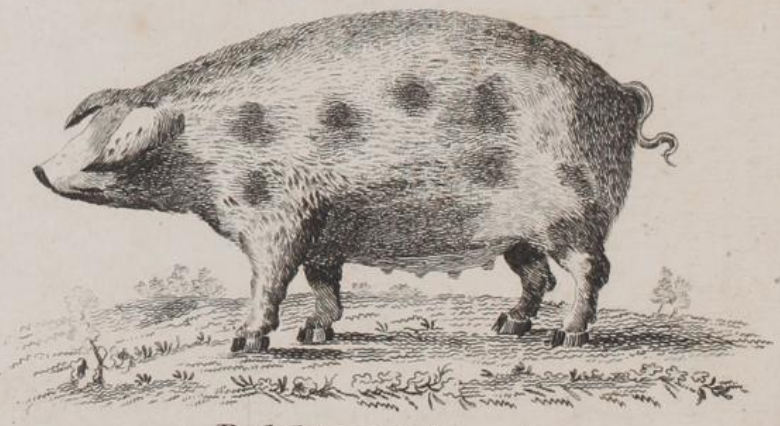
SWINE.

Chinese breed.

Prickear mixed breed.



Berkshire mixed breed.

Neale sc Strand

Published Jan.y 31.st 1805 by V. Griffiths Paternoster Row.

THE

AGRICULTURAL

MAGAZINE,

FOR

1805.

A MONTHLY PUBLICATION,

DEVOTED TO

Farmers, and to Rural Affairs.

"He that causes two Blades of Grass to grow where only one grew before, is, so far, a Creator." SWIFT

VOL. XII.

FROM JANUARY TO JUNE,

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THE

AGRICULTURAL MAGAZINE,

FOR

1805.

PREFACE.

THE twelfth Volume is here presented to the Public, of a Work which owes no common obligations to its favor. To his Subscribers and Contributors (among whom he is happy to include such a respectable number of scientific and professional Men) the Conductor is desirous to express his grateful acknowledgments; and to acquaint them, that he looks forward to more legitimate claims on their patronage—their assistance, and regard.

To attract the fixed attention of a large and dispersed body of men, like that of the Agricultural Interest of the Country, (so necessary to that concentration of invention and intelligence, which is the primary object of this work) is not the operation of a moment, but the patient attainment of years, subject to various contingencies, and liable to constant interruption. Yet it will be perceivable, by a reference to the following pages, that much has been done, although much remains to be effected. An important correspondence has been opened with the Northern part of the Kingdom, which has extended even to North Britain; an intelligent communication is established with the Eastern and the Western counties; and a similar connection is commencing with the Southern: it remains to extend and improve these advantages, which can only be done by a continuance and increase of that liberal sanction, and friendly attention, which has been accorded to the volumes just completed of this growing and interesting miscellany.

The Conductor claims to himself no other merit in the Publication, for which he solicits support, than its formation and care; an indifference to expence in the attainment of its objects; and a perseverance, not to be subdued, in endeavoring to extend its communication and utility. To a rational Public he owes the execution; and to the protection

of that Public, he again commits the offspring, not more of his endeavors, than of its own indulgence.

Of the only monthly agricultural work in the British empire, something may be allowed to be said in point of arrangement, at this period. To the pages of a magazine, the ingenious practical agriculturist, perhaps little versed in the refinements of composition, can promptly communicate the results of useful and frequent experience, without the formal preparation of an elaborate paper; to it no rural communication is unacceptable—it is devoted to the country, and its purpose is to recount

"Herds, flocks, and fruitful fields."

From the same reasons, it is always accessible to its readers, and adapted to the farm house; and the utile dulce *united as far as compatible, so as to render it every way a desirable companion, and a convenient book of reference. The Conductor has only to add, to the Chemist, and the enlightened Agriculturist, that, notwithstanding the necessary declaration of his wish to be* generally *useful, their most elevated researches will be sedulously attended to; and that he courts enquiry on every subject connected with the rural arts; hence chemical experiments, improvements in cottage architecture investigations tending to ameliorate the condition of the peasantry, will be gladly received; and any new work on either of these subjects, communicated by its Author or Proprietor, will receive an immediate and faithful analysis, without the smallest injury to its interests.*

E.

THE

AGRICULTURAL MAGAZINE.

No. LXVI.] JANUARY, 1805. [Vol. XII.

OF THE DIFFERENT BREEDS OF SWINE.

