to morality, and consequently good for society at large; yet I wonder R. W. should have illegitimate children with the present laws, for it is notorious that in many parishes these cost nearly as much as the aged poor; would it not be better to make the societies to which the reputed father or mother belonged, accountable for the expence of such children, as this might be a great check to their production?

The early drought we had has materially injured our barley and pease, and the following showers have not been able to make them an average crop, yet I think the barley is better than it was in the year 1804. Our wheats on the light soils have suffered from the drought, and many of the late sown and thin crops are mildewed, and the kernel shrivelled; but upon the good lands, the crop is erect and promises well;—considerable is the quantity of smut, or brand, among the wheat now growing, though we all steep in chamber-lye and lime it. The turnips generally are growing very fast, and nearly all hands employed in hoeing them. This day I began

to take up pease, and to-morrow must reap wheat which is mildewed—suppose harvest will be general here in about another fortnight. The best wheat at Norwich last Saturday, nine shillings, and barley four shillings and sixpence per Winchester bushel.

I am, your constant reader,
JOHN ———.

CURE FOR THE SMUT IN WHEAT.

To the Editor of the Agricultural Magazine.

Sir,

NONE of your correspondents having come forward with an effectual remedy for preventing smut in wheats, I beg leave to offer you, for the information of those of your readers who need it, the result of my own and several of my friends' experiments on that subject. It is customary with many people in this district to prepare seed-wheat with boiling water and quick lime, by pouring it on the wheat, and stirring it well together on a plain floor. I tried this method, and found the produce of wheat so prepared to be cleaner than the seed that was sown unprepared, which led me to believe that quick lime, properly applied, would be found an effectual preventive of smut; thence I was induced to adopt the following method of application. I heated a half hogshead copper, till the water boiled; I then added about one peck of lime, stirred it till I had reason to think it was all slacked, and incorporated it with the water. I then began the operation, by taking a bushel basket (finely wove for the purpose) three parts full of wheat, and dipping it into the copper, taking care to keep it boiling, and to every three or four baskets of wheat, I added a few knobs of lime. As soon as the wheat was all wetted, and twice or three times stirred round, it was emptied on a plain floor to dry. It is upwards of ten years ago since I first adopted this plan, and for the first three or four years I always tried a part of every field with undressed seed, and I never knew a single instance where the seed sown unprepared was the least smutty, but that the produce was more so. I and several of my friends have sown very smutty wheat prepared in this way, and have always found it effectually prevented the produce from being smutty.

I cannot say how long the wheat may be permitted to remain in the copper, for I have never heard any where the vegetation has been hurt; should any of your friends be fearful of destroying their seed, a single experiment will con.nce them.

I remain, Sir, your, &c.
A SOMERSETSHIRE FARMER.

P. S. I should think myself obliged by a plate, and a particular description of that machine for dibbling wheat, presented to the company at Holkham sheep-shearing; also of that implement called an Arator, (as soon as convenient) through the channel of your Magazine.

Aug. 14, 1806.

NOTE.—We shall always be happy to hear from this correspondent, and assure him, that we are disposed to pay, at least, as much attention to plain and useful practical facts, as to fine writing. We are convinced that no damage can be done to the seed, by the process our correspondent advises, and should be glad to be convinced that it is as efficacious as it is harmless. We have often witnessed the vegetation of seeds which have been thoroughly baked, and afterwards eaten and evacuated. We will do all we can to oblige this gentleman with the plates he desires, but can scarcely understand his meaning as to the second article. Is it the extirpator? E.

ON SHEEP STOCKING LANDS—THE FOOT-ROT IN SHEEP—WOOL--SMUT IN WHEAT.

To the Editor of the Agricultural Magazine.

SIR,

ONE of your correspondents, under the signature of a Mercantile Farmer, in the last Number, intends, he informs us, to stock his best lands with New Leicester sheep, and those of inferior quality and upland situation, with South-downs and Anglo Merinos. No practical shepherd can find fault with a disposition of stock so obviously judicious; he may also find, if he should chuse to make the trial, that the latter species, namely, the South-downs and Merinos, will render a very good account placed upon his best land, as well as upon his worst, stocking, at least, twenty-five of the latter, to twenty Leicesters. With respect to the foot-rot, the old opinion is, that heavy long-woolled sheep are most liable; although I cannot pretend to say, that I have been particular in my observations on that point, yet certainly some flock-masters have, accidentally or not, found that in changing their stock from long to short-woolled, they have no longer been troubled with the disease, with which before they had suffered heavily every year. That the Merinos are not peculiarly liable, I judge from having them, South-downs, Dorsets, and Berkshire, all affected together, and I think the Dorsets most of all, and the Merinos least. The disease, doubtless, arises from moisture, particularly from their feeding in long, dewy, or constantly damp grass, in which case, the best remedy is to place them directly in a

dry and clean walk, mowing the grass for them if practicable, and carrying it to their walk.

The large imports from Spain and Saxony, the fine unaccountably coming from the latter, and the coarse from Spain, have rendered the sale of short wools rather dull this season, and perhaps something cheaper than the last. The price of Anglo-Merino wool is, I believe, at present, from three shillings to three shillings and nine-pence per pound; that of South-down, from two shillings to two shillings and two-pence per pound. The weight of a Spanish South-down fleece about three pounds and a half, that of South-down two pounds and a half; average of pure Merino three to five pounds, price six shillings to six shillings and six-pence. We have one considerable flock of Anglo Merinos, and a sprinkling in many parts of this county. The King's sale being just at hand, in which there will be, perhaps, double the usual quantity put up, and Dr. Parry's, at Hounslow, the following week, all particulars relative to this important improvement in our sheep-husbandry may be expected to come abroad.

The former discussions in your Magazine relative to the smut in wheat, combined with the opportunities afforded us by the present season, have rendered the subject a common farming topic here. There will be a considerable quantity of not merely blacked, but smutted and stinking wheat, in Kent, Surrey, and Middlesex; and as has been particularly remarked, on land which has not been within the memory of man sown with dry seed. A farmer of my acquaintance, who has a very considerable breadth of wheat, and not a single piece of it quite clear from *blacks*, has been just calculating the expence of his brine! I dressed my own seed, and hope to escape with little or no damage: how it has been with me formerly in this affair I cannot clearly ascertain, for I must acknowledge, it never, till of late, occurred to me to make any observations.

I am, Sir, &c. &c.

Surrey Hills. X. X. X.

ON THE MERINO-CHEVIOT SHEEP, AND THE DISEASES OF VEGETABLES.

To the Editor of the Agricultural Magazine.

Sir,

YOUR correspondents in general appearing to be interested on the subject of the Spanish cross in sheep, I hasten to communicate to you the substance of a letter which

I received last post from a friend in Roxburghshire, on whose information I can depend. Mr. Robson's shew of rams, at Belford, in the Cheviot hills, is just over. This breeder's stock are in very high esteem, and he has let more rams the present year, and at higher prices, than at any former period. The cross of Merino rams with the Cheviot sheep has succeeded with Mr. Robson beyond expectation; the produce has stood the winter well, and they are very promising both as to size and form. In the quantity and quality of the wool, the improvement has been material, the advance of price making thus far twelve shillings per stone. These facts have been universally admitted by the Cheviot breeders.

I beg also to inform the public, through the respectable channel of your Magazine, that the fifth Edition of the New Farmer's Calendar, accidentally delayed for many months in its course through the press, will be ready for publication in a few weeks. The additions will chiefly consist of my experimental observations on various soils, made through the two past seasons, on the maladies of vegetables; particularly the smut in wheat, the curl in potatoes, and the fly in turnips.

I am, Sir,
Your most humble and obedient servant,
Aug. 10, 1806. JOHN LAWRENCE.

ON SPANISH SHEEP.

We are requeſted by a correſpondent to inſert the following account of the Merino Flocks, and their management in Spain. It contains curious information for thoſe who are interested in this breed, together with certain now exploded notions of their being originally derived from this country; and on the quality of the wool depending on the travelling of the ſheep. On such points we refer enquirers to Dr. Parry's Treatise on Wool, Lord Somerville's Works, &c.

ACCOUNT OF THE SPANISH SHEEP AND WOOL: FROM SIR JOHN TALBOT DILLON'S TRAVELS THROUGH SPAIN.

THE wools of Spain form a considerable branch of our commerce with that country. It has been said that their fine quality was originally owing to a few English sheep sent into Spain, as a present by our Henry the Second, or, according to others, by Edward the Fourth, in 1465; but without entering into fruitless investigation of an event so remote, and of so little consequence, I shall confine myself to speak of those remarkable sheep known in Spain by the name of 'The Merino flocks,' and describe the constant method of conducting those numerous tribes from the northern to the southern

provinces, to which they attribute that peculiar fine quality of the wool, which has rendered it so famous all over Europe.

There are two sorts of sheep in Spain, some that have coarse wool, and are never removed out of the province to which they belong, and others that, after spending the summer in the northern mountains, descend in winter to the milder provinces of Estremadura, and Andalusia, and are distributed into districts. These are the Merino sheep, of which it is computed there are between four and five millions in the kingdom*. The word Merino signifies the governor of a province. The Merino Mayor is always a person of rank, and appointed by the King. They have a separate jurisdiction over the flocks in Estremadura, which is called The Mesta, and there the King in person is Merino Mayor.

Each flock consists generally of ten thousand sheep, with a Mayoral or head shepherd, who must be an active man well versed in the nature of pasture, as well as the diseases incident to his flock. This person has under him fifty inferior shepherds, and as many dogs, five of each to a tribe. The principal shepherd has a hundred pistoles (about 75l.) and a horse every year. The other servants have 150 rials for the first class (1l. 13s. 9d.) 100 rials for the second class (1l. 2s. 6d.) 60 rials for the third class (13s. 6d.) and 40 rials, or nine shillings for the other attendants. Each of these has an allowance of two pounds of bread a day, with the same quantity of an inferior sort for the dogs. They are likewise permitted to keep goats, and a few sheep, of which they have the meat, and the lambs, provided the wool remains for the master.—They may do what they please with the milk, of which they seldom make any advantage. In the months of April and October, each shepherd has 12 rials given him (about 2s. 9d.) as a perquisite previous to his journey.

Though these flocks divide and separate themselves over several provinces of Spain, it will be unnecessary to relate what passes in each, their government being similar and uniform. The places where they are to be seen in the greatest numbers are in the Montana and Molina de Aragon in the

	Sheep.
* The Duke of Infantado's flock about	40,000
Countess Compo de Alense Negretti	30,000
Paular and Escurial Convents, 30,000 each	60,000
Convent of Guadaloupe	30,000
Marquis Perales	30,000
Duke of Bejar	30,000
Several flocks of about 20,000 each	200,000
All the other flocks in the kingdom together, on an average	3,800,000
	4,220,000

summer, and in the province of Estremadura, in the winter. Molina is to the eastward of Estremadura; the Montana is to the north, and the most elevated part of Spain: Estremadura abounds with aromatic plants, but the Montana is entirely without them.

The first care of the shepherd in coming to the spot where they are to spend the summer is to give the ewes as much salt as they will eat; for this purpose they are provided with twenty-five quintals of salt for every thousand head, which is consumed in less than five months; but they eat none on their journey, or in winter. The method of giving it to them is as follows: the shepherd places fifty or sixty flat stones, about five steps distance from each other; he strews salt upon each stone, then leads his flock slowly through the stones, and every sheep eats at pleasure. This is frequently repeated, observing not to let them feed on those days in any spot where there is lime-stone. When they have eaten the salt, they are led to some argillaceous spots, where from the craving they have acquired they devour every thing they meet with, and return again to the salt with redoubled ardour.

At the end of July each shepherd distributes the rams amongst the ewes, five or six rams being sufficient for an hundred ewes. These are taken out of flocks where they are kept apart, and after a proper time are again separated from the ewes.

The rams give a greater quantity of wool, though not so fine as the ewes, for the fleeces of the rams will weigh twenty-five pounds, and it requires five fleeces of the ewes to give the like weight. The disproportion in their age is known by their teeth, those of the rams not falling before the eighth year, while the ewes, from their delicacy of frame, or other causes, lose theirs after five years.

About the middle of September they are marked, which is done by rubbing their loins with ocre diluted in water; some say this earth incorporates with the grease of the wool, and forms a kind of varnish, which protects them from the inclemencies of the weather; others pretend that the pressure of the ocre keeps the wool short, and prevents it from becoming of an ordinary quality; others again imagine, that the ocre acts in the nature of an absorbent, and sucks up the excess of transpiration, which would render the wool ordinary and coarse.

Towards the end of September these Merino flocks begin their march to a warmer climate; the whole of their route has been regulated by laws and customs time immemorial. They have a free passage through pastures, and commons belonging to villages; but as they must go over such cultivated lands as lie in their way, the inhabitants are obliged to leave

them an opening ninety paces wide, through which these flocks are obliged to pass rapidly, going sometimes six or seven leagues a day, in order to reach open spots less inconvenient, where they may find good pasture, and enjoy some repose. In such open places they seldom exceed two leagues a day, following the shepherd, and grazing as they move on. Their whole journey from the Montana to the interior parts of Estremadura may be about one hundred and fifty leagues, which they perform in about forty days.

The first care of the shepherd is to lead them to the same pasture where they had been the winter before, and where the greatest part of them were eaned; this is no difficult task, for if they were not led there, they will discover the ground, by the great sensibility of their olfactory organs, to be different from that which is contiguous; or, were the shepherds so inclined, they would find it no easy matter to make them go further. The next business is to order the folds, which are made by fixing stakes, fastened with ropes one to the other, to prevent their escape, and being devoured by the wolves, for which purpose the dogs are stationed without.—The shepherds build themselves huts with stakes and boughs, for the raising of which, as well as for fuel, they are allowed to lop off a branch from every tree. This law is the cause of so many trees being rotten and hollow, in the places frequented by these flocks.

A little before the ewes arrive at their winter quarters, it is the time of their eaning, at which period the shepherds must be particularly careful. The barren ones are separated from the others, and placed in a less advantageous spot, reserving the best pasture for those that are fruitful, removing them in proportion to their forwardness: the last lambs are put into the richest pasture, that they may improve the sooner, and acquire sufficient strength to perform the journey along with the early ones.

In March the shepherds have four different operations to perform with the lambs that were eaned in the winter; the first is to cut off their tails, five fingers below the rump for cleanliness; the second is to mark them on the nose with an hot iron; next they saw off the tips of their horns, that they may not hurt one another in their frolics; finally they castrate such lambs as are doomed for bell-wethers, to walk at the head of the tribe; which is not done by incision, but merely by squeezing the scrotum, till the spermatic vessels are twisted and decay.

In April the time comes for their return to the Montana, which the flock expresses with great eagerness, by various movements and restlessness, for which reason the shepherds

must be very watchful, lest they make their escape; whole flocks having sometimes strayed two or three leagues while the shepherds were asleep; and on these occasions they generally take the straightest road to the place from whence they came.

On the first of May they begin to shear, unless the weather is unfavourable; for the fleeces being piled one above the other, would ferment in case of dampness, and rot; to avoid which, the sheep are kept in covered places to shear them more conveniently; for this purpose they have buildings that will hold twenty thousand at a time, which is the more necessary, as the ewes are so delicate, that if immediately after shearing they were exposed to the chilling air of the night, they would certainly perish.

One hundred and fifty men are employed to shear each thousand sheep. Each person is reckoned to shear eight sheep a-day, but if rams, only five; not merely on account of their bulk, and greater quantity of wool, but from their fickleness of temper, and difficulty to keep them quiet; the ram being so exasperated, that he is ready to strangle himself, when he finds he is tied. To avoid this, they endeavour by fair means and caresses to keep him in temper; and with much soothing, and having ewes near him, they at last engage him to stand quiet, and voluntarily suffer them to proceed.

On the shearing day the ewes are shut up in a large court, and from thence conducted into a sudatory, which is a narrow place, where they are kept as close as possible, that they may perspire freely, in order to soften the wool, and make it yield with more ease to the shears. This is particularly useful with respect to the rams, whose wool is more stubborn. The fleece is divided into three sorts; the back and belly, give the superfine, the neck and sides give the fine, and the breasts, shoulders, and thighs, give the coarse wool.

The sheep are then brought into another place and marked; those without teeth being destined for the slaughter-house: the healthy are led to graze, if the weather permits; if not, they are kept within doors, till they are gradually accustomed to the air. When they are permitted to graze without being hurried, they select and prefer the finest grass, never touching the aromatic plants, though they find them in plenty; and if the wild thyme is entangled with the grass they separate it with great dexterity, avoiding it on every occasion, moving eagerly to such spots as they can find without it.

When the shepherd thinks there is a likelihood of rain, he makes proper signals to the dogs to collect the flock, and lead them to shelter; on these occasions the sheep not having time

to chuse their pasture, pick up every herb indiscriminately.—Were they to give a preference to aromatic plants, it would be a great misfortune to the owners of bee-hives, as they would destroy the food of the bees, and occasion a disappointment in the honey and wax. They are never suffered to move out of their folds till the beams of the sun have exhaled the night dews, nor do they let them drink out of brooks, or standing waters, where hail has fallen, experience having taught them, that on such occasions they are in danger of losing them all. The wool of Andalusia is coarse, because their sheep never change climate like the Merino flocks, whose wool would likewise degenerate, if they were kept at home; and that of Andalusia would improve, were they accustomed to emigrate.

Between fifty and sixty thousand bags of washed wool are annually exported out of Spain. A bag generally weighs eight arrobes, or 194 pounds English. About twenty thousand bags of this wool are sent annually to London and Bristol, worth from 30l. to 35l. each; so that we have one third of the produce, and of the best sort. The wool of Paular, which is the largest, though not the best, is reserved for the King of Spain's manufactures. The common and shooting dresses of the royal family of Spain, and their attendants, are made of the cloth of Segovia, from whence our English Nobility, in Henry the VIIth's time, were supplied with fine cloth.

The Crown of Spain receives annually, by all duties together on exported wool, near sixty millions of reals vellon per annum, amounting to 675,000l. English money.

ON DRILLING—THE OX-LABOUR QUESTION—THE NORTHUMBRIAN HUSBANDRY—AND SUSSEX SHEEPING OF WHEATS.

To the Editor of the Agricultural Magazine.

SIR, *August 16th*, 1806.

I AM truly sorry that I have not leisure, at present, to follow your Essex correspondent through every part of his letter in your last publication. Permit me, therefore, to offer a few cursory remarks for your next Number.