Extracted from Dr. Dickson's Work.

[WITH A PLATE ANNEXED.]

SWINE are a sort of live stock that bring considerable profit to the farmer, when proper attention is bestowed in the breeding, rearing, and other management. The well-formed hog should not be too long, but full in the head and cheek, thick and rather short in the neck; fine in the bone; thick, plump, and full in the carcase; full in the quarters, fine and thin in the hide, and of a full size in proportion to the kind, with a disposition to fatten well at an early age. The breeds of these animals are very numerous, as almost every district is in possession of a different sort. Of the larger kinds the most valuable breeds are probably the following:—

The *Berkshire breed,* which is distinguished by being in general of a tawny or reddish colour; spotted with black; large ears hanging over the eyes; thick, close, and well made in the body; legs short; small in the bone; disposition to fatten quickly.

This useful breed has extended itself from the district which furnishes its name, over most parts of the island. It is the sort mostly fattened at the distilleries; it feeds to a great weight, and is good for either pork or bacon.

The *Hampshire breed* of hogs is very large, being longer in the body and neck, but not of so compact a form as the Berkshire; they are mostly of a white colour, and are well disposed to fatten, coming up to a great weight when properly managed.

The *Shropshire breed* is another large sort of hogs, which are found valuable where the keep is in sufficient abundance for their support. They are not so well formed as those of the Berkshire kind, or equal to them in their disposition to fatten.

The *Gloucestershire breed* is likewise a large breed, but inferior to either of the above, being tall and long in shape, and by no means well formed. The colour is in general white; Mr. Marshall supposes this to have been the prevailing breed of the island. It is supposed to be thinner in the skin than the Berkshire breed.

The *Herefordshire breed* is also a large useful breed, but without possessing any advantage over those that have been mentioned.

It is remarked by the author of the Survey of Middlesex, that the largest breed in the island is supposed to be kept about Rudgewick, on the borders of Sussex and Surrey. They feed to an extraordinary size, and weigh, at two years old, nearly double or triple the usual weight of other sorts of hogs of that age. As large breeds pay the farmer the best in many cases, such a breed deserves to be attended to.

Among the smaller breeds of these animals there is much variety.

The *Chinese breed* is distinguished by the neck being thick; the body very close, compact, and well formed; the legs very short, and the size small; the flesh delicate; the colour various, as white, brown, and tawny. This breed is particularly disposed to fatten in an expeditious manner, and has, in consequence, spread over a great part of the kingdom. It is most adapted for being used as pork, but is much too small for being cured as bacon.

Another breed of the small kind of hogs is met with in many districts; it is of a white colour, thick, compact, and well made in the body; short in the leg; the head and neck well formed, and the ears slouching a little downwards. It is well disposed to fatten, and perfectly hardy.

The *Swing-tailed breed* is an useful sort of the smaller kind of hogs, being hardy in its nature, and of considerable weight in proportion to its size.

Some farmers prefer mixed breeds, as being more beneficial than either the large or small perfect breeds. Where this is the case, the Berkshire, with a cross of the Chinese, has been found a very profitable sort, as being capable of feeding to a considerable weight with a moderate proportion of food.

In order to have hogs of the most perfect kinds, the same attention should be paid in the breeding of them as in other sorts of animals, by selecting the most perfect and best-formed males and females of the several breeds, and carefully raising the stock from them. Those intended to be kept as sows and boars should be constantly well fed from the first, as, where they are pinched for food, they are never so fine or healthy afterwards.

The breeds of hogs, like those of other animals, should be provided according to the nature of the keep. Where it is abundant, or cultivated solely for the purpose of the raising of pigs, the large breeds will mostly be found the most advantageous, as the difference in the proportions be-

tween the living and the dead profitable weight, is said by some to be always the least in the largest-sized animals.

It is of the utmost importance in the management of Swine, both in the view of economy in the labour of their attendance, and the raising of a large proportion of manure, as well as the advantage of the hogs, to have convenient styes or piggeries. The methods of constructing these, with the greatest advantage in these different respects, have been described. It is remarked by Mr. Young, that a piggery "must be in a circle, or it must fail in convenience. In the centre, the boiling, or steaming-house, with a granary for corn, meal, bran, &c.; a range of cisterns in divisions, around it, for receiving immediately from the copper or steam apparatus, and also by tubes from the granary; around these a path, then the fence, wall or paling, in which the troughs, with hanging lids, for supplying food directly from the cisterns on one side, and for the hogs feeding on the other; a range of yards next, and another of low sheds beyond; and last of all, the receptacle for the dung. The potatoe stores (*pyes* as they are called) should be at one end or point near the entrance, and water must be raised to the coppers and cisterns at once by a pump; a trough or other conveyance from the dairy to the cisterns, for milk, whey, &c. Such an arrangement will be very convenient, and the expense need not be very considerable. To annex a certain space of grass, or artificial grasses, in divisions, into which the hogs may be let at pleasure, is an addition of admirable use, if the spot permit it. Those who do not possess a pig-apparatus, can have little idea of the great use of it in making manure. This alone becomes an object that would justify any good farmer in going to a certain expense, for attaining so profitable a part of what ought to be his farm yard system. In nine-tenths of the farmeries in the kingdom, it is lamentable to see so many parts of a right piggery scattered and unconnected, in such a manner as to preclude convenience, increase labour, and prevent the making of dung."†

† In a hoggery, built by the author in 1765, nearly, but not exactly, on this idea, the expenses were as follow:—

	£.	s.	d.
The boiling-house - -	18	18	0
Copper - - -	13	0	0
Pond - - -	4	0	0
Pump - - -	1	10	0
Cifterns - - -	14	0	0
Shed - - -	6	15	0
Paling - - -	7	7	0
Paving - - -	10	0	0
Troughs - - -	3	0	0
Total, besides timber,	£.78	10	0

By means of one of these yards, he fattened 88 hogs in spring 1766 with only

" It is added that, " with such a convenience, all the peas, beans, barley, buck-wheat, potatoes, parsnips, carrots, &c. that are or can be raised on a farm, may be applied to the rearing, feeding, or fattening hogs; by which means the farmer has the opportunity of improving his land to the highest degree, and at the cheapest rate possible."

The sow is capable of propagating at seven or eight months old; but it is better to defer her taking the boar till ten or twelve months, as she becomes more strong, and affords better litters of pigs. The period of being with young in the sow is about four months; and the usual produce from about eight to ten or twelve in the large, and more in the smaller breeds, which in general bring the greatest number, and the most early. The boar should be a year old or more before he be put to the sows, as by this delay he attains a better growth, and is more vigorous.

As there is great difficulty and expense attending the rearing of young pigs in cold seasons, the farmer should contrive as much as possible to have his litters early in the spring and autumn seasons, as about the beginning of April and the latter end of August or beginning of the following month; as at these periods much less loss will be sustained in the death of the pigs, and less expense incurred in food. The litters which are pigged in June, or the early part of the following month, should always be reared as being highly profitable. But it is seldom adviseable to keep the late autumn litters, as the cold in the winter is almost sure to destroy many of them.

When swine are made an object to the farmer, great care should be taken to have a good boar constantly along with the sows, in order that a proper succession of young pigs may be produced. By this means the sows are likewise in-

one man to attend them; whereas three would not have been sufficient without such conveniences. They were littered with nine loads of straw and haulm, that cost £6. 18s; and this made 90 loads of very rich dung, valued by several farmers on the spot at 5s. a load.

	£.	s.	d.
Value of dung at that rate -	25	10	0
Straw, &c. - -	9	18	0
Profit in dung, -	£.16	12	0

But it is observed that they had not half the litter they ought, or they would have made £35 worth of manure, beyond doubt.

Ninety loads costing £6. 18s. is 1s. 6d. per load.

" These particulars, surely (says he) must prove the vast importance of such conveniencies for fattening great numbers of Swine, for the mere purpose of raising manure. Suppose the expense, timber included, to be £110, and the interest called £5, what comparison is there between the expense of £5 a-year, and the prodigious utility of having it always in your power to fatten, with scarce any expense of labour, whatever number of hogs you please?

" The total expense at present of such yards would not be less than £150; and if made conformably to the more correct idea, would be £200 or £250. But the governing idea of position should be followed in styes of £20.

duced to take the boar sooner than otherwise would be the case.

In the management of hogs it is of great consequence to keep the different sorts separate and distinct from each other, as the sows in pig, those with pigs, and the stores according to their ages. It is only in this way that they can be kept to the most advantage. At the time of pigging it is necessary also that each sow should be kept in a separate stye, in order that there may be no interruption or disturbance from the others coming about her. About this period, likewise, more than ordinary attention should be bestowed on the sows, and the styes kept but thinly littered, in order that accidents may be avoided.