Having, a few months ago, mentioned the results of some accurate experiments to show that in the Northumberland mode of drilling turnips, the produce is to that in the broadcast husbandry as four to three; your Essex friend endeavoured to depreciate our northern culture of that valuable

root, and asserted that the advantages in the drilling of culmiferous crops are so great that they reduce those in the drilling of turnips to "a mere matter of straw." I ventured to dissent from his opinion, and stated the results of two accurate experiments of my own, in the culture of wheat, in which the superiority of the drilled crops was only about two Winchester bushels per acre, or about one nineteenth of the produce. I appealed to your experienced readers, and in particular to your able correspondent Agricola Norfolciensis, whose letter in your last Number confirms my statement relative to the superiority of drilled crops of corn over those which are obtained in the broad-cast husbandry.* The information of Pastorius and Farmer Sandy tends to the same end: and you may easily conceive the pleasure I feel, Sir, in being able to draw support not only from the communications of these three distinguished correspondents, but also from those of my opponent himself, who says, "I have ever understood, that on an average of experiments, the broad-cast quantities of wheat have, at least, equalled the drilled." This agrees with the results of my experiments between the broad-cast husbandry and drilling at intervals of ten inches and a half; and in reference to these trials, has a tendency to establish my opinion in favour of nine-inch intervals in the spring culture of light soils.

Upon this part of the subject, Agricola Norfolciensis has not favoured us with his opinion, in his last communication. His former letters, however, are favourable to that distance of rows, and I should suppose the opinion of a Norfolk cultivator on this point deserving of the greatest attention. While I am on this part of the subject I must not omit to notice what your Essex friend has advanced at page 25 of your last Number. "As to the comparative width of intervals (says he) A. N. seems to have no better argument than the presumed infallibility of the present enlightened times. But that is a very unsatisfactory mode in which to silence so important a question."—He also seems to state that I found my opinion on the publications of Mr. Young. Now, Sir, I cannot avoid observing that this mode of proceeding is neither strong nor just. With respect to its strength—is it not obvious that opinions which are established in "enlightened times," are entitled to much greater respect than those which have been broached in times of darkness? And on the other point—is it fair in your friend to say, or insi-

* He says that four or five bushels per acre, is far more than the difference which exists in favour of drilling culmiferous crops in Norfolk. Of course this corroborates my statement of two bushels per acre, and makes materially against your Essex friend.

nuate, that I have founded my opinion on the publications of Mr. Young, after the minute account he had seen of my own experiments, which shewed the narrow to be more profitable than the broad intervals?—Here I must also remind your correspondent *Clericus et Colonus*, that he has proceeded in a similar manner on the horse and ox question, at page 30 of your last publication, where he has said that I "profess no practical acquaintance with the subject." Assuredly, Sir, this would not have fallen from the pen of *Clericus* if he had been fully acquainted with the long controversy between Agricola Meridionalis and myself. In that dispute, I certainly did, in very plain terms, state that I possessed considerable "practical acquaintance with the subject," and that I had employed oxen, in various modes, in cultivating my farms. Clericus also says I live in a district where ox labour is not practised. It is, however, still practised in this district by some disciples of the old school. Happily, I grant, upon a small scale, or my brethren of this country would soon be totally unable to pay their enormous rents. I believe ox labour has been as much tried in Northumberland, as in any county in the kingdom; and its extent upon some farms was so great, that a very short time before I answered A. M. one farmer employed about fourscore of these animals, which, perhaps, could not be equalled by a like number of labouring oxen in the possession of any other farmer in Great Britain.

I am perfectly ready to oppose *Clericus et Colonus* upon the horse and ox question. I must beg, however, that he will consider the facts I have stated relative to the consumption of food by each species of animals, before he seriously enters into the question. This important consideration has been totally overlooked by almost all the advocates who have wrote in defence of oxen. In answering A. M. I stated the results of very accurate experiments, to prove that oxen consume more food than horses.

With regard to the comparative merits of drilling turnips and corn, I must tell your Essex friend it is pretty clearly proved, that his position *that a much greater increase of produce can be obtained in the latter than in the former, comparing each with the broad-cast husbandry,* is untenable. I again assert, that in no situation where the land is in a clean and proper state, can he obtain near an increase of one fourth by drilling corn, in a fair comparative experiment between that and the broad-cast mode of sowing. Upon this point I should be inclined to risk a considerable sum, if he and I could properly fix the terms, situation, &c. &c. and also find leisure sufficient for the experiment. Upon this subject

permit me to request the farther communications of your experienced readers.*

In answer to "your friend R." I have to observe, that the agriculture of this district is greatly improved within the last twenty years; that in several parts of it there are still many farmers who pursue some of the old modes; and that I perfectly remember some very bad management, at the time he mentions, between Wooler and Bedford. But in what county is there no cultivation of this description? What he says as to my conclusion not being "logically deduced, &c." seems too well founded. His letter is dated the 4th of June, and if he will examine my paper in your 83d Number, he will see that I have fully explained. He should make liberal allowances for the pressure of various avocations. My observations on the comparative advantages of tillage and grass land, in which he says he has discovered some inconsistency, are, perhaps, not correctly understood. If a farmer is not shackled by restrictive covenants, he will adapt the quantity of his tillage land to his local situation; the demands of markets, &c. In some situations, therefore, there would be more grass land than in others. In all, however, it enriches the soil, and proves an excellent preparation for great crops of turnips and corn; and, I think, the observations to which Mr. R. has objected, refer principally to such an extensive improvement of commons, moors, and wastes, as would enable the cultivators of this kingdom to have a great proportion of productive grass land, and a sufficient quantity in tillage for the supply of our numerous population.

I am, Sir,

Your, &c.

AGRICOLA NORTHUMBRIENSIS.

P. S. I agree with Mr. Dowlen "on the sheep feeding of wheat."—In answer to Pastorius, the Spanish ram in the neighbourhood of Alnwick certainly had a covering of woollen cloth upon him in the late spring.—This correspondent has frequently done me the honour of requesting my opinion on the long controversy relative to New Leicester and Spanish sheep; and as it now seems at an end, and as your

* And likewise upon "An Essex Farmer's" remarks (page 27, of your last Number,) on the "good, bad, or indifferent" condition of the land, &c. It has always appeared to me that the difference in favour of drilling culmiferous crops, is greatest where the soil is not in good condition. I also think that some lands are more proper than others for the drill husbandry, which is an answer to your Essex friend's question in the first part of his letter.

other correspondents are communicating their opinions, I beg leave to place myself on his side.—I am much inclined to answer the enquiry of "A Mercantile Farmer." I wish, however, to see the subject in more experienced hands.

A. N.

At page 37, line 13, of your last Number, for *saffron, wood,* read *suffron, woad.*

ON DRILLING AND DIBBLING, &c.

To the Editor of the Agricultural Magazine.

SIR,

"WHAT would Farmer Sandy be at? (says Mr. John Wright) he appears from his very soul to hate dibbling, yet he keeps requesting information concerning it." I want, Mr. Editor, to be at this—the comparative produce and expences of drilling and dibbling corn under exact trials. This I have not been able to obtain from Mr. W——; Agricola Norfolciensis, however, has kindly communicated something on that score which appears satisfactory; much in my favour, and of course against your Lincolnshire friend. "I consider dibbling, (says this judicious Norfolk correspondent) as too expensive to stand a competition with the drill," and "I am not sure that the dibbled corn will yield a better crop than the drilled." Mr. W. will please to observe, that I said nothing in positive terms against the *produce* of drilled crops. I said, indeed, that it is a barbarous mode to dibble; and I am now more than ever of opinion, that the best mode of committing the seed to the ground in the raw culture is that of using a good drill machine. This mode shows science and "acquaintance with arts." The other warrants a supposition of a deficiency in that species of knowledge, and is, therefore, *barbarous.* I cannot see that it is improper to give an *opinion,* and I merely stated my *opinion,* when a man is enquiring for more correct information.

Mr. W. says, "I dare say the country will be satisfied if he never drills an acre." Perhaps, nay probably, it may be so. But what will this satisfaction arise from? Why from a conviction that dibbling is not equally advantageous with drilling. If it was superior to the latter mode, then I beg leave to say that the country ought not to be satisfied; for I farm extensively—very extensively, Sir, and my country is interested in my culture.

Now, Mr. Editor, I must beg leave to turn over your Magazine, till I find my old friend *Clericus et Colonus,* and his parables, conundrum, &c.; and at the beginning I must beg to say that he has grievously disappointed me. In his

next epistle, however, I hope he will favour me, without quibbling, with the extracts from "Ecclesiastes, or the Proverbs," to which he has alluded, or indeed any other extracts or observations that will bear upon the subject in dispute; for I humbly conceive that in his last communication there is scarcely any thing to the purpose. He evades answering the questions I put to him, and I am persuaded that almost the whole of your readers will agree with me, in imputing this to the difficulty of answering them without confirming my opinions. Clericus, alas! is thrown from his *hobby*, and what is worse, his brains have been so much injured by the fall, that his usual ingenuity is lost. He can scarcely advance within sight of the main subject, without reeling to the one side or the other. All is now evasion, and so let it rest. My brethren, I have no doubt, will continue the judicious practice of preparing their seed wheat.

With regard to the "hasty pudding and milk," compared to the "flesh and ale," and the subsequent remarks of *Clericus*, I beg leave to refer him to the observations of Agricola Northumbriensis in reply to R. W. upon the power and fall of rich, commercial, and luxurious nations; or rather to those histories which he doubtless has in his own library.

Your, &c.

Aug. 15, 1806. FARMER SANDY.

Erratum in your last Number.
Page 41, for *region of b—n*, read *region of the b—n*.

ON NEW LEICESTER AND MERINO SHEEP, IN ANSWER TO MR. WRIGHT, &c.

To the Editor of the Agricultural Magazine.

SIR,

I REFUSE the mediation of Mr. Wright, upon the basis he has proposed; for though I am an advocate for the diffusion of Anglo-Merino sheep, to such an extent as would supply wool for our manufacturers of superfine cloth, I can by no means allow Mr. Bartley and his followers to have the exclusive supply of our markets for small mutton. I must still continue to oppose the introduction of the Spanish breed upon our elevated, stormy, and heathy pastures; because I am fully satisfied that a much hardier race are too delicate for most of them. Let the Anglo-Merinos be kept within proper bounds, from our productive lands and our very extensive, heathy, barren, and exposed mountainous pastures,

and I am ready to make peace with Mr. Bartley, my countryman Lord Somerville, and all the advocates for the former breed. But upon no other terms will I cease my opposition.

These are the terms I defended at an early period of my dispute with Mr. Bartley. These are the terms from which I have not deviated. To these principles I have steadily adhered; and they have enabled me to obtain that victory, which I flatter myself a great majority of your readers are ready to acknowledge I have fairly won. These observations certainly place your correspondents, *Clericus et Colonus* and *Mr. Brightley*, in a situation by no means enviable. What has induced these almost constantly acute and intelligent correspondents to go such unwarrantable lengths in support of Mr. Bartley? How they will extricate themselves from so disagreeable a situation I cannot conceive; but as some of the numbers of your Magazine are not at present in my possession, I now, Sir, call upon you to mention, in your next publication, that Number of your work which contains my sentiments in favour of Merino sheep, to a certain extent and on certain pastures. I also call upon you, Mr. Editor, to state the substance of what I therein advanced. You will also have the goodness to examine Mr. Brightley's letter, in the same Number, and state whether I have misrepresented that gentleman's opinions, when I lately mentioned their coincidence with my own. When these several papers are carefully examined, your readers will see whether all those who have given their opinions on the dispute between Mr. Bartley and myself, have acted *inconsistently*. I might justly say more—but at present I desist. Permit me, however, to ask *Clericus et Colonus* one single question, *requesting him previously to consider what I advanced in favour of Anglo Merino sheep*. What has the long dispute between Mr. Bartley and Pastorius been upon, if it has not been upon the comparative merits of the New Leicester and Anglo Spanish sheep on productive lands? He may answer, upon the relative merits of the latter breed, and our native small sheep upon our exposed and heathy hills and mountains. This I grant has been a subject of controversy; but these hills having been found too cold for Mr. Bartley and his foreign sheep from the warm climate of Spain, his continuance upon them was but of short duration. The main dispute has been upon the subjects of the New Leicester and Spanish breeds, as proper stock for our fertile grounds. Mr. Bartley contended for the superiority of the latter, while I maintained that of the New Leicesters, and shewed the dangerous consequences to the farmer and the community of suffering these valuable sheep

to be displaced by the Spanish. I never advanced any thing whatever against maintaining a limited number of Anglo-Merinos upon proper pastures; on the contrary I endeavoured to shew the advantages which would result from such a number: and when I advert to the principles and communications of *Clericus et Colonus* and Mr. Brightley, I must take the liberty of telling them, they have been mistaken when they declared in favour of my opponent, and that I conceive I have a right to enter their votes on my side. On this point, Sir, pray allow me to request the sentiments of your correspondents.

With regard to Mr. Wright, I think the difference between us, except that mentioned in the beginning of this letter, does not seem material. In some important points his opinions corroborate mine; and I hope he will not now maintain that the fatness of *lambs* is a proper criterion of the most profitable feeding breed. As to the comparative value of the mutton—the one sort twenty-six, and the other twelve pounds per quarter—I am unalterably of opinion, that in Newcastle, Shields, Sunderland, and many other great markets, the former would, upon an average, bring at least one halfpenny per pound more than the latter. If equally fat, I agree with Mr. Wright in several respects; but who ever saw the small mutton fat when compared with the large of the New Leicester breed? What he has observed as to *nicking on the tail head*, in small breeds, is very just; but though I admit that many of these sheep "prove" better to the butcher than would generally be imagined from their "handling," yet compared to my mutton twenty-six pounds per quarter—they are lean; and I really think Mr. W. has stepped aside upon dangerous ground, for nothing is more easily proved than the superiority of fat over half fat mutton, in the quantity of food obtainable from a given weight of each sort. It is clear, therefore, that those who live upon "small incomes," will prefer the former. To cut a large "joint" of mutton (Mr. W. says) would "spoil it." It would be so in some measure, I agree, with those who can afford to gratify their taste; and for such consumers I have no objection to an adequate supply of small mutton. When these consumers are supplied, however, the remainder of the small mutton, would, I again assert, not sell so high, to the principal buyers in most of our great mutton markets, by one halfpenny to a penny per pound, as the fat meat of twenty-four to twenty-seven pounds per quarter.—I object to mutton of the enormous weights mentioned by Mr. Wright. That sort is generally from animals which are much inferior to the improved Leicester sheep.

I am surprised at what Mr. Wright says relative to ewe lambs, as I generally observe that they are as soon, or sooner, fat as the tup or wedder lambs. The value I mentioned of my lambs of the new Leicester kind, is indeed very high; but the *weights* are not uncommon, even upon lands below the first-rate quality. What then makes the enormous value of forty-five to fifty shillings? *Why Mr. W.'s enormous price of ninepence per pound.*

Mr. Wright says, (page 9 of your last No.) where speaking of the fall of the price of Spanish wool, which would undoubtedly take place, if we had a large number of Anglo-Merino sheep, "we could return to our old beaten path."—Here he obviously means to the New Leicesters and other native breeds. In the very next paragraph he says "breeders should not be continually altering their breeds; if they do, they will never get a good one, as it is a work of time in any species."—He is right. Let me therefore caution my brother farmers against parting with that breed which is really "a good one." Let them keep their New Leicesters on their productive lands, instead of introducing the Anglo-Merinos, which would cause them again to alter their breed at a great expence.

Your, &c.

PASTORIUS.

Aug. 15th, 1806.

ON PLOUGHS.

To the Editor of the Agricultural Magazine.

SIR,

YOUR correspondent A. B. C. having, more than once, requested information concerning certain ploughs, I will endeavour to oblige him, although in an imperfect way, because my attempt may be a stimulus to some person more fully informed.

All double furrowed ploughs are necessarily calculated for lands not too wet and heavy, and free from obstructions; as such, those scientifically improved, Lord Somerville's, for instance, most certainly effect a considerable saving of time and labour. For example, doing the work of two ploughs, the labour of one man is saved, and frequently, on light lands, of one horse, an ox also; since as such, three beasts will well suffice: several of my friends have seen Lord Somerville's double ploughs at work with four oxen, driven with reins, and

doing constantly two acres a-day, on a generally light, but by no means the lightest soil. It was however remarked, that his Lordship's oxen were always worked down very low before they were turned off, which is not generally the case in Herefordshire. The same oxen perform well at timber cart. It is very curious, that on Lord Mansfield's farm, near Hampstead, Middlesex, the ox-teams are generally employed in the carting business, and on the road, and the horse-teams at plough. Riding past a farm in Berkshire of late, where both were kept, I asked the question, which worked with most speed, the horses or the oxen, of two of the farm servants; one answered the horses; the other said, he knew of no difference, in that respect, between them. In that county and others, where so much strength is put to a plough, on all occasions of heavy or light work indifferently, the two-furrow plough would be particularly useful. On the light sands of Norfolk and Suffolk, the two-furrow plough and three Devon or Pontipool (Glamorganshire) oxen, (these last are the cheapest oxen for labour of any we have, in point of first cost), would easily, and in the common style, work two or three acres a-day, or perhaps upwards. But Mr. Tweed, of Sandon, in Essex, is perhaps better able than any one to state the merits of the two-furrow plough, having had it so many years in constant use, but whether with oxen or not, I am uninformed. As a brother farmer, I take the liberty to call on Mr. Tweed, on this account, and he resides in a district where the agricultural magazine has a very extensive circulation.

I have not seen the double plough of the midland counties, which goes without a holder, for some years, nor do I hear any thing of it. It appeared to me calculated like the other for work, where there are no obstructions, nor did I perceive any great advantage in its working without a holder, since, to make good work, a steady ploughman must attend, and he might, I think, be as usefully employed behind, as abreast the horses. I should suppose that most ploughs, from the concavity and curvature of the share, once let into an unobstructed soil, would maintain their hold. I believe they do not perform so much work in a day as these two-furrow ploughs which are held. The former I understand are made generally, and by the common mechanics, in Leicestershire and other adjoining counties: they are not a new invention.

AN OLD FARMER.

West Herts, Aug. 12th, 1806.

ON SHEEP-FEEDING WHEAT, AND BEANS.

To the Editor of the Agricultural Magazine.

SIR, *Pickworth, near Stamford, Aug. 16th,* 1806.

YOUR respectable correspondent, Mr. Dowlen, has in your last given us some information on Sheep-feeding Wheat: and as he requests the opinion of other correspondents, I will humbly offer him my mite.

I once had four acres of wheat in an open ploughed field—by the side of it a neighbour farmer had four acres, the soil similar, the management the same—that is, four ploughings, a manuring, and sowed with wheat:—no apparent difference was discernible in March; both luxuriant good crops; my neighbour fenced his round, and stocked it with sheep, which continued eating it until May, when it was left quite bare:—it shot up again, it is true, but very weak in straw, and short in ear: mine was at harvest as good a crop as could be wished, and it was the opinion of many who saw both, that there were, at least, eight Winchester bushels per acre more upon mine than his. The error of this, I apprehend, was keeping them on too late in the season; if this was not the case, I am doubtful whether any wheat should be fed at all; as this land was rich enough to produce crop, dry enough to bear treading, and clear from weeds. I had been taught to believe, previous to this, that sheep-feeding was to make it shoot stronger, and produce better crops; this proof, however, to the contrary, has always kept me from stocking my wheat; which perhaps is wrong, to notice a business so ill conducted as that was.