As the breeding of pigs is a business that affords the farmer a considerable profit and advantage in various views, it is of essential importance that he be provided with suitable kinds of food in abundance for the support of the numerous sows that it will be necessary for him to keep, and the great number of pigs that must be raised. Upon this being properly and effectually done, his success and advantage will in a great measure depend. The crops capable of being cultivated with the most benefit in this intention, are beans, peas, barley, buck-wheat, potatoes, carrots, parsnips, Swedish turnips, cabbages, lettuces, clover, lucerne, chicory, &c. The proportions in which these crops should be grown for this purpose, must vary according to circumstances; as the kind of hogs, their extent, and the manner of disposing of them; but, whatever number may be kept, an equal proportion of root crops and those of the grass kind will be requisite, with about half as much of those of the farinaceous or grain kind as of those of the root sort; and a quantity of the luxuriant vegetable kind, fully in proportion to the number of hogs that are to be fed on such sorts of food.

In the supplying of the hogs with food, a distinction is likewise to be made according to the different kinds, in order that the most may be made of the food. The sows considerably advanced in pig, and those with pigs, should be fed in a better manner than the store pigs. The former should be supplied with good wash twice or oftener in the day, and have a sufficient allowance of cabbages, potatoes, carrots, or other similar vegetables, so as to keep them in good condition; which is shown by the gloss of their coats. The sows with pigs should be kept with their litters in separate styes, and be still better fed than those in pig. Where dairying is practised, the wash of that kind which has been preserved for the purpose, while the dairying was at the height, in brick cisterns, constructed for receiving it from the dairy, must be given them, with food of the root kind,

such as carrots, parsnips, potatoes, and cabbages, in as large proportions as they will consume them, in order that the pigs may be properly supported and kept in condition. But where the business of dairying is not carried on so as to provide wash of that sort, meal of some kind or other must be had recourse to for the making of wash, by mixing it with water, which, in the summer season, will be sufficient for their support; and in winter it must be blended with the different sorts of roots prepared by boiling, or, when for the young pigs, with oats and pea-soup*. With this soup and dairy-wash, where proper attention is bestowed, young pigs may be weaned and reared in the winter season even with profit and success. The pea-soup is an admirable article when given in this intention: it is prepared by boiling six pecks of peas in about sixty gallons of water, till they are well broken down and diffused in the fluid; it is then put into a tub or cistern for use. When dry food is given in combination with this, or of itself, Mr. Young advises oats, as being much better than any other sort of grain for young pigs, barley not answering nearly so well in this application. We have employed oats coarsely ground for young hogs with the best success, both in the form of wash with water and when made of a thicker consistence.

Where the sows and pigs can be supported with dairy-wash and roots in the manner just mentioned, there will be a considerable saving made by avoiding the use of barley-meal, pease, or bran and pollard. It is therefore highly disadvantageous to the farmer to have recourse to such substances in these circumstances.

There is another point to be particularly regarded in the management of sows and pigs, which is that of keeping them constantly well littered down with clean straw or some other similar article, as by this means they are kept perfectly clean and healthy, and at the same time a large quantity of manure is afforded.

In the practice of cultivating crops of various kinds purposely for the food and support of swine, the sows and store pigs will of course be supported during the winter season, as from the beginning of November to the middle or latter end of May, by the various roots that have been stored in this view, such as potatoes, carrots, parsnips, and Swedish turnips; also cabbages in their fresh state, in combination with the preserved dairy-wash, and other articles that have been noticed above. At the latter of the above periods the whole of the hogs in the yard should be looked over and sorted; such as have attained half or more of their growth being drawn and turned upon the clover, lucern, or chicory

* Young's Farmer's Calendar.

crops, where they should be kept till towards the latter end of September, the fences being kept in perfectly good order, and ponds and other places provided for the hogs to drink at. Under this management they are found to grow rapidly, the food in general agreeing well with them, and they are then taken up in excellent condition for being fattened. In this practice the important difference from the former method is in selecting the sufficiently-grown hogs from the sows that have pigs and the weaned pigs, and only leaving the latter to be fed with the dairy or other wash, with suitable green food, such as lettuces, cabbages, tares, &c. by which a much larger stock of breeding hogs may be kept.* The tares and cabbages may be used for the sows that have spring litters, and the lettuces for those that have autumn litters. In the cultivation of this plant in this intention, Mr. Young directs that the land should be well manured, and brought into a very fine clean state by being ploughed in the close of the year into ridges of a suitable size for the drill machine, being scuffled over in February and again in March; then well harrowed, which should be again repeated before drilling, which must now be performed in the proportion of from half an acre to an acre, according to the extent of hogs that are kept. The rows must be equidistant, at about one foot asunder; and in order to have a proper succession in these plants, more should be put in, in April or later. The crops must be kept constantly well weeded, and thinned in the rows by hand, to the distance of about nine or ten inches, as, if this be neglected the plants are drawn up weak and poor, never succeeding well. At the time they are six inches high, they should be horse-hoed with a scarifier or scuffler, with the hoe four or at most five inches in width.

These plants are of excellent use for sows and pigs, promoting the increase of milk in a great degree; they afford great assistance where the dairies are small, and in all cases tend to prevent the consumption of grain, which is of great importance in hog management. From the sweet and saccharine quality of the plant, the hogs are not only extremely fond of it, but it becomes highly nutritious. By these means the swine will be well supported and carried forward till the stubbles are cleared, when they may be turned upon them, and thus the whole year be provided for in these different ways.

But though this system of management is advantageous, that of soiling the hogs in their yards with green food, cut fresh in the way that has been already directed, is considered by Mr. Young, notwithstanding the increased ex-

* Young's Farmer's Calendar.

pense that attends it, and the waste of a certain portion of the food, as highly preferable on account of the vast store of manure that may be raised. But it cannot be attempted with propriety, unless the farmer be provided with abundance of some sort or other of materials for the purpose of litter, and substances of the peaty or earthy kinds for the purpose of covering the floors of the hog-yards, in order to absorb and prevent the waste of any portion of the liquid matters that may fall upon them. In this method of proceeding, clover, chicory, tares, and lucern, are the kinds of food that are most commonly employed; but there are others that may be brought in to their assistance when necessary, especially on the stronger sorts of land, such as beans eaten green, which afford a large quantity of food in proportion to the land they occupy, the whole stems being consumed; and cabbages may likewise be had recourse to for the summer as well as winter food of these animals. It is recommended by Mr. Young, that the yards of the hog-styes should have gates sufficiently large for bringing in carts loaded with the different articles of both food, floors, and litter, as well as for removing the manure that is made.

In this management, instead of a few sows only being kept, as was usual in combination with the dairy system, great numbers may be maintained, and a great many young pigs be raised. But in order to derive the greatest advantage from this system of hog-management, Mr. Young thinks it should as much as possible be so contrived that the sows only pig twice in the year, as has been mentioned above; as by this means there will "never be a long and expensive season for rearing the pigs before they are put to the staple food of clover or potatoes, &c. But this circumstance is much removed by the provision of crops raised expressly for swine."

In this scheme of keeping swine, the sales for lean hogs should, he observes, annually take place in October, the litters of April being then disposed of as stores, and those of August kept till the same period in the following year, in order to be sold as baconers, when none are fattened on the farm.

The expense of keeping all sorts of store-swine must obviously vary considerably, according to the convenience of procuring their food, and the excellence of the management that is pursued. In suckling-sows, it has been estimated upon the average, at from eighteen-pence to three shillings the week, and while in pig from one shilling to eighteen-pence; weaned pigs, at first, from one shilling and sixpence to two shillings and sixpence per head, and afterwards, till they are become fully grown, at from one to two shillings

each per week. Such calculations must, however, be liable to differ greatly in different cases.

The breeding of pigs is a system that deserves the farmer's attention, not only as obtaining his pig-stock at a much cheaper rate than by purchasing at the markets, but as being certain of having them more healthy and well fed, consequently such as will answer much better in their growth and fattening afterwards.