I recollect my brother having a piece of rye sowed for sheep-feed, which he fed off twice, the last time as late as the middle of May, and it was as bare as a naked fallow, when the sheep left it. This he let stand for a crop for seed, and an exceeding good one it proved, a great length, stout in the straw, and a good ear; this was light, dry, red land.

If wheat is likely to be too burdensome a crop, sheep-feeding it late will certainly remedy that; so likewise will mowing it; yet I would not advise to eat strong wet land, more especially in wet weather, for fear of endangering the crop totally.

But now the grand object is to come to make a thin, weak crop, on poor light land, a good one; this is beyond my abilities. I will, however, with your permission, give an opinion how it may be prevented from getting so thin. In March we

often observe our wheat dying away in patches, and getting very thin; shall we then put on our sheep, in order to thicken it again? I think not, it is then past recovery that way—I would top-dress it, and roll it well. The sheep in my opinion should be put on while it is thick, in order to keep it so; first, by their dung, urine, and oily quality of their wool, to keep off the wire-worm: secondly, to prevent the frosts from heaving it out of this light soil: and, thirdly, to prevent the winds from blowing away the earth from the root, by their treading. Some may be of opinion that rolling may answer these purposes, but it is seldom a roller can be admitted on wheat land until March, and then it does not fasten the earth about it any thing equal to treading with sheep. If land be rich enough to bear a crop of wheat, dry enough to bear treading, and free from weeds, this is the land, in my idea, that may be fed with least danger: observing, however, not to keep them on too late, never after the middle of March, except the land is very powerful. Light, weak land, sowed with wheat, I would have top-dressed early, previous to the sheep being admitted; stocked with sheep early, while the plant is thick, and after every frost. Heavy, wet, and clay land, that would injure by treading when the crop is too luxuriant and rank, had better be mowed, but not too close to the ground.

An Old Farmer says, that in Kent they turn in their whole stock of horses, pigs, and sheep altogether in the middle of April; which certainly, as he observes, must be a mad prank.

The sheep-feeding beans mentioned by him is customary in many parts; clear beans is sowed on foul lands, in order to stock them with sheep, which certainly do keep the weeds down, so long as they remain in, which I have seen long after the beans are in blossom, to the great injury of the crop, particularly where they lay down; but so rapid were the growth of weeds, that even after that late time, they will shoot up quite perfect, and ripen their seeds, before the beans are cut, particularly the wild-oat:—there seems, therefore, to be no remedy for weeds in bean-land, but the horse and hand-hoe.

I am, Sir, your, &c.

JOHN WRIGHT.

P.S. I lose a great many sheep by the red and white water, particularly the red:—Are sheep that are constantly folded, and not let out until the dew is off the grass, subject to gather water? Will some gentleman give me his opinion on this.

J. W.

ON DRILL AND BROAD-CAST HUSBANDRY, RENTS, AND VARIOUS PRACTICAL TOPICS—IN ANSWER TO THE NORTHERN CULTIVATORS.

To the Editor of the Agricultural Magazine.

SIR,

I AM induced to trouble you again so early, chiefly by certain mis-statements of Farmy Sandy; which after having noticed, I shall most probably turn to other topics in question, with the view in truth of concluding what I have to say thereon, and that I may not contribute to occupy your useful pages with repetitions of the same subject.

F. S. seems to think the advantages of drilling not great; on the contrary, I think them immense, but not as consisting in a mere saving of seed, which however is, or ought to be, far greater than the quantity stated by F. S.; but of this I have before spoken, I trust sufficiently. If it can possibly be necessary for me to explain my assertion, that the general drill system, 'reduces the partial one, particularly that of turnips, to mere matter of straw'—I ask, if the obtaining of a somewhat larger crop of one, and that an inferior article, can in any degree equal the advantages of a general system of tillage, in which a weed shall not be suffered to live, where the whole of the land is kept in a constant state of pulverization, which is, in other words, in its utmost capacity of production? But to descend to the minor or petty advantages of drilling: the saving of seed, and the trifling superiority in quantity of produce from first attempts, for doubtless continued improvement of tilth would increase such superiority, how does the supposed increase from drilled turnips countervail even those? Thus much for drilling turnips in preference to corn. But why leave any thing random sown, when we can with so much facility and dispatch, as well as correctness, place it regularly in rows? I insist on my own experience—there can be no perfect husbandry independent of the effectual use of the hoe. Broad-cast turnips you may effectually hoe, as far as concerns a perfect clean tilth; broad-cast corn you cannot: and granting that your land misses effective aeration, whilst under turnips, if you drill generally it will miss such benefit at such period only. In fine, it seems to me near akin to that ludicrous perverseness common to men and animals on various occasions, to drill the only thing which there is no positive necessity to drill, and to broad-cast those, in which the view of good husbandry absolutely necessitates us to drill.

In the mean while, it is particularly childish and absurd in us in the south to persist in broad-casting turnips, when we ought to know, that to drill them is so much more cheap, convenient, and productive. Besides we need not go to the north for examples, since, without enumerating many others, Mr. Close, of Hampshire, stands first indeed without a rival, in Britain, as a driller of turnips, through a long course of years. For correctness, culture, quantity per acre, harvesting, and preservation to late spring, and successful application in the feeding of stalled beasts, we possess no accounts equal to his, which have been fully confirmed to me by his near neighbours. I still entertain some doubts of Mr. Close's favourite practice, sowing in drills of dung. In case of a winter fallow for turnips, I should greatly prefer the method (often tried with full success) of manuring the land in autumn, and leaving it well covered throughout the winter. Such land having received an effectual stirring in autumn, will break into a fine tilth in the spring, with very little labour, indeed without the help of the plough, and may be then thrown into beds, of any required dimensions, for the reception of the drilled seed. I should not doubt from such method, to obtain the best crop of roots, both in point of quality and quantity. After all, I incline much to the opinion of Mr. Bartley and others, in favour of the potatoe. I have, at the instant, the best possible example before my eyes. Here are upon a clayey sand, of middling quality naturally, but manured up to the eyes, about an equal breadth of turnips and potatoes; of the former, both Swedish and English, the first sowings were totally lost, and the second which stood will not produce more than half a crop; yet they were all drilled, and the dung thrown into the ridge, the seed being sown in the centre. In the mean time, the potatoes, bating a slight curl, have flourished uniformly from their setting, and would, in all probability, produce a large crop; but the haulm is too bulky, from the excess of manure in the land. But who would think of troubling himself with the precarious turnip culture, whose land is equal to the production of potatoes?—a root too, cooked or uncooked, of universal application, whilst turnips are of limited uses; and one of those not seldom to produce the dropsy. To be serious, there certainly is a prejudice against turnips in the hundreds of Essex, and, what is worse, the farmers of that district are not sufficiently attentive to grow substitutes for them, or rather better things in their room. But that is not quite so ridiculous as the idea which I have heard in market conversations of late, that the northern people are enabled to pay their exorbitant rents by the turnips they grow!!

F. S. says, (page 40, last No.) after having adverted to the magnificent schemes of speculators, projectors, and reverend agriculturists; "hence my surprise at the assertions of an Essex Farmer."—What assertions of an Essex Farmer!—Has this Essex Farmer ever made any magnificent promises, of quadrupled crops, &c. in consequence of an adoption of the drill system? Has he even ever stated the superiority per acre so high as Agricola Northumbriensis? Contrarywise, he has asserted that which he has now and then seen, and frequently heard, that, for a single crop, broad-cast wheat has equalled, or exceeded, the drilled in quantity per acre. Instead of a little disingenuousness in the present case, of which no one can suspect F. S., we will only say there is a little inaccuracy. The Essex Farmer must observe, that with respect to drilling, or any other branch of husbandry, he does not mean to pledge himself for the accuracy of every man who may chuse to write 'about and about' farming; a sort of literary manufacture, of which any one, who has the nack of writing, may very easily render himself capable.

But, in good truth, I never was aware of such an immense difference of acreable product, and such a vast superiority in favour of the north, as F. S. has stated. Had I known as much before, I should never have expressed any surprise at the enormous rents which our northern brethren continue to pay with so much alacrity, and such sanguine expectations of reimbursement. Only twenty bushels of broad-cast wheat per acre in the south, and forty to fifty in the north! If this latter quantity refers to average crops, I will freely acknowledge the superiority of the northern soil, for we can really pretend to nothing like it in the south. If the quantity stated is to be looked on as a maximum, the case is completely altered, and we shall find no sort of difficulty in exceeding it—We have lands in Sussex, Essex, and Suffolk, which occasionally produce forty, forty-eight, and even, it is whispered, fifty-six Winchester bushels of wheat broad-cast per statute acre, growing at the same time, a most luxuriant burden of clover or weeds, but most commonly of both. I have often seen forty and forty-four bushels per acre, under such culture, over a very considerable breadth; and I have looked at a piece of wheat, for once in my life, which was laid at fifty-six bushels per acre, but had not the curiosity to make enquiry after the corn was thrashed. I apprehend our Essex averages to have been, for the last twelve years, thirty-two bushels of wheat per acre, on the best lands, and twenty-four upon the middling and inferior. I well know they have been stated at less, but not I believe with correctness. Wheat crops too have been with us, in many situations, quickly repeated. A

load, or forty bushels of small horse, or pigeon beans, per acre, is always reckoned a fair crop here, although far greater crops are sometimes grown; of fine pollard oats, from forty to seventy bushels; of barley from thirty-two, to three-score.

Communications of the practice of different districts, Sir, are materially useful to the general enquirer; and as your well informed correspondent Farmer Sandy, I presume, inhabits one of the best cultivated districts of Scotland, I request the favour of him to answer the following questions. Suppose a small farm in his vicinity, of two hundred Scotch acres, in the height of the superior culture of the district, what would the quantities be of working horses, cows, bullocks, sheep, and pigs? How many servants and labourers, with their rate of wages—how many ploughs and other agricultural implements, with the cost of each at the country price—how many carts, waggons, or other carriages—the number of acres of wheat for one year—of barley or oats, beans, turnips, and fallow—the quantity of permanent meadow or pasture usual to such a farm, and the common average of hay therefrom, in tons per acre.

Among the rest of your correspondents I feel much obliged to that most useful and never-failing friend of the Magazine, Agricola Northumbriensis, for his statement of the northern rents, in which, however, I apprehend there is one considerable error either of the press, or of haste in the writer. It is not possible that a farm of four hundred acres can have been let at the enormous rent of three thousand pounds, or more than seven pounds per acre. A. N. remarks that our southern lands produce saffron, woad, hops, liquorice, &c. The saffron culture, and that of the safflower, so prevalent of old, have been extinct among us for many years, as well as that of liquorice, unless it may prevail yet on a very small scale in Yorkshire; the same may nearly be said of woad. The long imperious demand of the first necessaries has effectually superseded those articles of manufacture, and our only extra culture, and that, in particular situations, consists of seeds and weld, provincially or *Kentishly* wool, sometimes called dyer's weed.

The following fact will prove that we can by no means cope with the northern farmers in the spirit of advance. An Essex farm, only fifteen miles from London, of about three hundred acres arable and pasture, compact, and with every necessary erection, was lately put up to be let by auction, on a twenty-one years' lease, and bought in by the proprietor at thirty-seven shillings per acre, no real bidder coming I believe within some shillings per acre of that price; yet it had been advertised for a long time. I believe many inferior farms

in the north have been lately let at three or four pounds per acre. For whom is destined the honour of being the sphinx to expound these riddles? Cannot W. W. of Hants help us out of this hole in the common highway of farming speculation, in which we are all so fast set? As I have no present pretensions of this kind, and for want of something to say more to the purpose, I shall imitate the sagacious practice of some great authors or advocates, and substitute a gossipping story or two. I often, you must know, amuse and inform myself with listening to the tales of past times, on which our elders delight to dwell so copiously. Some fifty years ago, more or less, a certain man had one of the finest farms in Britain, containing about six hundred acres of arable and pasture, at five to seven shillings per acre. He did generally manage to make the rent out of it, but died at last in the parish workhouse. Another man, many years afterwards, had a still richer farm of nearly the same extent, at about nine shillings per acre, and he managed to live, but was often embarrassed, and had once an execution in his house. Many large farms at and previously to the first period were let at five shillings per acre; some of these consisted of rich sands, all of them were good, yet one or two of the tenants could scarcely live; the others acquired large property, leading a life of sloth and ignorance, on a noble soil, which even those and a most miserable system of culture could not render unproductive.

A few words on the supposed superiority of culture in particular districts.—Such are rather popular notions, than any facts to be depended upon. Thus we get a labourer, bailiff, or gardener, from this or that celebrated place, and then find, on experience, that we have only obtained a man thoroughly versed perhaps in some two or three peculiar district practices, which may or may not be right at bottom; and may be probably altogether unsuitable to our particular district.

Indeed a correct general system of culture, far from being universal, in any given district, is at present but upon a confined scale, in the most forward. But accuracy of practice is happily extending daily, and the best examples must be looked for in Norfolk, Suffolk, Essex, Kent, Herts, and Hants. Yet in the north there is a far greater general ardour in the cause of husbandry; the improving spirit is far more recent than with us: there is more mind, and far more industry as well as economy; but they are perhaps greedily devouring supposed improvements, indeed such to them, although no novelties to us, many of which may perhaps have been long superseded here.

The famous Norfolk practice has always been much more

talked of than understood. If we go the fountain head, and visit Mr. Coke's farms, nothing can be found superior, all being in regular drill-culture, and if in narrow rows, and under the hand-hoe, for the greater part, it must be remembered the soil is shallow and sandy. Mr. Coke, in his vast farm in hand, saves annually a fortune by the drill, in seed only; and his culture of clover *by itself*, separately from corn, is a most capital improvement, and truly Tullian.—The general distinguishing features in Norfolk farming, are, claying their sands, the original foundation of their prosperity; for previously to that discovery and practice, Norfolk was a desart—dibbling, great corn cropping and expeditious labour. There is much bad husbandry in Norfolk, as well as elsewhere; dibbling, God-wot, over hundreds of acres, without the iddea of a hoe, striking the sagacious dibbler! Again, dibbling on the reversed sod, is a miserable lazy-bed practice, forming a most convenient nidus for the wire-worm, and a most congenial seed-bed for every thing that should *not* grow upon the soil. I cannot help adverting here to the idea of Agricola Norfolciensis, a really scientific farmer, on the advantages of a *stale* earth, of which he has fully convinced me; and every reflecting man will observe the benefit of instant conviction from a judicious hint, on which he may have been deliberating and yet wavering for years. The stale earth indicates the earth ameliorated and fructified by aëration. The speed with which labour is performed in Norfolk has given rise to strange misapprehensions in many speculatists. Such dispatch is impracticable in most other counties, and really impossible in many, where the soil is adhesive.

When I found fault in my last with horse-hoeing narrow rows, I did not intend to disparage the Rev. Mr. Cook's multiplied shares, which I often see successfully working; but most of the cultivators here with narrow rows, although they use his drill, yet prefer the hand-hoe; as I prefer working singly, and with, I think, superior effect, more spacious intervals.

AN ESSEX FARMER.

ON THE TULLIAN HUSBANDRY.

WE proceed to make use of the materials furnished us by our correspondent, An Essex Farmer, according to our engagement in the last Number,

Mr. Tull, who is the father of the system, has left several Essays upon the subject, which have been so little attended

to, that the most mistaken opinions are entertained, not only with respect to his system itself, but with regard to the actual mode of cultivation which he followed. It has been supposed, that his system led him to reject the use of manure altogether; and the fact of his having raised successive crops of wheat, with advantage and profit, upon the same ground, was so little believed to be possible, that even the intelligent Philip Millar says, "he practised this method of sowing the same species upon the same ground, till his crops failed, and they were worse than his neighbours."

I was myself not intirely without the same prejudices against Mr. Tull's system, and was therefore not a little surprised when the circumstance I have mentioned led me to look into his Essays, and attend to the facts which he advances in support of his system. So far from discountenancing the use of manure, he expressly advises it: and so far from the fact being true, that he continued successive crops of the same species till they were worse than his neighbours; he positively asserts, in his last publication, that he had 120 acres of drilled crops, which in the twelfth successive year produced equally with any field he had. Finding this contradiction between the commonly received opinion of his system, and the fact as stated by him, I was led to look into other authors, and try some experiments upon the subject.—A considerable part of his theory turns upon the fact of the great produce to be had from a single grain when a sufficient space and air is given to it. In order to ascertain this, I had it tried first in a garden, where from a single grain of wheat, to which I allowed a space of three feet square, 52 ears of wheat were produced, and 2180 grains: and with 84 grains per yard, or 28 per foot, 100 ears were produced per foot, or 300 per yard; as I have formerly stated in Vol. III. of the Bath Agricultural Society's papers.

After thus ascertaining one of the grounds of his system, I then tried whether it was possible to raise successive crops of wheat without manure; and for this purpose selected an acre of ground, which was in such a state as to require much cleaning in the ordinary course of husbandry: by making my experiments on this sort of land, I not only ascertained the possibility of raising successive crops of wheat upon the same ground, but ascertained that the drilled husbandry answered the purpose of cleaning the ground equally well as a crop of turnips in the ordinary course would have done.—These experiments were continued for a course of four years; and although liable to some uncertainty from the badness of the machine, which rendered the sowing very unequal, yet when the crop came to be reaped in those places where it

was tolerably evenly sown, the produce per annum was equal to from 24 to 28 bushels per acre. The success in this led me to try a variety of other experiments.

I know of but few who have tried any experiments in this mode of agriculture. In 1767 the Society of Arts gave a premium to Sir Digby Legard for his experiments: since that time it has been tried by Mr. Crack, and the Rev. Mr. Dean: their success places this mode of cultivation in so favourable a point of view, that I can only impute its not being in general use, either to the prejudice I have already mentioned, or the want of the necessary machines. The last of these difficulties is removed by the invention of Mr. Cooke's drill plough, which is well adapted to drilling in equidistant rows. Since which other machines have been constructed equally proper for horse-hoeing. If Mr. Tull's first method be found to be successful, the intelligent farmer will be induced to try his second, which promises equal advantage to the public and the farmer, by the increase of the quantity of grain in the kingdom, without having recourse either to fallow crops or to importation. If the following Remarks, which originated from the accident already mentioned, can advance so desirable an end, the wishes of the Author will be fully gratified.

GENERAL PRINCIPLES OF TILLAGE.

MR. Tull says, "Tillage is breaking and dividing the ground by instruments, as dung does by fermentation; and since the artificial pasture of plants is increased by pulverization, it is no matter whether that be effected by dung, or by the attrition of the plough.

"It is evident however, by dung we are limited to the quantity we can procure; but by tillage we can enlarge our field of subterraneous pasture without limitation.

"Tillage as well as dung is beneficial to all sorts of lands.