The fattening of hogs is a business usually performed at two different seasons of the year, as in October and in February or March: the former is, however, the most principal period. In this management various substances have been recommended; but those most commonly employed are some sort of farinaceous material, with skimmed milk, and dairy or other kinds of wash. For the smaller sorts of fattening hogs, coarsely ground oats mixed with these washes are excellent. Barley-meal and pollard are likewise frequently made use of for the purpose, with much success. The meals of pease and beans, when given in sufficient proportions for the purpose of fattening, are apt to heat them too much, and produce a difficulty of breathing; but for the large or full-grown hogs, pea-meal or pease unground are probably the best material that can be made use of. A portion of bean-meal, or whole beans, may likewise be given occasionally with advantage, as both these articles contain a much larger proportion of nutritious matter in the same bulk than any other sort of grain, and are more lasting in their effects on the system, from their undergoing the process of digestion more slowly, perhaps on account of their containing a larger proportion of oil in their composition.* Malted barley given whole has likewse been found highly beneficial in the fattening of hogs, the quantity of saccharine nutritious matter being thus greatly augmented.† Acorns in the same state have likewise been found to fatten hogs, but they cannot be depended on as a food for this use. Potatoes and carrots have also been occasionally tried in the same application; but as they never answer well without being boiled and combined with the meal of some sort of grain, it is a much better and more economical practice to convert them to the purpose of store feeding, and depend upon farinaceous substances for fattening. The various experiments of Mr. Boys of Kent, detailed in the twenty-ninth volume of the Annals of Agriculture, sufficiently show the disadvantage of this method. Even when the potatoes were boiled and blended with barley-meal, he sustained considerable loss in this mode of fattening. There is, however,

* Darwin's Phytologia. † Synopsis of Husbandry.

another method of fattening, which, in particular situations, may be practised with profit and success, which is that of employing the wash of large distilleries with grains and some sort of meal. In the first part of the fattening the grains and wash are given, and in the latter the meal.*

The quantity or weight of pork produced by a given quantity of pease, beans, meal, or other materials employed in the fattening of hogs, has not been well ascertained, and it is probable that a great deal will depend upon the size, breed, and disposition to fatten; but, judging from the value of the animals before and after they have been fattened, it is concluded by Mr. Knight, that a Winchester bushel of the first of the above articles may add about nine or ten pounds to the weight of a good hog of twenty score, or perhaps something more upon a larger, and considerably less on one of a small size.† A hog put up to fatten in good condition, (and they should never be put up in the contrary state,) which when fat will weigh twenty score, will consume in the proportion of six or seven bushels of pease.‡

In regard to the method of giving the different materials that are employed in the fattening of swine, there are different opinions entertained; some contending that they should be used as much as possible in a solid form, wash, as drink, being occasionally used; while others prefer the contrary method as the most beneficial: as in the latter mode there will be less time taken up by the hogs in feeding, and of course more left for them to sleep and rest in, as well as more economy in the food and labour of giving it, it is probably the most adviseable. It has indeed been observed by Mr. Young, in his excellent Calendar of Husbandry, that "the most profitable method of converting corn of any kind into food for hogs, is to grind it into meal, and mix this with water in cisterns, in the proportion of five bushels of meal to one hundred gallons of water, stirring it well several times a day for three weeks in cold weather, or for a fortnight in a warmer season, by which it will have fermented well and become acid; till which time it is not ready to give." This mixture should always "be stirred immediately before feeding," and "two or three cisterns should be kept fermenting in succession, that no necessity may occur of giving it not duly prepared. The difference in profit between feeding in this manner, and giving the grain whole or only ground, is so great, that whoever tries it once will not be apt to change it for the common methods." It is added, that "pea-soup is an excellent food for hogs, and may, though he has not sufficiently compared them, equal

* Annals of Agriculture, Vol. XXIII.

† Communications to the Board of Agriculture, Vol. II. ‡ Ibid.

the above, especially if given in winter, milk-warm." But wherever food is prepared by heat, the expenses of fuel and labour are a great drawback on the profits of the system. It should therefore be well considered before it is undertaken. But, in whatever way the food be given, great care should be taken that the hogs have a full allowance at sufficiently short intervals to keep them constantly in a state of rest, as it is on this principle that they become fat in an expeditious manner. It is a fact frequently observed in fattening hogs, that they pay better for their keep in the latter part of their fattening than in the former; which probably arises in some measure from their not being fed in a sufficiently full manner, or with sufficient frequency in the beginning, so as to keep them in a state of rest.

The length of time that is necessary in fattening these animals must vary much according to the state in which they are put up, their sizes, and the differences in their dispositions to fatten, but in general from five or six weeks to two or three months is sufficient.

In the time of fattening, it is likewise of great importance to keep the hogs clean and warm, by having them frequently well littered down, as by this means they not only fatten more quickly, but the most manure possible is raised. The advantage of warm sties, with warm food in cold weather, has been found very considerable.

It is the best method to have the pigs castrated while young. The male pigs are usually gelded at about three weeks old without danger, and the female ones may be cut or spayed when a month old; though, in the latter case, the operation is frequently performed at a much later period. The sows, when not wanted for the purpose of breeding, may also be spayed: this business is mostly done by persons who are in the constant practice of it.

It is absolutely necessary to keep all sorts of swine constantly well ringed, in order that they may lie quietly in the sties, and of course thrive better.

A great mistake seems to have been committed by farmers in the management of hogs, from the supposition that they can only be kept with profit in so far as they may consume the materials that would otherwise be wasted. There cannot, however, be any doubt but that swine will pay for their keep as well as any other sort of live stock, where a judicious system of cultivating crops purposely for them is pursued. This is fully shown by the various statements that have been made on the subject.

There are different ways of curing the flesh of hogs, according to the intention for which it is designed. When cured as bacon, it is the practice in Kent to singe off the

hairs, by making a straw fire round the hog, an operation which is termed *swaling*. "When the flitches are cut out, they should be rubbed effectually with a mixture of common salt and saltpetre, and afterwards laid in a trough, where they are to continue three weeks or a month, according to their size, keeping them frequently turned; and then, being taken out of the trough, are to be dried by a slack fire, which will take up an equal portion of time with the former; after which they are to be hanged up, or thrown upon a rack, there to remain till wanted."

In the making of bacon on the continent, it is frequently the custom to have closets contrived in the chimneys, for the purpose of drying and smoking them by the means of wood fires.*

Another method of curing this sort of meat is that of salting it down for pickled pork, which is far more profitable than bacon. After the hog is cleansed of the hair, and the head taken off, together with the legs and hands, and the necks, loins, and all the lean bones cut out, which will amount to nearly two thirds of the whole hog, the remaining part, which is the fat or prime pork, is to be cut into pieces of the size proportioned to the circumference of the salting-tub, and every piece rubbed on each side and on every part with common salt, having some beaten saltpetre sprinkled on each. The bottom of the tub should also be covered with salt, and when the pork is sufficiently powdered, the pieces laid in, with the rind upwards, and every one pressed down with all the strength that can be used, and wedged in so close as to leave no apparent chasms. Over this layer is to be spread a covering of salt, with a very slight sprinkling of saltpetre, as too much makes it hard. In about a month or five weeks the brine will begin to rise, and in a short time afterwards, cover the whole surface of the tub; but if, from a defect in the salt, it should fail to dissolve into brine within that period, it will be necessary to make a quantity of brine and pour over the pork; for unless the whole be covered with brine, it will not keep well. In adding the brine, care should be taken not to disturb the pieces of pork.

In the curing of hams in Westmoreland, the method pursued is this: They "are first rubbed very hard, generally with bay-salt; by some they are covered close up, by others they are left on a stone bench, to allow the brine to run off. At the end of five days they are again rubbed as hard as they were at first, with salt of the same sort, mixed with rather more than an ounce of saltpetre to a ham. Having lain about a week, either on a stone bench, or in hogsheads amongst the brine, they are hung up by some in the chim-

* Bradley on Husbandry and Gardening.

ney amidst the smoke, whether of peats or coals; by others, in places where no smoke ever reaches them. If not sold sooner, they are suffered to remain there till the weather becomes warm." They are then packed in hogsheads with straw or oatmeal seeds, and sent to the places of sale. It has been found by experiment that hams lose twenty per cent. of their weight in the curing.*

Swine are subject to a variety of diseases, but few of them have yet been sufficiently investigated to ascertain the proper means of cure. Much exposure to cold is liable to bring on affections of the lungs, by which the animals gradually decline and waste in flesh, having a frequent husky dry sort of cough. Warmth, with good keep of less dry and heating kinds, would seem to be the most advantageous method of removing such complaints.

When hogs become affected with the mange, care must be taken to separate them from the rest; and after being well washed in soap and water, they should be anointed with an ointment of the same kind as that recommended for the same disease in sheep. A little common sulphur should likewise be given in their food.

In the large lop-eared hogs the parts behind them are apt to crack and become sore in hot seasons; in these cases they should be anointed with a little saturnine ointment.

When the udders of the sows take on hard lymphatic swellings, which is sometimes the case, attempts may be made to remove them by the use of camphorated saturnine washes or ointments, care being taken to have the parts clean wiped before the pigs are admitted to suck. In such cases half a drachm of calomel may likewise be exhibited every second or third night for two or three nights.

ON THE BREED OF SHEEP, AND ON TITHES; IN ANSWER TO MR. BARTLEY.

To the Editor of the Agricultural Magazine.