"Light land being naturally too porous, which is the cause of its lightness, when it is by any means broken and divided, the parts come nearer to one another, and it becomes for a time, bulk for bulk heavier: and strong land being less porous than it ought to be, by a good division and separation of its parts is made for a time lighter.

"Artificial pores cannot be too small, because the surrounding parts being soft and yielding, roots easily enter, and enlarge them: on the contrary, natural pores are too minute, and their surface too hard, for the free entrance of roots.

"Insufficient tillage leaves strong land with natural pores too small, and its artificial pores to large, and light land with its natural and artificial poores both too large.

"Pores that are too small in hard ground will not easily permit roots to enter them: pores that are too large in any sort of land can be of little use to roots, but to give them passage to other cavities more proper for them.

"Fibrous roots can take in no nourishment from any cavity unless they come into contact with, and press against the surface of that cavity.

"From these principles, it follows, that the finer land is made by tillage, the richer it will become, and the more plants it will maintain; and this inference is confirmed by experiment; for it has been often observed, that when one part of a field has been better tilled than the rest, and the whole managed alike for six or seven years; this part which was but once better tilled has always produced a better crop. This is fully confirmed by the testimony of various authors. For instance, Mr. Evelyn says, 'Take the most barren earth, pulverize it well, and expose it abroad for a year incessantly agitated, and it will become so fertile as to receive an exotic plant, and cause all vegetables to prosper in the most eminent degree.'

"This artificial dust," he adds, "will entertain plants that refuse dung."

"It is demonstrably true, that one cubic foot of this minute powder, may have more internal superfices than a thousand feet of the same earth tilled in the common manner; and in fine soil the most tender roots have free passage to their utmost extent, whereas, in hard ground, they find too much resistance."

I shall mention what a very intelligent writer and practiser of the drill husbandry says, and the reason he gives for the produce of this husbandry. Mr. Forbes on the extensive Practice of the new Husbandry.

"It is found by experience, that the deep or horse-hoeing husbandry enriches the land, not only to produce a single crop of wheat, but to so great a degree, that successive crops are obtained upon the same land. This is an uncommon circumstance; for successive crops of wheat cannot be obtained in the common husbandry, even with the assistance of manure.

"That land is impoverished in some degree by every crop, all farmers allow; and they endeavour to restore its lost fertility by tillage, fallowing, and manure. They do not apprehend tillage and fallowing alone will recover it, and here no manure is used.

"Whence then is the land recruited with vegetable nourishment, and this not only without being impoverished, but on the contrary is found to become more fertile by this tillage well performed, though it bears a crop every year?

"This recruiting of the soil is not the consequence of tillage and hoeing; these do divide, break, and pulverize the soil. But breaking, dividing, and pulverizing the soil are mechanical operations; they add no new matter to the land, and are therefore so far of themselves from enriching the land, that they only prepare it for the roots of plants to run and extend in it more freely, which instead of enriching the land, only prepare it to be more readily exhausted of its fertility. For the more pabulum, or the more nutritious aliment the roots draw from the land, the poorer the land becomes, and the less stock of nourishment is left in it to support the next crop.

"Tillage, therefore, ploughing, harrowing, and hoeing, add nothing to the fertility of the land. This helps to nourish the plants, yet does not add to the fertility of the land, but only prepares it to be more quickly exhausted of vegetable nourishment.

"It appears from experiments that the leaves of plants imbibe air and moisture, but the principal source of vegetable food is universally allowed to be derived from the earth. Whence plants receive their nourishment chiefly by means of their roots.

"If the earth were dense or solid, the roots of plants could not penetrate into it to collect nourishment.

"The roots of plants are of different degrees of strength. Beans and oats penetrate into close strong land better than barley; and top-rooted plants push their top roots deep in the ground; but their lateral or side roots, as of carrots, are slender and weak, yet are the carrots or top roots nourished by the weak lateral roots.

"For when weak lateral roots are able to penetrate and extend, as in light land or soil, the top roots grow strong and penetrate deep into the land. But in strong soils, where the lateral roots are confined by hard close earth, and they cannot extend, the top roots also suffer, and are unable to penetrate deep. But if the strong land is lightened, and kept open by good hoeing, not only the lateral roots are at liberty to range, but the top roots are strengthened, so that they penetrate into the earth below.

"It appears from these and many other cases, that plants receive their nourishment principally by means of their fibrous or small roots. But whence are the roots supplied with this nourishment? Some think that the earth is recruited of this

nourishment by manure. But what recruits the land that is not manured, and yet continues to bear annual crops? This is therefore the great point to be considered, the discovery of which will explain the true system of vegetation and principal foundation of the new husbandry. Some have supposed that the roots feed upon the fine particles of the earth; but this cannot be admitted, as large plants would carry off so many tons every year, the richer land would soon be exhausted. We must therefore endeavour to discover elsewhere the genuine source of the vegetable nourishment.

"The earth is surrounded by a fluid body commonly called the air, or atmosphere, which consists of all sorts of matter, of air, water, salts, oils, fire, and earth.

"All volatile matter lighter than air ascends and composes that body, called the atmosphere, and being in contact with the earth must have great influence upon it.

"Rain and dews contain the vegetable nourishment in considerable quantities, and is by them introduced and deposited in the soil. If the soil be loose and porous, they introduce it to a considerable depth as in light land, but stiff loams and clays being more close and compact, the rain and dews do not so easily penetrate into them, for which reason such close lands are enriched by them near the surface *only*.

"Hence it appears the richness of the land does not consist in the nature of the soil itself, but in something extraneous that adheres to it, that is communicated to it by the atmosphere, and that it may be divested of it by the roots of plants, for it seems to adhere closely to the particles of the soil.

"It is observable that it is enriched by the atmosphere in proportion to the nature and quality of the finer parts of it, for all land is not equally enriched, though equally exposed to the atmosphere.

"The sheer sharp lands in many places appear to be incapable of attracting or receiving the vegetable food, for they continue barren for ages, though they constantly are exposed to the atmosphere, as do also the shifting sands of Norfolk."

The effects of the method of deep horse-hoeing corresponds with the above, which is also Mr. Tull's practice. That of pulverizing and often hoeing admits this influence of the atmosphere to sink deeper in land that is kept fine, than in hard rough land.

And the common practice confirms this remark; for farmers find by experience that once ploughing for barley, or wheat, will not produce such good crops as when frequently ploughed, and some of the best farmers give more tillage to

their land than formerly they did; but this pulverizing is of still more benefit when continued through the year, as it not only continues it in that state which it has attained by frequent tillage before sowing, but more effectually destroys the weeds, which rob the broad-cast farmer's crop of a great deal of the nourishment.

How far dung has the enriching quality imputed to it of bringing richness to the land, I shall not take upon me to dispute; or whether it is only the fermentation it occasions, that pulverizes the soil, as lime does, although there is no enriching quality in it, I leave to others to decide, and only quote facts, from which every one may draw his own conclusions.

However wrong Mr. Tull may be in some part of his theory (which is a subject we shall not enter upon) where in his chapter of Food of Plants, he endeavours to prove that the food of plants is earth; yet his experiments shew the effect of that manner of husbandry.

His experiments, and that of others who have practised this new mode, being the subject of these remarks, are sufficient for the practical farmer to induce him to make a trial, to judge what is most his interest to follow.

OBJECTIONS TO THE DRILL HUSBANDRY.

THE drill husbandry has been generally rejected by mere practical farmers, from an opinion, that the design of Mr. Tull's system was to set aside the use of manure; and manure they found to be so necessary in their mode of husbandry, that they looked on a system which rejected it as ridiculous, and too whimsical to merit attention.

They could not believe that successive crops of wheat could be raised on the same land without manure, which they found impracticable even with it; and, being accustomed to sow so much seed by broad-cast on a given portion of land, they would not be convinced that so small a quantity as is sown in the drill, could produce so great a crop as the broad-cast mode of sowing, looking upon the empty spaces between the drills as lost: they imagined also, that the expence of the drill husbandry was greater than that of sowing by broad-cast, and the profit less: because the drill husbandry required greater skill in the farmer, and more nicety in the execution, of course could not be performed by common servants or labourers. Besides, they pretended in this kingdom, that drill ploughs

were expensive and difficult to be procured; that being slightly constructed, they were liable to be broken, or put out of order, and in most parts of the country could not easily be repaired.

These difficulties, co-operating with the prejudices of the farmers, have not only prevented the practice of the drill husbandry from becoming more general, but deterred many persons from making such experiments as would have convinced them of its superior advantages. I mean, therefore, to shew plainly, by fair experiments and observation, that the mode of sowing in drills is not only most productive, but less expensive than any other system hitherto adopted.

ON THE USE OF MANURE.

THERE cannot be a greater mistake than to imagine that Mr. Tull rejected the use of manure. So far from denying its use, he expressly says in many parts of his works, that it is highly useful. The following quotations will clearly shew what was his opinion on this subject.

After mentioning the bad effects of manure in the garden, in giving the roots a bad taste, he adds:

"Yet a considerable quantity of it is so necessary to corn fields, that without it little good can be done by the old husbandry."—Again, "Tillage alone is not sufficient for many sorts of grain, especially wheat. Dung without tillage can do very little, with some tillage it doth something, with much tillage it pulverizes the soil in less time than tillage can alone do; but tillage alone, with more time, will pulverize the soil as well. It is necessary in the old Virgilian system; yet to most sorts of land used in the old and new pulverizing husbandry, it is not necessary, as appears by mine, and by the experience of all farmers who have made proper trials; they find, as well as I, that the effect of dung may be supplied by increase of tillage.

"But I have never said any thing against the use of dung in the corn fields, except where the whole expence of it is likely to exceed the profit.

"That dung may be useful, when properly applied, I believe was never denied by any author. On the contrary, to give every sort of land proper and sufficient tillage, and to use only what dung we have, or can reasonably get, is that husbandry which I call antivirgilian, of which my horse-hoeing scheme is a species.

"Such plants as cabbages, turnips, carrots, and potatoes, when designed for feeding cattle, will not be injured by dung, tillage, and hoeing all together, which will make the crops greater.

"Few fields can have the conveniency of a sufficient quantity of dung, to enable them to produce half the wheat those will do near cities, where they have plenty.

"I have made many trials of fine dung on the rows, and notwithstanding the benefit of it, I have for several years last past left it off; finding that a little more hoeing will supply the effect of it, at a much less expence than that of so small a quantity of manure, and of the hands necessary to lay it on, with the carriage."

The booksellers were suspected of encouraging persons to write against his book, in order to bring it into discredit, because he sold it himself. Many of his opponents wrote uncandidly; he takes notice of their misrepresentations, and adds, "The vulgar in general, believe, in a part of the country not twelve miles distant, that I carried my dung to the river and threw it in: but it is known, that I neither sell nor waste any:" and again, "The reader sees how falsely it hath been published to the world, that I assert in my essays that dung is useless."

Mr. Duhamell's Husbandry, translated by Mr. Mills, contains a great many experiments of the drill culture, and comparisons of it with the broad-cast, with and without dung. At Acow two arpents both dunged, were cultivated, the one in the new, the other in the old way. The arpent cultivated in the new way produced one hundred and fifty bushels,* or 3150lb.; that in the old mode, one hundred and thirty-three and a half, or 2800lb. Thus the produce of the former exceeded that of the latter by sixteen and two-thirds of a bushel, or 350lb.; making a clear gain of one eighth. To this must be added eight or ten bushels saved of seed; the profit will then amount to twenty-four and two-thirds of a bushel, or 518lb. On calculating the produce of the two arpents for three years; the arpent cultivated in the old manner will yield but one hundred and seventy-seven and seven ninths; whereas that cultivated in the new method will produce four hundred and fifty bushels; thus, besides saving the seed necessary for a crop of oats, and the expence of one year's fal-

* A French bushel is to the English as $615\frac{368}{1000}$ to 2178, or equal to one peck, one quart, and two cubic inches. An arpent is equal to 51691 English square feet, or to near one acre three quarters of a rood English Measure.

low, there will be a clear profit of two hundred and seventy-two bushels.

He calculates in the common method of that country, one crop of wheat after a fallow, and one of oats, and supposes a crop of oats to be equal to one-third of a crop of wheat.

In another experiment at Denamvillieu, one arpent was sown in the common way with ten bushels of seed. This had been very well dunged; another was sown with the drill plough, three rows of wheat in a bed, two feet wide, and a space of four feet wide between. This received no dung; that cultivated in the common way produced

476 Sheaves, - or	2058lb.	98 Bushels	98
Deduct seed - -	252	12	
	1806	86	
Sheaves.			
The other 284 -	1470lb.	70	70
Deduct seed - -	42	2	
	1428	68	28
		18 Difference.	

He states the expence of dunging equal to 20. This brings that sown in rows at least to an equality.

But the value of an arpent in the common way cannot in three years be made more than equal to one crop of wheat, and the third of a crop. A crop of oats being reckoned equal to but one third of a crop of wheat; the produce in three years will be only one hundred and thirty and two-thirds of a bushel, whereas that cultivated in the new way will yield three crops of wheat, which supposing them equal to the first year's crop, will amount to two hundred and ten bushels. The seed sown in the common husbandry being twelve bushels, the increase is only eight and one sixth; that in the new being two bushels, the increase is thirty-five.

Mr. Duhamel states some experiments by Monsieur Roussell, on ten arpents, in which he compared drilled crops after dung of different kinds and qualities, with drilled crops not dunged. The dunged beds were distributed in such a manner that each of them was between two other beds, which were not dunged. The method of dunging was to open a large furrow in each of the alleys, which must be done every year at the end of the summer sowings, where the three rows of seed are afterwards to be sown. The space between two deep furrows is exactly the breadth of a cart, the wheels of which going in these, hurt no part of that which has been plough-

ed; and do not harden the loose mould; nor do the horses do any damage as they tread upon the stubble. These beds were dunged in the above manner with horse-dung; three others with cow-dung, and three with sheep-dung.—The best dung, he says, is that of sheep, and it is more profitable when laid under furrow, than when it is spread upon the surface of the ground, by folding.

Ten arpents in the new way, three beds, dunged with horse dung.

1st. The first 184 toises long, dunged with three loads of horse-dung 19
1. The fellow to it not dunged 15
2. The second 185 toises, dunged with two and a half load 18
2. The fellow to it not dunged 14
3. The third 187 toises, with two loads . . . 16
The fellow to it not dunged 13

By this the dung produced 53, and that not dunged produced 42.

The others were nearly in the same proportions; the third with cow-dung, 45 : not dunged, 35; that with sheep-dung, 46 to 31.

Ten arpents sown in the common way, after having been well folded all over, produced one thousand eight hundred and twenty sheaves; and ten arpents in the new way produced one thousand and eight. On this Mr. Duhamel observes: "The one thousand and eight sheaves produced but two hundred and forty bushels of grain, from which is to be deducted the seed eighteen and a half bushels; the produce is two hundred and twenty-one and a half bushels. This would make in three years six hundred and twenty-two and a half. The other in the common way, produced four hundred and seventeen bushels; from which we are to deduct sixty for seed, the neat produce is three hundred and fifty-seven; the half of which is one hundred seventy-eight and a half bushels for the next year's crop. The produce amounts to no more than five hundred and thirty-five and a half; consequently the balance in favour of the new husbandry in three years is one hundred and twenty-nine bushels, or one fourth of the whole. These experiments shew the advantage of dunging in this manner.

"Mr. de Chateau Vieux made a great many experiments, which shew the superior produce of the new husbandry.—That gentleman gives a comparison of five drilled crops immediately following one another, with eight crops from the same field in sixteen years; the custom of the country being

one crop and one year's rest alternately. He extracted it from a journal kept by his steward, who was scrupulously exact, even in the smallest concerns.

		lb.	
Eight Broad-cast crops, in 16 years produced		11119	
Deduct siftings	1765		
Seed	3558		
		5323	
Net produce of eight crops in sixteen years			5796
Five drilled crops in five years produced		8271	12
Deduct seed, there being no siftings		237	0
Net produce of five crops in five years			8034 12
The new husbandry produced in five years more than the old in sixteen			2238 ½
Five drilled crops in five years produced net			8034 12
Five broad-cast crops in ten years, the average per year being 724½, produced			3622 9
The new husbandry produced in five years more than the old from the same number of crops in ten years			4412 3

" Mr. de Chateau Vieux adds, that his fields, in beds, had not any dung or other manure for many years.

" As the increase of old husbandry in the the above experiment is only at the rate of 3 after 1, farmers in England, who from better cultivation, soil, or climate, have a much greater return from a given quantity of seed, may think it unfair to compare the drill husbandry with the broad-cast, when the increase of the latter is so small. But as the advantages or disadvantages of soil and climate are the same in both modes of culture, the proportion between them ought to be pretty much the same, where soil and climate are more favourable; and it is afterwards shewn, the drilled is more profitable in England, not only to 2 crops and a fallow, but to the impoved broad-cast of four crops.

" Although the extensive improvers mentioned in this work did not find manure to be necessary for ground that had been some time in the drill hoeing husbandry, and properly horse-hoed; it is certainly proper to use it, where the soil is poor: and when ground is first put into the new mode of culture. The full effects of tillage cannot be felt for the first year or two, and manure with tillage will bring ground into good order much sooner than tillage alone. The method adopted by Mr. Roussell seems very adviseable for persons

beginning this mode of husbandry. It is proper also to guard against the accidents to which every new system is at first liable; if from inattention, or want of skill, and any of the operations of drilling, hoeing, &c. be neglected or imperfectly executed, manure will in some measure supply this defect of tillage. Last of all, it is proper to guard against these prejudices of the practical farmer, strongly prepossessed in favour of manure; thinking it hardly possible that a good crop can be obtained without it, if from an unfavourable season or bad management, his first or second drill crop should fall short of his expectations, he immediately imputes to a radical defect in the system, what was only an accidental effect of the climate, or his own want of skill. If after a year or two he finds that with manure, and proper horse-hoeing together, his crops are too luxuriant, he may then employ his manure on other lands that require it.

Those who on the supposed authority of Mr. Tull have rejected the use of manure in the first instance, have occasioned the prejudice against the drill husbandry. It is also alledged, as an argument against this mode of agriculture, that many persons who practise the drill husbandry, use manure also: a plain proof, it is said, that tillage does not answer alone. But if manure give such an increase of crop, as to repay the expence of it, and also that of laying it on, this does not prove that the drill husbandry does not answer, but that its good effects may be heightened by the use of manure. We have seen that Mr. Tull and others advise the use of this article, although they found it unnecessary, when they had brought their mode of culture to a certain degree of perfection. Mr. Young's and Mr. Randall's experiments shew how little can be expected from it, where the ground is properly horse-hoed. But, were it of no use at all, the expence of it at first is well bestowed, to satisfy the mind of the broad-cast farmer, that he is not to lose his crop for want of manure, till experience convince him that he can have crops without it.

Mr. Roussell's experiment shews the effect of manure on a first crop; but it does not prove that manure has much effect on land that has been some time in the drill culture, and is properly pulverized. To try the effect of manure on such land, part of an acre that had been two years successively drilled with wheat, was manured for the third crop, and some of the ridges were lined. The remainder was neither manured nor lined. At harvest the crop was so equal, that it was impossible to distinguish the parts that were dunged or lined, from that which was not.

ADVANTAGES OF TILLAGE AND INCREASE OF PRODUCE.

TO pulverize the earth, it is evident, must have its good consequences, for besides cleaning the ground, it makes it more susceptible of those nutritive qualities, furnished by the air to all vegetables, and this certainly is highly promoted by that free circulation produced by sowing in drills.

At the same time attention must be paid to the nature of the soil and climate; a thin light soil from its weakness must be less disturbed than land that is strong and heavy, and it will be necessary in the former to have the drills at a greater distance than in the latter, for reasons very obvious. As I have observed that manure was neither particularly recommended nor rejected by Mr. Tull, I shall shew by well authenticated experiments, how far the want of dung may be supplied by tillage in general, whatever the soil may happen to be.

Mr. Tull, in his Essays, says "I keep a team of horses for the use of a tile kiln, which helps me at present to dung for about ten acres yearly; but if I put them off as I intend, I shall not raise dung for above three acres, yet I propose to have six score acres of wheat every year, as I have at this time an hundred drilled on the stubble of last year's wheat crop."

Among a great many particulars of his crops he mentions "a field, that was a kind of heath ground, that used to bring so poor crops that nobody cared to rent it. Dung and labour, it was said, were thrown away upon it. After two crops of oats had been taken from it, the last of which was scarce worth moving, it was put into hoeing culture, and when three hoed crops had been taken of turnips and potatoes, it was sown with barley, and produced a very good crop, much better than ever it was known to yield before. A good crop of hoed wheat succeeded the barley, and it was again sown with barley upon the stubble, and that crop also was better than the barley it used to produce.

"All the farmers," he adds, "in the neighbourhood said, that it is impossible but this must be very rich ground, because they have seen it produce six crops in six years without dung or fallow."

I shall mention only a few more instances of successive crops produced by the hoeing culture without manure. "In another field," he says, "there is the six crops of wheat in wide intervals, very promising, though this ground has had no sort of dung to any of these crops, or for several years before them. The last year's crop was the fifth, and was the

best of the five, though a yard of the rows yielded but eighteen ounces and three quarters."

In another place he says, "As a yard of the treble rows of the third successive crop of wheat, without dung or fallow, produced twenty ounces of wheat, which allowing six feet to the ridge, is about six quarters to an acre; and allowing seven inches for each partition, and two inches on each outside, is in all eighteen inches of ground to each treble row, and but just the fourth part of the ridge. Now, if in the old husbandry, the crop was as good all over the ground as it was on these eighteen inches of the treble rows, there must have been twenty-four quarters to an acre. But let them dung whilst they can, they will scarce raise twenty-four gallons of wheat the third year on an acre of equal goodness.

"But as the goodness of a crop consists in the quality as well as the quantity, it is observed that drilled hoed wheat has larger ears and a fuller body than sown wheat. We can have more of it, because the same land will produce wheat every year. We do not pretend that we have always greater crops, or so great as some mention." Mr. Tull says, "The greatest produce I ever had from a single yard of length, of a double row, was eighteen ounces; the partition of this being six inches, and the interval thirty-six inches, was, by computation, ten quarters eighty bushels to an acre. I have often numbered four hundred ears in a yard of treble rows, but the greatest weight I ever had from a yard was the produce of two hundred and fifty ears. I have numbered one hundred and nine grains in an ear of my wheat of the grey sort, and one ear of my Lammas wheat has been measured eight inches long, which is double the length of the sown wheat. But there is no year wherein one ear of hoed does not weigh more than two of the sown ears, taking the whole sheaf together."

This calculation of Mr. Tull was upon ridges of three feet six inches. If ridges of four feet eight inches produced the same per yard, as there are two thousand nine hundred and ninety-six yards of double rows in ridges of this breadth, this would be fifty-five bushels per acre, exclusive of head ridges.

Again he says, "I have often weighed the produce of the same quantity of ground, and all sorts of wheat both the best and the worst; I allow two square yards of the crop to one yard of length of my drilled rows. I have never found any of the sown equal the best of my drilled."

Mr. Tull says "Mr. Houghton relates 80 ears from a single plant of wheat. But I have never found above forty from a single plant in my fields; but I should not desire any to be

so prolific, lest they should fail to bring such a multitude of ears to perfection.

" Some seed cane wheat coming out of the same heap planted at the same time, and on land of the same sort adjoining together, the wheat that was sown produced grain so small, and that which was drilled so large, that no farmer or buyer would believe them to be of the same sort of wheat, one grain of the drilled weighed two of the sown, and there was twice the chaff in an equal weight of the sown, being both weighed before and after the wheat was separated from the chaff.

" But though too great a number of plants be upon many accounts very injurious to the crops, yet it is best to have a competent number. We may expect a great crop from twenty, forty, or fifty plants in a yard of treble rows."

Mr. E. S. in Museum Rusticum, vol. iii. mentions his having found seventy-seven grains per ear, of four inches and a half long, and that the ears are formed to produce above the amount if properly nourished.

To try what increase wheat would produce, some wheat was planted in a garden, in drills, at three feet distance, (as mentioned in the third vol. of Bath papers) some with one grain at a foot distance in the row, and some at different distances; some with four holes per foot, into each of which was dropt seven grains, and others in different quantities.

Some of the single grains produced fifty-two ears per grain, with forty-two grains per ear, 2184 after one. Those with seven per hole, or twenty-eight per foot, produced one hundred ears per foot, with thirty-nine grains per ear, or one hundred and thirty-nine after one, or 3900 grains per foot.—Another year one grain produced twenty-nine ears, with fifty-six grains per ear, or 1652 after one, or per foot;—and twenty-eight grains per foot produced seventy-four ears, with fifty-one grains per ear, which is one hundred and thirty-four grains after one, or 3774 per foot:—and four grains per foot produced seventy-two ears, or eighteen ears per grain, with fifty-six grains per ear, is 1008 after one, or 4032 per foot. And the same experiments were tried a third time with much the same success. The greatest quantity of twenty-eight grains per foot, has a space of fifteen square inches and a half per grain. This shews what great increase wheat is capable of producing after one, where it has space in rich soil; and what produce wheat will yield in good ground, which shews the mistake of those who suppose that two rows upon a ridge will not produce half a crop.

To see the increase and produce in the field, and from a greater or smaller quantity of seed, some wheat was dibbled

in the field of a farmer in rows at nine inches distant, and at nine inches in the rows. Two rows were planted with grains per hole, and increasing the number of grains per hole every two drills to fifteen. This was the sixteenth of an acre. These rows with three grains and five grains, appeared very bad until summer. The produce was at the rate of twenty-six bushels per acre. These rows where the most grains were planted, appeared much better and stronger plants in spring and summer; but did not appear to produce a number of ears in proportion to the seed: and on counting the ears of it, it was not found that there were more ears from the hole where there were twelve and fifteen grains, than in the place where a less quantity was planted. The 3d of November, one ridge (the sixteenth of an acre) was drilled with wheat by hand; the furrows were made with a hoe, and the seed dropped and covered by hand. The quantity of seed sown was the quarter of a peck, or half a gallon, at the rate of one bushel per acre. The produce was one bushel three pecks, or at the rate of twenty-eight bushels per acre, or twenty-eight bushels after one.

In the fifth volume of Bath Papers is mentioned—"Half an acre was formed into ridges of four, eight, including the two hollow furrows; upon this was drilled the 28th of October, two pecks and a half of red wheat, at twelve inches distance in the partitions. It was five times horse-hoed, and twice hand-hoed in the rows. The partitions were hoed by a double horse-hoe. These were hooked on to an axle that was the length of the breadth of two ridges, with two wheels that went in the outer furrows, and the horse went in the furrow between the ridges, and drew the machine with shafts fixed to the axle; and the hoes were fixed to go on the top of the ridges in the partitions.

"In the rows were a great many empty spaces of above a foot, from the faults of the drill, or other accidents, and the ridges being drilled where the furrows were last year—by this there was a single drill on the outside, most of which was destroyed by birds, who also destroyed a great deal of the wheat, it having a hedge along one side and one end. To see what might be the produce, was a field equally good and free from such defects, the ears of a yard of four double rows were counted at two places, at the top of the field, and two at the bottom, where they appeared pretty equal. Some single yards produced one hundred and thirty ears per yard, some one hundred and twenty-eight, some one hundred and fifteen, and one hundred and thirteen, and only one was below one hundred ears per yard. The average of the double rows was

two hundred and twenty-six ears: if the ears produce forty grains per ear, and allowing the grain to be very small, at seven hundred per ounce, (which is smaller than common wheat) this would be twelve ounces and nine tenths per yard of double rows, or nearly at the rate of thirty-nine bushels per acre, had the whole been equally good, which could not be well expected. From being executed by another farmer's servants, not accustomed to drilling, and with a very bad and improper drill; when thrashed, the produce was only ten bushels two pecks, or at the rate of twenty-one bushels per acre, which shews the consequence of such faulty machines, bad execution and accidents."

Some barley was planted in a field of a farmer upon a ridge the tenth of an acre, at nine inches distant in the rows; some with one grain per hole, and increasing the number of grain every two drills to fourteen and fifteen per hole.

Upon examining them in spring and summer, those drills with few grains per hole appeared very bad. As there were twelve rows or drills they increased in length of stems and colour, as the number of grain planted, the first with one grain and few grains being the worst, and those with fourteen or fifteen the best.

The ears of one yard of each was counted when in ear, in four different places of the ridge.—Those with few grains, which appeared so bad in spring and summer, produced per hole at the rate of twenty ears per hole, and up to eight grains of seed the same; and from that to fifteen, the average was about twenty-four ears per hole. The produce of this when thrashed, was five bushels one peck and three quarters Winchester, or at the rate of fifty-five bushels one gallon per acre. Those with eight grains per hole, or thirty-two per yard, have each a space of ten square inches, and those with fifteen per hole, or at the rate of sixty per yard, have a space of nearly five square inches and a half.

From these few small experiments of drilling or planting in clusters or holes, it appears to confirm the opinion of thin sowing, from there being nearly as many ears per yard, as where double the quantity was planted in the field.

In the garden it is quite different, as although there was at twenty-eight grains per foot, or eighty-four per yard of the rows, the space was so great, that each grain had a space of above fifteen inches in so rich ground.

I have found many ears of broad-cast with forty grains per ear, but the average not above twenty per ear in rich ground.

Indeed every farmer must see, that when too much seed is sown the ears are smaller, and the plants weaker than where less seed is sown.

I shall state some instances of what has been actually received by the practisers of Mr. Tull's mode of husbandry, after the grain has been thrashed out, and placed beyond all the accidents to which, until that time it is subject: although these are not so many as those to which the broad-cast culture is liable.

Mr. Tull's crops on an average on six score acres, were twenty bushels of wheat of nine gallons, which is twenty-two bushels two pecks Winchester measure; and on his good land from four to five quarters, that is from thirty-two to forty bushels, also of nine gallons, which is forty-five bushels Winchester. He says, "after thirteen years experience of successive crops, the same six score acres that were in wheat last year, twelfth crop, was the best I believe ever grown on it. It has now the thirteenth, and all of it is as strong, as in any former year, though there is only about one acre of it dunged.

"It is to such experiments that I leave the progress of my horse-hoed husbandry, assuring the public, that in all my practice, I have never met one instance that gave me the least suspicion of the truth of the principles that I have advanced."

"Some," he adds, "object to my weighing a yard or perch in length, that this does not determine the produce of a field. They judge right, if the produce of the whole be not of equal goodness; if not, it must be because one perch is richer: for the same cause that produces twenty ounces per yard, must produce the same upon every other yard. We might weigh the poorest crop, to see how poor a crop we can raise.

"*Another thing I have more particularly observed, that the more successive crops are planted in wide intervals, and often hoed, the better the ground does maintain them. The last crop is still the best, without dung, or changing the sort of plants.*

"This is so visible, in parts of the same field, where some part having a first, some other part a second crop, the rest a third crop, growing all at the same time; which seems to prove, that the earth is made by this operation to distribute her wealth to plants, in proportion to the increase of her inner superficies; so the atmosphere, by the riches of rain and dews, does annually reimburse her, in proportion to the same superficies, with an overplus for interest. But if that superficies be not increased to a competent degree, and by frequent repetitions of hoeing kept increasing (which never happens in common husbandry) this advantage is lost, and without repeated stercoration, (manuring) every year's crop grows worse."

He says, "*the different condition the land is left in after*

a crop by the one and the other husbandry, is no less considerable, than the different profit of the crop. As a proof of this:—A piece of eleven acres of a poor, thin, chalky hill was sown with barley in the common manner, after a hoed crop of wheat, and produced full five and a half quarters per acre, which was more than any land in the neighbourhood yielded that year, though some of it was so rich, that one acre of it was worth three of the thin chalky land: and no man can remember this land ever produced above half such a crop, even when the best common management has been bestowed upon it."

Another instance he mentions, "A field was drilled with barley after a hoed crop; and another on the same poor hill was drilled with barley: also, part of it a sown crop the same day with the other: there was no difference of the soil.—The former of these had no manner of compost on it for many years before; yet its crop was not near so good, as that which followed the hoed crop, though the latter had twice the ploughing before drilling, and the same hoeings after.

He says, "I could give many instances of the same kind, where hoed crops and sown crops have succeeded better after hoed crops than sown crops; and yet have never seen the contrary, and therefore am convinced that the hoeing (if it be duly performed) enriches the soil more than dung, and fallows and leaves the land in a much better condition for a succeeding crop. The reason I take to be obvious: the artificial pasture of plants is made and increased by pulverizing only; and there is nothing else in our power to enrich the ground, but to pulverize it, and keep it from being exhausted by vegetables.

Sir Digby Legard mentions comparisons which he made of drilling barley on five acres. This land had borne four successive crops; one barley, two wheat, and one turnips. The land had been horse-hoed every year, but had never any manure, except that the turnips had been eaten off by sheep. In April 1763, half an acre was sown by hand, and took five pecks of seed; half an acre drilled equally distant rows, one foot asunder, took three pecks of seed. Two acres were drilled on ridges, five feet broad, in double rows, eleven inches asunder, and took six pecks; two others on five ridges in treble rows, and took four pecks. The four acres drilled were horse-hoed three times: the produce was,

	Q.	B.	P.
In the old way, at the rate per acre -	5	4	2
Equal distant rows, per acre - -	6	0	2
Drilled, and horse hoed do. do. -	3	0	11

The advantage appears to be on the side of the old husbandry, as it is double of what is cultivated in the new way: but the greatest is that sown in equally distant rows. On the other hand, although six quarters is a very great fertility, it was in a considerable degree owing to the excellent culture bestowed on it by the horse-hoeing, during the four preceding years crops, which were none of them bad. So far were these from having exhausted the earth, that the four drilled acres were afterwards drilled with wheat at once ploughing.

In April 1764, two acres were drilled with barley on ridges, four feet six inches broad; two rows at ten inches on the top of the ridges, and took two bushels two pecks of seed. One acre adjoining was on the same day drilled with barley, in equally distant rows, one foot asunder, and took two bushels of seed. Another acre contiguous, was at the same time sown in the broad-cast way, and took two bushels of seed. Another acre contiguous, was at the same time sown in the broad-cast way, and took two bushels of seed; two ploughings had been given to it: after a crop of oats, the horse-hoeing part had three hoeings, and was once hand-hoed, the other could not, as it was sown with grass.

(To be continued.)

DR. PARRY's SALE OF ANGLO-MERINO SHEEP.

To the Editor of the Agricultural Magazine.

Sir,

PASSING through Hounslow on Tuesday last, the 26th inst. I was informed, that at two o'clock, a sale by auction was to b emade of near thirty Spanish rams, belonging to that celebrated and scientific breeder, Dr. Parry, of Bath, with whose work on the subject of wool, and the Spanish cross on English fine-woolled sheep, every amateur is well acquainted. The King's sale at Kew had passed a week before, with little company, at prices reduced cent. per cent., that now seems to be the time to purchase on easy terms, and commence the improvement of fine wool under favourable circumstances; if even the present prices can be called moderate, which are so excessive compared with those of our native stock.

There appeared little company, whilst I was at this show, and not having leisure to wait the hour of sale, it is not in my power to speak of the business done, only of the quality of the commodity offered. The tups, most of them young, but several which had been used in the Doctor's flock, were of sufficient size for any purpose whatever. They are a breed

of considerable bone, length and depth of carcase, but wanting in that rounding of the form, which seems to constitute the beauty of our best, or most improved native breeds. They are docile to a remarkable degree, leading about very handily: their bodies, bellies, and legs down to the hoof, covered with a thick, elastic fur, which certainly must be a greater protection against either cold or wet, than the open fleeces of most of our native sheep. The fleece appears of a very fine cob-web-like filament—and Dr. Parry assures us that he refused from two dealers in broad cloth thirty shillings per yard for a piece manufactured from this wool. I was informed by the doctor's bailiff, who attended, that the best of their wedders made, on an average, seventeen pounds per quarter, or eight stone and half the carcase, Smithfield weight; and that the mutton always bore a preference in their markets. Indeed a more convenient size can never be for general use, and this size, suitable for all purposes it is, which forms one of the best characters of the famous South Downs, the best beyond all comparison, of English sheep; suitable, in an equal degree, for the hill and the marsh, and making a convenient dish for both the noble and the porter. It must be observed here, Dr. Parry is not a breeder of pure Spanish sheep, which is the plan of his Majesty and Lord Somerville, but of a crossed breed between the Spanish ram from the Royal flock, and Ryeland or Herefordshire ewes, and many or most of these ewes have a cross in them of New Leicester blood, the case of almost all the Ryeland sheep. The Merino cross has been continued in and in by Dr. Parry for nearly ten or twelve years, that the engraftment of the Spaniard must be now complete.

Mr. Duckett, of Esher, (son of the famous cultivator) attended with three very beautiful South Down rams, in head-stalls, and as handy to lead as horses. The King's shepherd was also present with a pure Merino ram, of considerable size. Inquiring of a neighbouring farmer, I understood that he wintered together South Downs and pure Spanish sheep from the Windsor flock, without perceiving the smallest difference between them. I hope, in the course of a twelve-month, Mr. Editor, to inform you of the success of the Spanish cross in this country.

Monmouthshire. Q. X.

ENUMERATION OF PATENTS LATELY ENROLLED.

April 17, 1806. JAMES KAY, of Preston, in the county of Lancaster, Machine-maker; for improvements upon Thomas Johnson's patent machine for dressing cotton, silk, and other goods by power.

April 17, Thomas James Plucknett, of the parish of Christ Church, in the county of Surrey, Agricultural Machine-maker; for a machine for dibbling and drilling all kinds of grain and pulse.

..... 29, Anthony Francis Berte, of the parish of Saint Dunstan in the West, in the city of London, Merchant; for a machine for casting or founding types, letters, and ornaments, usually made use of in printing.

May 1, 1806, William Bungy, of Pratt Place, Camden Town, in the parish of Saint Pancras, in the county of Middlesex, Mathematical Instrument-maker; for machines or instruments for the purpose of making leaden bullets and other shot.

..... 3, Stephen Hooper, of Walworth, in the county of Surry, Gentleman; for an aqueduct, tunnel, or machine, for cleansing docks and other basins of penned water; and certain improvements on machines or machinery (for which he hath already obtained letters patent) for cleansing dry and other harbours, rivers, creeks, bars of harbours, and other purposes.

..... 8, William Robert Wale King, of Kirby-street, in the parish of St. Andrew, Holborn, in the county of Middlesex, Tin-plate-worker; for a method of manufacturing tin, or iron plates covered with tin, commonly called tin-plates, into covers for dishes and plates.

..... 15, Martin Cawood, of Leeds, in the county of York; for an improvement in the manufacturing metallic cocks, for conveying and stopping liquids.

..... 21, Richard Wilcox, of the parish of St. Mary, Lambeth, in the county of Surry, Mechanist; for improvements in steam-engines.

June 6, Ralph Dodd, of Change-alley, in the city of London, engineer; for a method of applying steam for the forcing and raising of water, heavy bodies, and working machinery, in a more simplified manner than has hitherto been practised.

..... 6, Edward Massey, the younger, of Newcastle, in the county of Stafford, Nautical Instrument-maker; for improvements in the construction of an instrument or apparatus for taking soundings at sea, whereby the same will be much more simplified; for which instrument or apparatus he has already obtained letters patent, bearing date the 24th day of March, 1802.

.....William Deverell, of Charles-street, Blackfriars-road, in the county of Surry, Engineer; for improvements in the mode of giving motion to hammers, stampers, knives,

shears, and other things, without the application of wheel, pinion, or any rotative motion, by means of various powers now in common use, whereby much labour and expence will be saved.

June 6, Lawrence Gwynne, of Christ's Hospital, in the city of London, Gentleman, and Peter Noble, of the London-road, in the county of Surry, Engine maker; for improvements in chain and common pumps; whereby the latter will act as a fire-engine for sea and land purposes.

.....12, Edward Heard, of London, chemist; for certain means of obtaining inflammable gas from pit coal in such a state that it may be burned without producing any offensive smell.

.....17, Samuel Phelps, of Cuper's Bridge, Lambeth, in the county of Surry, Esquire; for a method of making kelp, barilla, or other vegetable or mineral alkali, by fermentation, and other means, in addition to combustion.

.....19, William Lester, of Piccadilly, Engineer; for an improved rotary motion or engine to communicate power to machines.

.....19, William Clark, of Cerne Abbas, in the county of Dorset, clock-maker, and Joseph Bugby, of Yeovil, in the county of Somerset, schoolmaster; for improvements in a machine for spinning hemp, flax, tow, and wool.

.....24, Thomas Bourne and William Chambers, scale-beam-makers, and Chester Gould, mechanic, all of Birmingham, in the county of Warwick; for a machine or engine for roasting meat by the power of steam, and for other purposes where small powers are necessary.

July 4, John Davenport, of Langport, in the county of Stafford, glass-maker; for a method of ornamenting glass in imitation of engraving or etching, by which means borders, cyphers, coats of arms, drawings, and the most elaborate designs may be executed in a style of elegance hitherto unknown.

.....4, John Curr, of Sheffield, in the county of York; for a method of applying the cables of ships and vessels upon the windlasses, capstans, or drums thereof, whereby the necessity of conveying away the loose ends of the said cables is prevented; by which methods the cables are more commodiously applied to their work, and more certain of bringing ships and vessels safe to anchor.

.....24, Bryan Donkin, of Fort Place, Bermondsey, in the county of Surry, engineer, and Henry Maundslay, of Margaret-street, Cavendish-square, in the county of Middlesex, engineer; for a method of combining wheel-work

CRITICAL CATALOGUE.

Observations on the Utility, Form, and Management, of Water-Meadows, and the Draining and Irrigating of Peat-Bogs, with an account of Prisly-Bog, and other extraordinary Improvements, conducted for HIS GRACE THE DUKE OF BEDFORD, THOMAS WILLIAM COKE, ESQ. M. P. *and others.*—By William Smith, Engineer and Mineralogist. Norwich; Longman, Hurst, Rees, and Orme; p. p. 121.—1806.

WE cannot sufficiently admire the confidence of a writer like the present, to expect that public attention which is now fashionably paid to writers of a far different description; in course, we cannot compliment him very highly on that most essential qualification, knowledge of the world as it goes. In vain have we turned over and over the elegant and well-printed leaves of his tract, in search of pompous phraseology, learned and abstruse scientific terms, which the ignorant may stare at, and the ostentations get by rote; of new discoveries from old authors, whose names are industriously concealed, or their systems and language adroitly regenerated and fitted for modern use; in short, we have found the work totally deficient, in those, and many other embellishments, which surely must be professional requisites, since they have been so long practised, and upon so extensive a scale. But what do we find in the room of those? why, the very humble and unfashionable substitutes of plain old English common sense; real, plodding, practical knowledge of his subject, derived from his own extensive experience, and all this delivered in such familiar terms, that whoever is able to read, is also able to understand it; a method of proceeding, by which all the advantages of fine scientific writing are lost, since that which is easily understood must surely be very common and very cheap. Besides, he does not deal in wonders, and promises not the performance of impossibilities, nor indeed of any thing without the adequate means of labour and expence; and, what is equally bad, at least impolitic, he every where recommends radical, and therefore permanent measures. Thus much, however, must be allowed, the author has brought forward, for his vouchers, employers of the highest order, and his book is very handsomely printed, with tail pieces to each chapter, sufficiently beautiful to instruct the eyes of modern readers. Both the paper and typography do credit to the Norwich press.

Not having the pleasure to know Mr. Smith, his name, as a professional man, had, in truth, escaped our memory, until we saw the present publication advertised. The national importance of the subjects on which he treats is too well and generally known, for it to be necessary for us to expatiate upon them; and indeed we had rather he should do it, from his superior ability in his own province, so that we shall content ourselves, chiefly with making quotations from his book.

We have so good an opinion of the utility of the hints conveyed to us in the preface, that we shall present the whole of it to our readers.

"Feeling myself highly flattered, by the encomiums paſſed on the improper improvements in the Bog at Priſley, near Wobourn, which ſome few years since I had the honour of conducting for His Grace the Duke of Bedford, I am induced to hope that these remarks, on the ſubject of a more general improvement of landed property, by means of Draining and Irrigation, may not be unacceptable to the public, nor unworthy the patronage of the many diſtinguiſhed perſons by whom I have been employed to put these ideas in practice. If I could have found the same confidence in writing that I have in Draining and Floating, this Eſſay might have made its appearance sooner; but I find less difficulty in directing the labours of the ſpade, than thoſe of the pen. Nature and truth are certain guides to ſcience, and having ſucceeded in eſtabliſhing uſeful experiments, by a ſtrict adherence to the former, ſo I may hope to accompliſh a ſimple detail of thoſe experiments, by means of that plain language which the latter requires. The want of the knowledge of lines and levels, in the generality of our farmers, may enable us to account for the neglect of the important aid they afford; and there can be no doubt but it would be much better for ſociety, and much more conducive to improvements in agriculture, if farmers' ſons were well inſtructed in practical geometry and the uſe of mathematical inſtruments, with the principles of machines intimately connected with their profeſſion, inſtead of ſpending their time in learning Latin, or purſuing other ſtudies, for the attainment of which, not one out of a hundred has any occaſion.—This mis-application of time in early youth is of much more conſequence to ſociety than one half of the world is either aware of, or inclined to believe. Youth is the time for collecting the uſeful information which lays the foundation of that knowledge, which is ſo highly beneficial to ourſelves and ſociety—for any man who employs his thoughts, may have an opportunity of making many ſerviceable observations, and ſuggeſting hints for the purpoſes of improvewent, without being educated as an author.—This has been my own caſe; the ſtyle of this little eſſay may therefore claim an unuſual indulgence from thoſe who criticiſe the works of the preſs; eſpecially when it is conſidered that I am only writing to plain men on a plain ſubject. If my language be intelligible to them, it is all I can hope or expect. It is now about five years ſince I was employed by His Grace the Duke of Bedford, to ſurvey the wet parts of the park at Wobourn, and thoſe of ſome of his Grace's farms in the neighbourhood. I was immediately and ſtrongly impreſſed with the practicability of improving the bog at Prisley, and I muſt confeſs I was the more anxious to try my ſkill upon it, when I was informed that this was the spot where Mr. Elkington's method of draining was put to the teſt, and for which attempt he received a large parliamentary reward, and a private douceur of conſiderable value from his employer. Having now, I flatter myſelf, fully convinced his Grace, (the preſent Duke,) and many other eminent agriculturiſts, of the practicability of the plans which I then recommended, I have ventured (under the honour of his Grace's ſanction) to lay them before the public, with a ſincere hope of rendering my plans and ideas equally ſerviceable to many others

poſſeſſed of ſimilar ſituations, and I form ſanguine expectations, from the very flattering encomiums of the firſt judges who have ſeen theſe incredible improvements, that ſome account of that bog which once claimed the notice of the public, will not now be unacceptable. I am also the more deſirous to bring the practice of Draining and Irrigation into general uſe, becauſe the late ſcarcity, and the preſſure of the times, have called aloud for every improvement that can be made in landed property.—Trade has already gained too great an ascendency over the landed interest, and engrossed too much of our capital. The manufacture of goods which depend on a foreign market of sale, we have lately experienced, may be rendered very precarious by the checks of our enemy; and while we are compelled to send foreigners such immense sums of money as thirty millions sterling, for grain to feed our manufacturers, which has been the fact within the laſt 14 or 15 years, he may be further enabled to injure our trade and and the manufactories, by ſtarving the people employed.—That we lately verged on a famine will not readily be forgotten; and while there is such a large proportion of wet and cold late vegetating land in this iſland, as to loſe much of its produce by a few rainy summers, ought we not to exert our utmoſt abilities to remedy theſe defects in our ſoil, by Draining and Irrigation?

The following remarks have been the reſult of ſeveral year's practice in the ſetting out and forming of water meadows, in various parts of the kingdom,and the obſervations partially communicated by a correſpondence on the ſubject, with the noblemen and gentlemen who have confided in my abilities to ſerve them. I was deſired by the late lamented Duke of Bedford, ſome time previous to his death, to collect my ſcattered obſervations on the ſubject, and to publiſh them—His Grace obſerving, that such a work would contain nothing but the reſult of obſervation and experiment, and a plain recital of what has been done by a ſtrict attention to the good management of ſome of thoſe water meadows, which, by such artificial means, have been rendered the moſt productive land of any in the kingdom; and that it is to be hoped theſe examples may ſtimulate others to adopt the ſame excellent improvements—ſince there is no crop that a farmer can cultivate which is so much at his command, as that grown upon a water meadow."

Nothing can be more juſt than the author's opinion as to the time moſt improvidently loſt by the generality of our youth, in what is called *learning of Latin;* a ſubject on which, as on moſt others, people take almoſt incredible pains to deceive themſelves. Page xv. of the Introduction, *ungenial* ſhould have been uſed, rather than *uncongenial.*

Mr. Smith's various experiments warrant him in ſaying, that the common prejudice againſt this, or that water, or ſoil, for the purpoſe of irrigation, is generally unfounded; and that moſt failures have ariſen, rather from inexperience and bad management, than from any natural defects. With the plans of drainage which he would recommend for the fens of Lincoln, Norfolk, Cambridge,

and Northampton, he joins that of irrigation or forming water-meadows of large quantities of land upon the ſkirts of the fens of thoſe counties; a projection, which from our local knowledge, appears to us not only practicable, but probably to be attended with incalculable benefits, which we hope to ſee realiſed on the eſtabliſhment of peace, ſo neceſſary to thoſe, and a thouſand other natural improvements.

One of our correſpondents, we recollect, lately enquired after the nature of the catch-work water meadow of the Weſt of England: he may be ſatisfied by a reference to this book. Parag. 24.

"Artificial irrigation is produced by diverting the water of a brook out of its accuſtomed channel (where there is a fall) in ſuch a manner that the new water-courſe being kept nearly level, the ſpace between the old and new channel may be floated—the water being brought upon the land by the new channel, and taken away by the old one.—Thus a conſtant diſcharge and ſucceſſion of water is retained without ſuch an accumulation as would make it appear bright upon the land, or without ſuch a deficiency as would leave any part of it not perfectly floated; for the art of irrigation may be moſt properly called floating, not ſoaking or drowning. Soaking the ſoil, ſimilar to the effect produced from a ſhower of rain, is not ſufficient for the general purpoſes of irrigation; nor will damming up water, or keeping it ſtagnant upon the ſurface, like that in a pond or on the fens, produce the deſired effect.

"The latter may properly be called drowning, becauſe it drowns or covers all the graſſes, thereby rendering the plants beneath it certainly aquatic, or the herbage diſpoſed to make ſuch a change; whereas the herbage of a water meadow ſhould by its very conſtruction, and its good management, enjoy the full benefits of both the elements of air and water. Practice has proved that there is no better method of doing this, than by keeping water paſſing over the ſurface of the land with a briſk current, but not ſo briſk as to waſh away the ſoil, and yet in ſufficient quantity to cover and nouriſh the roots, but not too much to hide the ſhoots of the graſſes: hence appears the nicety of adjuſting the quantity of water; and hence it alſo appears, that one main drain, to bring the water on the upper ſide of the mead, and another on the lower ſide to take it away, will not be adequate to all the purpoſes of ſuch an accurate regulation. If the ſpace between the upper channel (which may be called *the main feeder*), and the lower one (which may be termed the *main drain*), ſhould therefore be wider than is proper for the good adjuſtment of the water, that is, ſo that every part of the ſpace ſhall have enough water paſſing over it, and no part too much, then that ſpace muſt be divided into ſmaller ſpaces by intermediate drains, which ſhall catch and re-diſtribute the water. Theſe drains are called *catch-drains*, and the ground which can be floated in this way, is called *catch-work* meadows, becauſe the water is caught or collected, and re-diſtributed by theſe drains, which in a well-formed meadow ſhould never be more than eight or ten yards apart. As the water is brought by the main feeder upon the higher ſide of a piece of ground, which ſlopes toward the main drain, and down

which ſloping ſurface the water will run very readily; it does not, to perſons unacquainted with irrigation, at firſt ſight appear neceſſary to make ſuch a number of intermediate catch-drains; but it is proved by experience, that however regular the ſlope of ground may appear to the eye, that the water will find a number of irregularities, force itſelf into gutters or channels, and defeat the purpoſes of irrigation, in the hollow places by exceſs, and in the high ones by the want of water. Hence the water, which was ſcattered over the ſurface of the firſt ſpace, being all collected in the catch-drain, may, by the ſkill of the floater, be let out upon thoſe parts of the bed below, which appear to need the moſt aſſiſtance. Much has been ſaid about the proper ſituation for water meadows. I am inclined to believe there are only a few ſoils to which irrigation may not be advantageouſly applied; my experience has determined, that the wetteſt land may be greatly improved by it, and alſo that it is equally beneficial to that which is dry."

"The advantages of water meadows to thoſe who are acquainted with them are ſo evident as to require nothing to be ſaid in their favour. This work is written for the information of thoſe who may not have an opportunity of obtaining correct ideas of a practice which to ſome appears ſo ſimple; I hope therefore to be excuſed for entering into minute deſcriptions, that under other circumſtances might be deemed needleſs. Even a ſmall piece of water meadow, which will produce an early crop of ſpring feed at the very time of the greateſt preſſure of ſcarcity, and when the turnips ought to be off the ground, muſt be much more valuable to a poor arable farm, than can eaſily be imagined by any one who has not witneſſed the great utility derived from them in many parts of Wiltſhire.—What but the water meadows could enable the Wiltſhire farmers to bring to market a much greater number of ſheep, and that at an earlier ſeaſon than can be produced from any other county in the kingdom? Yet, however valuable the aſtoniſhing flocks of ſheep that are annually bred in Wiltſhire and Dorſetſhire, and from whence the large fairs at Wilton, Weyhill, &c. are ſupplied, I cannot help thinking that the Wiltſhire farmers place too much dependence on their water meadows, becauſe they neglect the growth of turnips, for which ſome of the arable land in thoſe counties ſeems to me admirably well calculated. Where the produce of two or three ſummers will repay all the expences of a water meadow (as is often the caſe), I ſhould conceive it muſt anſwer the farmer's purpoſe full as well to lay out money in floating, as to expend it by any other mode of improvement. How common it is for men to expend 3, 4 or 5*l.* per acre in manure, for the purpoſe of procuring a crop of wheat, and that after being at the immenſe trouble and expence of a ſummer fallow. If the price of labour, loſs of time, rent, and taxes for that year be added to the account of ſeed, ſowing, weeding, and harveſting, a crop of wheat will be vaſtly more expenſive, in many inſtances, than even the conſtruction of water meadows, and muſt be longer before it makes a return, for that crop is not thraſhed out and carried to market until many months have elapſed. The cuſtomary credit now given to many millers and factors, makes it full three years before a farmer can expect a return of his expences.

"The two years' rent, tythes, taxes, and the repairs, with the expences of putting in and getting out the crop, and the intereſt of the whole ſum during that term, often render a crop of wheat an unprofitable concern. Happily for the community, farmers do not calculate upon all the ſpecies of loſs and gain ſo nicely as men in trade or other ſituations, for if they did they certainly would not grow ſo large a quantity of wheat. There are undoubtedly many other crops which anſwer their purpoſe better, but they have been ſo accuſtomed to this ſort of grain, and certain parts of their farms have been ſo long appropriated to it, that they ſtill purſue the ſame cuſtom, and are but too apt to conſider the money that crop is likely to bring them, without once counterbalancing the expences in the debtor ſide of the account."

Alas, we have formerly ſeen enough, or rather too much of the coſt and conſequences of the fallow for wheat on poor ſoils, where the crop has been from ſixteen to twenty buſhels per acre, followed perhaps by a crop of oats of three or four quarters, the farm yard as bare of ſtock as a deſart, and the farmer of two hundred acres of land ſcarcely able to provide his family with a good Sunday's dinner.

For the formation of the water-meadow we refer the reader to page 41. The terms which Mr. Smith has adopted, and ſome general ones ſeem neceſſary, are *bed work* and *catch-work*, *main-feeder*, *ſloating-feeder*, *main drain* and *catch-drain*. He with much propriety recommends experiments on the irrigation of arable land, and makes a queſtion whether good effects might not be produced by watering wheat, vetches, clover, ſainfoin, rye-graſs, ſpinach, cabbage and brocoli: the ſucceſs probable of this is with us no queſtion. It would open to the country a new and unknown channel of improvement of the moſt important nature. On the old diſpute of the preference which is due to clean water, or that with ſediment, for the purpoſe of irrigation, Mr. Smith determines in favour of the clean water crops. Indeed the productive powers of perfectly limpid water are truly wonderful, abſolutely creating a bed, and furniſhing it with the ſeeds of the natural graſſes upon almoſt any foundation; that to float any ſpot, however bare, once or twice a year with water, is to convert it into a meadow. Mr. T. decides that the virtues of water are never exhauſted by irrigation, however often the water may be uſed.

We can very ſafely recommend Mr. Smith's book to the great body of land-holders and farmers, as the work of a man of eminence in his profeſſion, and extenſive and ſucceſsful practice.

HISTORY

OF

Agriculture.

LONDON, AUGUST 20th 1806.

HIS MAJESTY's SALE OF SPANISH SHEEP.

Yesterday, at half paſt two o'Clock, the annual ſale of ſheep from His Majeſty's flock of the pure Merino breed, ſo remarkable for the ſilky fineneſs of their wool, took place near the Pagoda at Kew, when 26 ſhearling, or two-toothed rams, 3 four-toothed rams, 2 full-mouthed rams, and 20 full-mouthed or aged ewes, were ſold by Mr. Farnham, the Auctioneer: a ſingle ſheep in a lot, as follows; viz. to Mr. Houſman, Lots 1, 2, 4, and 7, of the ſhearling rams, at 13½, 13, 12, and twelve guineas reſpectively; to Colonel Fullarton, Lots 3 and 5 at fifteen and thirteen guineas; to Mr. Mayer, Lot 6, at twelve guineas; to Mr. Eſſen, Lot 8, at eleven guineas; Mr. Eden, Lots 10, 11, 13, 14, 17, 18, 19, 21, 22, 23, 24, 25, and 26, at eleven and a half, ten and a half, twelve and a half, thirteen, twelve and a half, eleven and a half, fourteen and a half, ſeventeen, thirteen and a half, eighteen and a half, ſixteen, thirty-three and a half, and twenty-five guineas reſpectively. Mr. Stanford the King's ſhepherd, for Mr. Cook, Lot 9 at eleven guineas; — Wanſey Eſq. Lots 12, 16, and 20, at 15, 16, and 16 guineas; and to Mr. Compton, Lot 15, at 15½ guineas. Mr. Wanſey purchaſed Lot 27, a two-toothed ram, at ten guineas and a half; and Mr. Whitaker, Lots 28, and 29, at fourteen and twenty-ſeven guineas reſpectively. Mr. Aiton was the purchaſer of Lot 30, a full mouthed ram, called Old Snags, which has been uſed in the King's flock with great ſucceſs, at eighteen guineas and a half, and Lot 31, a ſix-toothed ram, that has alſo done ſervice in the royal flock, at thirty-one guineas.

The ſale of the ewes next commenced, and Mr. Eſſen bought Lots 32, 33, and 40, at ſeven guineas and a half, ſeven guineas and a half, and ten guineas and a half, reſpectively; Mr. Compton, Lots 34, 37, and 43, at ſeven, ten, and ten guineas and a half; Mr. Bell, Lots 35, 39, 41, 45, 46, 47, and 48, at twelve, nine and a half, thirteen, twelve, twelve, fifteen and a half, and thirteen guineas reſpectively; and Colonel Fullarton bought Lots 36, 38, 42, 44, 49, 50, and 51, at eight, eleven and a half, fifteen, ſixteen, fourteen and a half, fourteen, and ſixteen guineas reſpectively.

The company was not ſo numerous as on former occaſions; nor were the bidders ſo eager as we have before ſeen them, although the ſheep were in general unexceptional in point of wool, and certainly better in carcaſe than at the former ſales.—It will be ſeen above, that the higheſt ſhearling ram ſold for thirty-three guineas and a half, and the twenty are found to average about fifteen pound eleven ſhillings each: laſt year the beſt ſhearling ram ſold for fifty-ſix guineas, and they averaged more than thirty-four guineas. Mr. Angerſtein laſt year purchaſed a ſon of Snags for ſixty-four guineas, while his famous ſire now ſold for eighteen guineas and a half.

The gracious intentions of His Majeſty in diſtributing theſe valuable ſheep among practical breeders, will be far better anſwered, than by the exceſſive prices which it ſeemed probable, laſt year, that the ſheep at theſe ſales were to fetch from the compotion of amatuers in this art: and we

we doubt not of His Majeſty's being, on this account, well pleaſed with the reſult of yeſterday's ſale, although below that of the laſt.

As the company were leaving the field, they were preſented with notices of a ſale of twenty-eight Spaniſh rams from the flock of Doctor Parry, of Bath, on the 26th inſt. at Hounſlow.

Barmoor Sheep-Shew.

Mr. F. Sitwell's Annual Agricultural Meeting at Barmoor Caſtle, in Northumberland, took place on Monday, the 7th ult. which was attended by upwards of five hundred gentlemen, and agricultural amateurs.

At eleven o'clock, nine candidates ſtarted for the ploughing match, which was gained by a ſervant of Mr. John Younghuſband, of Elwick.—The ſecond beſt, a ſervant of Mr. Batters, a tenant of Mr. Sitwell's.—The company then returned to the Farm Yard, where they inspectsd the fat ſheep, bulls, &c. ſhewn for the premiums; ſome two year old bullocks, the property of Mr. William Watſon, of Warren-houſe, as extra ſtock; as alſo, a fat wether bred by Mr. Simmons, were much admired.

After which Mr. Sitwell ſhewed twenty-two Leiceſter tups, whoſe weight of wool exceeded that of any former year, one of which clipped 11lb. 12 oz.; a three year old Leicester bull; a remarkable fine Suffolk ſtalion, and three pigs, thirteen months old, the heaviest weighed 28 ſt. 5 lb. Various implements of huſbandry were exhibited, particularly a new turnip cutter, and a Turnip Drill, invented by Mr. Joſeph Lowrey, Steward to John Fordyce, Eſq. of Ayton. At four o'clock, one hundred and eighty people ſat down to dinner in a new room, built ſince the laſt meeting at the farm, and many were obliged to go away for want of accommodation. Meſſrs. Cully, Maſon, Neſbit and Bogue, the Judges, then decided the premiums, as follows, viz.

For the beſt pen of wethers, to Mr. James Pinkerton, a ſilver cup.
For the beſt bull, to Mr. Mills, of Hotwell, a ſilver cup.
For the beſt implement of huſbandry, to Mr. Joſeph Lowrey, a ſilver cup.
To the beſt ploughman, five guineas.
To the ſecond beſt, two guineas.
For the pigs, no claimant.

Mr. Sitwell's health was drank with three times three, and the meeting concluded, every body expreſſing their entire approbation of the buſineſs of the day.

Mr. Sitwell has made a match with Mr. Neſham, of Houghton, in the county of Durham, to ſhew five gimmers (alias ſhearling ewes), in two years ſucceſſively, for 100 guineas each year, play or pay, the ſheep to be ſhewn at Sir Henry Vane Tempeſt's meeting in 1807, and at Barmoor meeting, in 1808.

FAIRS, MARKETS, &c.

LONDON, AUGUST 5.

The Agricultural Reports for laſt month ſtate, that the growing Wheats have ſuffered by the rain, but that Rye and Barley have improved by the wet weather.—Peaſe expected a good average crop.—Wheat harveſt backward.—Late Hay-harveſting, in the diſtant counties, very unfavourable.—Latter-math Graſs abundant.—Hops improved, and promiſe 3-4ths of a crop.

The wheats now growing promiſe, in general, a large produce. They are likely to be late in ripening. They have been, in ſome places, lodged by the rains.—Oats are univerſally in good growth.—Potatoes, though ſuffering by drought before the late rains, are now thriving. The turnips of

the firſt ſowing were in many places entirely checked by the drought.—Thoſe of the ſecond ſowing may probably thrive. The hay harveſt has been, on the whole, abundant.

The harveſt for barley commenced in the neighbourhood of Whitehaven, on Thurſday the 24th of July. The firſt ripe barley was cut by Mr. John Douglas, of Diſſington.

A ſpecies of Caterpillar, ſuppoſed to be the ſame with that which infeſted the cotton-growth of Georgia and South Carolina ſome years ſince, has appeared this ſeaſon on the wheat in the ſouthern and middle parts of the United States of America. It attacks both the blade and ſtalk of the wheat; and indeed ſpares no ſort of green vegetable. Its numbers are ſo conſiderable on the eaſtern coaſt, that it is, there, impoſſible to move a foot, without treading to death, thouſands of them. It is feared, that they may utterly ruin the hopes of the harveſt.

At the Lewes Wool Fair, held laſt Saturday ſe'nnight at the White Hart Inn, Lewes, Lord Sheffield in the Chair, after a detailed hiſtory of the preſent ſtate of the Wool Trade, delivered in a ſpeech of ſome length, his Lordſhip recommended a revival of the Committee of the principal Wool Growers, who ſhould retire and diſcuſs the prices that the times and quality of the Wool would authoriſe; which being done, Lord Chicheſter reported the prices from 2s. to 2s. 1½d. per lb.; on which much buſineſs was immediately done.

The Lewes Cattle Show, laſt Wedneſday, was numerouſly attended. The Earl of Egremont, who ſent a preſent of a fine buck, was in the Chair. At the dinner at the White Hart, the following prizes were adjudged:—

The cup, value 10 gs. for the beſt two-year old Bull, Mr. Ellman. Ditto for three-year old ditto, Mr. Cupps. Ditto, for four-year old, ditto, Lord Gage. Ditto for two-year old heifer, Colonel Newton. Ditto for three-year old ditto, Mr. Ellman. Ditto for oxen, Mr. Ange. Ditto for one-year old South Down ram, Mr. T. Saxby. Ditto for two-year old ditto, Mr. T. Famcombe. Ditto for three-year old ditto, Mr. Hamſhar.—Prizes for the beſt pen of 12 South Down Ewes. Cup, value five guineas, to Mr. John Ellman. Second ditto, to Mr. Thomas Ellman. Third ditto, to Mr. Saxby. Charles Weſtern, Eſq. of Felix Hall, Eſſex, for the beſt boar; Prize, a five-guinea cup. Ditto for ſow, ditto, Mr. Ellman.—Firſt prize for fleece, Mr. Saxby. Second ditto, Mr. T. Famcombe.

Farmers will do well to cut their blighted wheat as early as poſſible; then lay it, untied, in handfuls, on the ſtubbles, the ears hanging into the furrows. The ears will thus ripen without loſing their plumpneſs.

Hops vary in price; bags, from 4l. 15s. to 6l. 10s.; pockets, from 4l. 15s. to 7l. per cwt.

Sheep are, juſt now, much annoyed by the gad-fly.

The Derbyſhire Agricultural and Breeding Society, at their meeting on the 25th of laſt month, reſolved to propoſe ſeven præmia, to the total value of twenty guineas, for the beſt bulls, oxen, and pigs, which ſhall be exhibited before them on Eaſter Fair-day, 1807;—and fourteen præmia, of the total value of 40 guineas, for the beſt theaves, rams, wethers, heifers, and oxen, which ſhall be ſhewn before them on the 8th of July, 1807.

Public Lectures upon Rural Economy, Agriculture, and the Management of Cattle, are juſt now delivered, twice a week, in Dublin, under the patronage of his Grace the Duke of Bedford.

The following is repreſented to be an effectual means of preſerving lambs from foxes: Take equal parts of black ſulphur (ſulphur vivum), tar, and train oil; mix them with a broad ſtick, and touch with this mixture the gates of the fields where lambs are kept.

Six thousand one hundred and fifty-eight quarters of wheat were ſold in Mark-lane, from July 14 to July 19, at the average price of 77s. 4¾d.—The flour ſold from July 12 to July 18, was 15,522 ſacks, at the average price of 74s. 5¼d. per ſack.

The following are the average prices of grain for England and Wales; wheat, 82s. 5d.; rye, 48s. 4d.; oats, 29s. 6d.; beans, 45s. 8d.; peaſe, 44s. oatmeal, 45s. 9d.; all per quarter.

Laſt Monday, about 2000 black cattle, 16,000 ſheep and lambs, and 400 ſwine, were expoſed to ſale in Smithfield market. The prices were; mutton, from 4s. to 5s. per ſtone; beef, from 4s. 4d. to 5s. 2d.; veal, 4s. to 5s. 4d.; pork, 4s. 8d. to 5s. 4d.

At laſt St. Boſwell's fair, ſheep and lambs were uncommonly numerous, but ſlow of ſale, and at low prices. Black cattle, horſes, and linen cloth, were plentiful and cheap.

The prices of cotton wool, in ſome inſtances, riſe. That at Pernambuco is at from 2s. to 2s. 1½d. Cayenne, 1s. 11d.; Demarara, 1s. 8d.; Smyrna, 1s. 3d.; Eaſt India, 1s. 9d.

Laſt Saturday, at Lewes, the prices of South Downs wool were fixed at from 2s. to 2s. 4¼. A great deal of wool was, that day, bought at these prices, and others are about 6¾d. per lb. lower than laſt year's prices.

About 33,000 bags of Spaniſh wool have been imported ſince laſt September. The ordinary importation is 30,000 bags a year.

AUGUST 9.

Wheat harveſt was begun laſt week in Suſſex, in the Iſle of Thanet, and in ſome parts of Surrey.

The harveſt has commenced in the vicinity of Briſtol. The growth of the corn in that quarter, is, in general, luxuriant and promiſſing.

Grain of all ſorts is found to have been improved by the late rains. At Aberyſtwith, the wheat of ſeveral fields has been reaped. Some of the wheat has been already gathered in. The ears are ripe, and well filled.

It is aſcertained, that the races of cattle are improved in beauty and in thoſe qualities which render them profitable to the farmer, chiefly by aſſociating males of ſmaller ſize with larger females. The progeny is commonly coarſe and ugly from a large male with a ſmall female.

From the joint obſervations of Mr. CLINE, the Surgeon, and Profeſſor COVENTRY of the Univerſity of Glaſgow, it appears—that a compact, round-made body, a deep cheſt, a broad loin, a full flank, a ſtraight back, a ſmall head, clean chops, and a fine tapering neck; limbs and bones not coarſe and large; a ſkin ſoft but not thick with hair, neither ſtaring nor hard; legs rather ſhort than long; are the qualities of the ſtructure and figure of cattle, ſheep, and ſwine; but of cattle eſpecially, which contribute the moſt to render this live ſtock, the most rapidly, and to the higheſt value, profitable to the breeder, the feeder and the dealer.

Of all the races of ſheep, now fully naturalized in England, the South-Down are ſuppoſed by ſome to be the moſt profitable. Mr. William Dyke made, ſome time ſince, a comparative trial between the Wiltſhire and the South-Down breed. It was on a farm of two hundred and thirty acres of arable ground. The ſheep were generally fed on about forty acres of new field, forty acres of old field, fourteen acres of water-meadow, and twenty-four acres of paſture. Till 1791, the flock on theſe grounds conſiſted uſually of from three hundred and twenty to three hundred and ſixty. Wiltſhire breeding ewes, which produced three hundred lambs annually. From 1791, a flock of four hundred and thirty South-Downs was ſubſtituted. Theſe affording four hundred and thirty lambs, yielded, in all, an annual profit of 304l. 10s. more than had been obtained from the Wiltſhire flock. Such a trial is deciſive between the two races.

AUGUST 16.

Within the laſt thirteen years, more than thirty millions ſterling has been paid for grain imported.

The crops of hops are ſo abundant this year, that the duty is eſtimated at 155,000l.

The wool fair, on Saturday week, at Keſwick, was tolerably well attended. Several manufacturers from Yorſhire were preſent. South-Down wool ſold for 29s. 4d. per ſtone; half-bred South-Down 16s.; Fell-wood 11s. ſome of the beſt 12s.; long Scots 16s.; Cheviot 18s. The prices were lower than laſt year, eſpecially for coarse wools.

At Landſdown fair, on Monday laſt, there was a large ſhew of both fat and lean Devon, Hereford, and Glamorgan cattle; the greater part was diſpoſed of at reduced prices. The quantity of cheeſe was not ſo great as last year, and the ſale dull at the following prices; Coward-milk 46s. to 54s.; two-meal 30s. to 35s.; old from 63s. to 70s. per cwt.—The weather proving remarkably fine, a far greater number of perſons were on the Down than at any former fair.

Two young heifers, about a year and a half old, in the poſſeſſion of a perſon at Denby, have been brought up together, and have been in the habit of one another. The conſequence is that one of them now gives a conſiderable quantity of milk, though ſhe has hitherto produced no call, nor is even at this time pregnant.

A few days ago was found, near the brick-kiln of Mr. Fidler, at Stow, near Newbury, a snake's neſt, containing 820 eggs, juſt ready to hatch, and nearly filling a two-gallon meaſure.

At Stowmarket fair, held on Tueſday and Wedneſday laſt, the number of ſheep and lambs were larger than uſual, and a conſiderable deal of buſineſs was done. The proſpect of an abundant crop of turnips, greatly facilitated the ſale of lambs, which ſold freely, with very little variation from laſt year's prices. There was a general depreſſion in the value of fat ſheep, and the favourable aſpect of plentiful ſeed, juſtly juſtifies a fair preſumption, as the ſeaſon advances, a greater reduction will take place.

Wheat in Mark-lane, was, on Wednesday, at from 50s. to 72s. per Quarter.

Tuesday and Thursday, every week, are to be in future, the only Market days in Mark-lane.

At Cork, last Saturday, wheat was sold for 42s. per bag of 20 stone:—Rape ſeed at 30s. per barrel of 17 ſtone: Potatoes at 5d. 21lb. Mutton at 6d. a lb.

Exeter fair on Tuesday ſe'nnight was not over-abundantly ſupplied with cattle. The few lean cattle were ſold at fair prices. Some horſes of the breeds fetched very high prices.

At laſt Keswick Wool Fair, South down wool was ſold at 20s. and 4d. per ſtone: fells wool at 11s. long Scotiſh wool, at 16s. Cheviot wool at 18s. These prices were lower than those of laſt year.

In Worceſterſhire, and Herefordſhire, the pear-trees are bent down by their weight of the fruit upon them. The growth of the apples is very abundant. Hops never promiſed a richer picking than now.

A gentleman just returned from a journey to Carliſle and the lakes of Cumberland, informs us, that the growth of the grain-bearing plants of all ſpecies, is every where abundant. The ears are well filled: and the corn in general, riper than it might have been expected. Between Kendal and Mancheſter, it had been a good deal beaten down by the late rains. The ſame effect was not obſerved elſewhere. The appearances were the moſt ſatisfactory in the counties the neareſt to the metropolis.

A few hot, fair ripening days which concluded the laſt, and began the preſent week, have contributed much to advance the maturity of corn.

His Grace the Duke of Bedford has exported a ſelect number of South-Down ſheep from his ſtock at Woburn, for the improvement of the breed of ſheep in Ireland.

In Hampſhire, the Dog wild-briar began to flower about June 4th; the the field pea June 6th; the corn crowfoot and great crow-foot, June 8th; the white lily, June 28th; and the white dog-roſe July 2d.

AUGUST 23.

Melton Lamb Shew was well attended on the 20th of Auguſt. The Marquis of Hertford's half-bred South-down wethers fetched 22s. ewes 21s. 6d.; Meſſrs. T. Waller's, J. Ablitt's, and N. Gross's Norfolk wethers 21s. 6d. ewes 19s. Mr. Bates's half-bred South-down wethers 20s. Mr. Wolton's Norfolk wethers, 20s. Mr. J. Hunt had a capital pen of Norfolk lambs, which were ſold at a high price. The lambs were almoſt all diſpoſed of, were in excellent condition, and generally above laſt year's prices.

At Ipswich Fair which began on the 22d of Auguſt, there was a large ſhew of lambs, which fetched high prices, and more buſineſs was done than ever remembered on the firſt day of the fair. The late Sir Charles Davers's South-down wethers, ſold for 25s. Sir Robert Harland's South-down wethers 25s. Mr. Rodwell's, of Barham, half-bred South-down wethers 23s. ewes 22s. Norfolks 21s. Mr. Cook's, Race Ground Farm, half-bred South-down wethers 22s. ewes 20s. Mr. Cotton's Keſgrave, half-bred South-down wethers 21s. Mr. Wm. Cook's, Sutton, 20s. Mr. Worledge's, of Timworth, Norfolk wethers 21s. Mr. R. Fowell's, Elden, South-down wethers 21s. ewes 20.

The Wharfdale Agricultural Society meets on Monday the 29th of September, at the White-Horſe-Inn, in Otley. It will diſtribute 18 prizes for the beſt cattle, ſheep, and ſwine, which ſhall be produced in exhibition.

Peaſe and barley began to be reaped at Ladykirk, in Ayrſhire, on Monday, the 11th of Auguſt. Wheat, barley, and oats had begun to be reaped almoſt every where throughout the South Weſt of Scotland, between the 9th and the 16th inſt.

Amidſt the thunder and rains of this ſeaſon, the harveſt every where proceeds with ſucceſs. The produce is abundant. The ears of the grain are well filled. The labour of reaping and gathering in, is performed with activity. There is, however, a ſcarcity of hands.

On Monday, Auguſt 13, a barrel of new oats, the firſt of this ſeaſon, was ſold in Clonmell market.

At Britford Fair, Wilts, the 12th inſt. the number of Sheep penned amounted to about 21,000; the ſale was heavy, and the prices full 3s. per head lower than laſt year. Lambs fetched from 16s. to 24s. per head; Ewes, from 26s. to 38s; and Wethers, from 32s. to 58s. The decided preference was given greatly in favour of the real South-down breed. One lot of South down lambs ſold for 25s. 6d. per head. There was but a middling ſhow of horſes, and but few of thoſe were of the beſt kind; they ſold at very high prices.

As early as Thurſday and Friday laſt, the town of Horncaſtle was faſt filling with dealers from all parts of the United Kingdom, and the ſhow of horſes was conſiderable. This week the company has been very numerous. Horſes fetched high prices at firſt, but, upon the whole run of the Fair, are conſidered to have gone off full ten per cent. lower than laſt year: ſome remained unſold. One dealer bought ſix horſes, for a ſum exceeding 900 guineas. In another inſtance, on one of the early days of the Fair, a horſe was ſold for 95l. to a perſon who, on the following day, diſpoſed of it for 250l. and the purchaſer has ſince refuſed 300 guineas for it.

LONDON PRICES OF GRAIN for *Aug.* 1806.

MARK LANE, *Monday*, Aug. 4, 1806.

We had plenty of Wheat to-day, consisting partly of fresh arrivals, and partly of remainders from last week. In the sacks (which were extremely heavy) a decline of from 2s. to 5s. per quarter took place.—Flour, in consequence, is down to 70s. per sack; though by some it is named at 72s.—We had a short supply of Barley, which continues at last week's prices.—Malt is dearer.—White Pease are still on the rise, particularly Boilers.—We have plenty of Oats of ordinary quality, but very few that are good, hence prices vary according to quality.—Horse and Tick Beans, and Grey Pease, are cheaper.

Price of Grain, on board Ship, as under.

Wheat	50s 60s 70s	White Peas	40s to 55s od	Ticks, new	30s to 37s
Fine	75s to 78s	Boilers	66s to 70s.	Ditto Old	—s to —s
Superfine	80s to 82s	Suffolks	72s	Oats	20s 25s to 30s
Rye	35s to 42s	Grey Peas	35s to 40s	Polands	31s to 33s od
Barley	33s to 39s od	Beans, new	40s to 46s 6d	Oats for seed	—s
Malt	66s 74s od	Beans, Old	—s		

Monday, Aug. 11.

We have much Wheat up, in addition to a large quantity on hand. At the close of last week there was an evident decline in the price of the little then sold; but early this morning fine samples revived for a short time; soon after, however, they fell back, and the Market finish d at a reduction of 5s. per quarter from last Monday's currency.—Fine Flour is down at 70s. per sack.—Barley and Malt both support their late prices. The supply of the former rather short.—White and Grey Pease remain steady, at their last reported value.—Beans of both sorts, and Oats of second and inferior quality, are cheaper; but good fresh samples of the last named were quite as high on Monday.

Wheat	46s 56s to 60s	White Pease	40s to 55s	Ditto, old,	—s
Fine	—s 65s to 70s	Boilers	65s to 71s	Ticks, new	30s to 37s
Superfine,	75s to 78s	Suffolks,	—s to 72s	Ditto, old,	—s
Rye	36s to 42s	Grey Peas	34s to 40s	Oats	22s 25s to 30s
Barley	32s to 38s	Beans, new	40s to 49s	Polands	31s to 33s 6d
Malt	68s to 74s				

Monday, Aug. 18.

Harvest having commenced, and the Farmers now in the midst of their business, we had (as might be expected) rather short supplies of Wheat for this day's market; hence, fine samples acquired about 2s. per quarter more than last week, but inferior sorts scarcely felt any advance. Good Red Wheats fetched from 70s. to 72s. per quarter.—We have but few buyers of Barley, which, of course, is very dull in sale.—White Pease (boilers) continue at their former prices. Grey Pease the same.—Small Beans rather brisk, and which, with Oats, are a trifle dearer.

Wheat	50s 60s 63s	White Peas	40s to 55s	Ditto, Old	—s
Fine	65s to 75s	Boilers	58s to 63s	Ticks new	33s to 39s
Superfine	78s 80s	Suffolks	—s to 73s	Ditto, Old	—s
Rye	34s to 42s	Grey Peas	34s to 40s	Oats	23s 28s to 32s
Barley	30s to 38s	Beans new	40s to 46s	Polands	33s 34s od
Malt	66s to 73s				

Monday, Aug. 25.

Owing to short arrivals of Wheat, and which is generally the case at this time of the year, prices were higher by 3s. and 4s. per quarter than last Monday; on which day a very few select samples rather exceeded the terms of our then specified currency.—We had no accession of Barley this morning; very little sale, but a trifling amendment in price.—Malt is a trifle dearer, as are Grey Pease; Boiling Pease are still scarce, and full as high as of late.—Beans, of both sorts, with prime Oats, sell for rather more money than last week; there are no fresh arrivals of this last-mentioned article.—Flour remains at 70s. per sack.

Wheat	50s 60s to 70s	White Pease	40s to 56s	Ditto, old	—s
Fine	75s to 80s	Boilers	64s to 70s	Ticks, new	34s to 40s
Superfine	82s to 84s	Suffolks	72s od	Ditto old	—s
Rye	36s to 42s	Grey Peas	36s to 42s od	Oats	23s 27s to 32s
Barley	30s to 38s	Beans, new	42s to 48s od	Polands	—s to 34s 6d
Malt	67s to 73s od				

AVERAGE PRICES OF CORN, by the quarter of eight Winchester bushels; and of OATMEAL, per Boll, of 140 pounds Avoirdupoise.

From the Returns received in the Week ended, Aug. 16, 1806.

INLAND COUNTIES.

COUNTIES.	Wheat.		Rye.		Barley.		Oats.		Beans.		Peas.		Oatmeal	
	s	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Middlesex	78	8	43	0	37	1	35	6	45	11	49	0		
Surrey	83	8	38	0	37	8	33	8	44	0	46	0		
Hertford	71	2	41	0	36	0	27	4	37	3	37	9		
Bedford	72	3	44	10	36	0	28	4	40	4	42	5		
Huntingdon	67	11			32	6	24	0	39	4	42	4		
Northampton	74	8	50	9	36	3	29	9	45	3	44	0		
Rutland	76	9			39	0			42	0			62	0
Leicester	80	10			35	8	28	5			45	2	39	9
Nottingham	86	5	53	0	42	6	29	7	47	4				
Derby	90	0					30	8	50	0	48	0	38	2
Stafford	84	11			42	7	32	7	50	5			39	10
Salop	90	0	64	0	51	0	31	5			48	0	66	4
Hereford	85	7	51	2	38	2	29	0	44	7	41	0	64	11
Worcester	85	1	43	4	45	6	35	6	52	5	47	0		
Warwick	87	8			43	0	35	7	54	5			48	4
Wilts	74	0			38	0	31	10	52	4				
Berks	78	7			34	6	32	10	50	0	46	6		
Oxford	78	2			39	4	31	11	46	4	49	0		
Bucks	75	8			35	0	33	3	46	1	42	9		
Brecon	91	2	54	4	42	11	24	0					49	2
Montgomery	92	8					26	5					64	1
Radnor	89	5			40	2	26	11			35	2		

Maritime Counties.

Essex	80	8	39	0	37	0	37	6	40	3	42	0		
Kent	84	0	41	0	36	6	38	0	41	0	49	0		
Sussex	77	0					40	1	43	0				
Suffolk	73	2	40	0	37	2	33	6	38	10	46	9		
Cambridge	73	2			38	0	21	4	35	7				
Norfolk	69	2	44	0	33	9	24	0	37	6	37	3		
Lincoln	77	11	50	6	36	7	23	10	44	0				
York	75	7	50	8	34	10	26	11	43	7	58	8	41	4
Durham	80	0					30	5						
Northnmberland	78	8	49	7	34	10	31	10			42	0		
Cumberland	80	2	59	7	48	5	34	4						
Westmoreland	88	7	62	2	49	4	34	10					24	1
Lancaster	83	0			39	1	30	7	49	4			23	2
Chester	79	0					25	4					25	8
Flint														
Denbigh	87	8			55	10	28	9					55	11
Anglesea	80	0			36	0	21	0						
Carnarvon	80	4			43	0	22	0					52	5
Merioneth	88	4	68	0	64	0	32	0					48	10
Cardigan	80	0												
Pembroke	75	8			35	8								
Carmarthen	93	0			48	8								
Glamorgan	83	6			40	0	28	0						
Gloucester	84	0			41	2	30	3	51	1				
Somerset	86	11			41	0	26	2	46	0				
Monmouth	100	2												
Devon	86	11			30	9	31	1						
Cornwall	87	2			35	10	26	8						
Dorset	77	5			32	0	37	6	52	0				
Hants	77	4			38	0	35	0	45	3				

Prices of Hops, Meat, Seed, Leather, Tallow, &c. for Aug. 1806.

Price of Hops.	1st Week	2d Week	3d Week	4th Week
Bags.	s. s.	s. s.	s. s.	s. s.
Kent — —	100 to 126	100 to 112	100 to 126	100 to 126
Suſſex — —	100 to 118	100 to 108	100 to 116	100 to 112
Eſſex — —	100 to 118	100 to 105	100 to 116	100 to 110
Pockets.				
Kent — —	106 to 135	100 to 126	105 to 130	100 to 130
Suſſex — —	100 to 126	100 to 112	105 to 136	100 to 126
Farnham — —	140 to 180	140 to 160	140 to 160	140 to 160
Seeds.				
Broad Beans, (per quarter)				
Long Pods				
Tares — —				
Rye Graſs — —				
Carraway, (pr cwt.) —				
Coriander —				
Trefoil —				
Red Clover — —				
White ditto —				
White Muſtard Seed, pr bu.				
Brown ditto				
Canary Seed				
Turnip, —				
Rape Seed, (per laſt) —				
Meat at Smithfield,	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.
To ſink the offal, p. ſt. 8lb.				
Beef — —	4 0 to 5 0	3 8 to 4 10	4 0 to 5 0	4 0 to 5 0
Mutton — —	4 4 to 5 0	4 0 to 5 0	4 4 to 5 4	4 4 to 5 2
Veal — —	4 0 to 5 4	4 0 to 5 0	4 8 to 5 6	4 6 to 5 6
Pork — —	5 0 to 5 8	4 4 to 5 4	4 8 to 5 8	4 8 to 5 4
Lamb — —	5 0 to 6 0	5 0 to 5 8	5 0 to 6 0	5 0 to 6 0
Head of Cattle—Beaſts about	2,000	2,000	2,000	1,900
Sheep and Lambes	18,500	17,500	20,000	19,000
Price of Leather.	*d.* *d.*	*d.* *d.*	*d.* *d.*	*d.* *d.*
Butts, 50lb. to 56lb. each	21½ to 23½	21½ to 23½	22½ to 24	22½ to 24
Ditto, 60lb. to 65lb each	25 to 26	25 to 26	27 to 28	26 to 28
Merchants Backs —	21 to 21½	21 to 21½	21½ to 22	— to 22
Dreſſing Hides —	18½ to 19½	18½ to 19½	19 to 20	19 to 20
Fine Coach Hides —	20 to 21½	20 to 21½	21 to 22	21 to 22
Crop Hides for cutting	21½ to 23½	20 to 23½	21½ to 24	21½ to 24
Flat Ordinary —	18½ to 19½	18 to 20	18½ to 19½	18½ to 19½
Calf Skins, 30 to 40lb. *p.* doz.	30 to 40	30 to 40	30 to 40	30 to 40
Ditto, 50lb. to 70lb. do.	36 to 41	36 to 41	36 to 42	36 to 42
Ditto, 70lb. to 80lb. do.	34 to 37	34 to 37	35 to 38	35 to 38
Sm. Seals (Greenland)	39 to 42	39 to 42	39 to 42	39 to 42
Large do. (per dozen)	5l to 8l 10	5l to 9l 10	5l to 8l	5l to 8l
Goat Skins *per* doz.				
Tanned Horſe Hides prhide	20 to 36	20s to 36s	20s to 36s	20s to 36s
Price of Tallow.	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
St. James's Market —	3 10	3 10	3 9	3 9½
Clare Market —	3 10	3 10	3 9	3 9½
Whitechapel Market —	3 9	3 9½	3 8	3 9
Per ſtone of 8lb. Average	3 9½	3 10	3 8½	3 9
Town Tallow —	65 0	65 6	65 0	64 6
Ruſſia (Candles) —	65 0	66 0	64 0	63 0
Ruſſia ditto (Soap) —	63 0	63 0	62 0	62 0
Melting Stuff — —	53 0	54 0	53 0	54 0
Ditto rough — —	36 0	36 0	36 0	36 0
Graves — — —	11 0	11 0	11 0	11 0
Yellow Soap — —	78 0	78 0	78 0	78 0
Mottled ditto — —	88 0	88 0	88 0	88 0
Curd dirro — —	92 0	92 0	92 0	92 0
Candles per dozen — —	11 0	11 0	11 0	11 0
Moulds — — —	12 0	12 0	12 0	12 0

Prices of Raw Hides, Hay and Straw, &c. for Aug. 1806.

	First Week	2d Week	3d Week.	4th Week.
Raw Hides.	*s.d. s.d.*	*s.d. s.d.*	*s.d. s.d.*	*s.d. s.d.*
Beſt Heifers & Steers, pr ſt.	3 0 to 3 4	3 2 to 3 4	3 2 to 3 4	3 2 to 3 4
Middling — —	2 6 to 2 8	2 10 to 3 0	2 10 to 3 0	2 10 to 3 0
Ordinary — —	2 0 to 2 4	2 6 to 2 8	2 4 to 2 8	2 6 to 2 8
Market Calf — —	12 6 each	12 6 each	12 6 each	12 6 each
Eng. Horſe — —	15s to 17s	15s to 17s	15s to 17s	15s to 17s
Lamb Skins — —	2 0 to 3 0	2 6 to 3 6	2 0 to 3 6	2 6 to 3 6
Sheep Skins — —	0 0 to 1 4	0 0 to 1 9	0 0 to 1 6	0 0 to 1 9
Price of Hay and Straw.	*l. s. d.*	*l. s. d.*	*l. s. d.*	*l. s. d.*
St. James's—Hay —	3 15 3	4 4 0	3 18 0	3 19 0
Straw —	2 1 3	2 0 6	1 16 6	1 18 0
Whitech.—Hay —	4 5 0	4 5 0	4 5 0	4 5 0
New —	0 — 0	0 — 0	0 — 0	0 — 0
Clover —	5 0 0	4 15 0	4 14 6	5 2 6
Straw —	2 0 0	2 0 0	1 17 0	1 16 0
Newbury.				
Wheat — — —	66s to 88s	60s to 89s	66s to 84s	60s to 89s
Barley — — —	30s to 39s	36s to 40s	36s to 39s	36s to 40s
Oats — — —	28s to 35s	28s to 35s	28s to 35s	28s to 35s
Beans — — —	—s to —s	—s to —s	—s to —s	—s to —s
New ditto — — —	—s to —s	—s to —s	—s to —s	—s to —s
Peas — — — —	—s to —s	—s to —s	—s to —s	—s to —s
Saliſbury.				
Wheat — — —	70s to 80s	68s to 80s	68s to 78s	68s to 80s
New ditto — — —	—s to —s	—s to —s	—s to —s	—s to —s
Barley — — —	34s to 38s	34s to 40s	32s to 40s	34s to 40s
Beans — — —	—s to —s	—s to —s	—s to —s	—s to —s
Oats — — —	32s to 36s	30s to 34s	30s to 34s	30s to 34s
Peas — — — —	—s to —s	—s to —s	—s to —s	—s to —s

TO CORRESPONDENTS.

WE are fully convinced of the value of the communication of Dr. Taylor, on the subject of fruit trees, and not a little flattered by the honour of having an opportunity to oblige our readers with the opinion of Her Serene Highness the Margravine of Anspach. We cordially join Dr. Taylor, in wishing that Her Highness would favour the public with her sentiments more at large, on this interesting and useful subject, which she has had opportunities to understand that can fall to the lot of few.

In answer to the request of our old and invaluable northern friend and correspondent, to re-state his arguments on certain points, we reply, that if his antagonists fail to do it, we will take care it shall not be forgotten. We cannot however avoid again remarking, that it is the wish of various friends of the Magazine, that (to use their own words now before us) there may be *less sparring and disputing and more real practical matter.*