SIR, *Dec.* 27, 1804.

AS my correspondence with Mr. Bartley will now, perhaps, be viewed by many of your readers, as considerably interesting, I lament that my want of knowledge and ability prevents my pursuing the subject under discussion, to the extent and in the manner I wish. But while these considerations are (to me) so many subjects of regret, I shall venture to follow him through his letter in your 64th Number, under an impression that some of your readers, who are better qualified for the task, will soon employ their pens in so important a cause.

Most heartily, Sir, do I agree with Mr. Bartley in his observations respecting a general Enclosure Bill; but, in

* Convicted report of Westmoreland.

passing, I cannot avoid asking *Agricola Meridionalis*, what he means by those obstructions he has, in your Magazine for July last, called *fees of office?* I followed him with much pleasure through his accurate description of our easy and simple mode of enclosing and dividing lands in this part of the kingdom, because I not only highly approve of that mode, but practically know its great utility; but when I came to what he has stated relative to *fees of office*, or, *certain emoluments*, or some such words as these, (I cannot at present see the Number which contains his remarks), I must confess, I did not thoroughly understand him.—Is it possible, in so enlightened a country as England, and in a cause of such high national importance, he can suppose that any thing like *fees of office* can operate as a bar to the passing of a general Enclosure Bill! or do I totally misconceive your correspondent's meaning?

With respect to tithes,——but here I must stop to offer to you, Sir, some sort of apology, for mentioning the latter *forbidden* subject, and it shall be shortly this,—that Mr. Bartley has broken the law upon it; that in Scotland, agriculturists, when speaking of the vast improvement of which this famous kingdom is capable, deeply deplore the *counteracting* power of that impolitic and odious system which sweeps away the tenth part of the labour and capital of their southern and western brethren, and that Scotchmen (thanks to the discernment and energy of their ancestors) are happily out of the pale of the *Jewish* church, and within that which is *Christian*, both with regard to doctrine and the mode of remunerating her ministers. I say, Mr. Editor, that on the subject of tithes, I agree with Mr. Bartley in but a few points,—that "they operate as a very considerable bar to expensive and permanent improvements in agriculture; that they should be commuted;" and "that the best mode of indemnifying the tithe-owners, would be to give them a certain proportion of the current rents."

Will Mr. Bartley seriously maintain, after the above admissions, that those who receive only one fifth, one sixth, or one seventh of the rents of our lands, (I mean the tithe-owners), should not be dictated to by the proprietors of these lands, and the community at large, with regard to a commutation which should give to the tithe-holders an equal annual income in a way which would greatly promote the improvement of our lands, and consequently our happiness and power. Supposing the owners of tithes averse to the above mode of commutation, or a better one, (if such could be devised), would it be right to allow their voice to prevail, and that a system should be continued,

which, on almost all hands, is acknowledged to be highly detrimental to the best interests of the country? Those who maintain the affirmative, must condemn the maxim upon which our legislators have, *in numerous instances*, acted,—namely, that private right should give way to the public good.

One of your correspondents (if I am not mistaken) stated, a few months ago, that our regulations in Scotland relative to tithes and enclosures, operated as a severe satire on those of England and Ireland; and I perfectly agree with him. Indeed, Sir, almost all our Scotish cultivators are astonished that such regulations should be continued in these countries, and some of them have supposed that it has been deemed proper to repress the agriculture of these parts of the kingdom, that their physical advantages might not attract a share of the already too scanty rural capital of Scotland, where the effects of an unpropitious climate are, in a great degree, counterbalanced by wise regulations.—A strange idea!

Mr. Bartley seems to have misunderstood what I stated as to the introduction of Spanish sheep into Northumberland. I did not say that the gentleman I alluded to had been induced, by the keen ridicule of the breeders of the new Leicesters, to abandon his intention, but merely that *I supposed* his anxiety to prevail on others to join him, proceeded from some fears as to these powerful "arrows." Whether they will really prevail, I cannot say; but he is certainly more in their way than Lord Somerville, who, I understand, has lately introduced them into the neighbourhood of Gallashiels—a part of the country enveloped with hills, and *hidden* from the keen eyes of the followers of Bakewell. Whether his lordship will be able to bring his sheep into the enclosed countries to the eastward, (Berwickshire and Northumberland), so much improved in form and aptitude to fatten, and with such an enormous profit on their backs (in their fine wool), as will enable him to face the keen arrows of the followers of the famous breeder of Dishley, time will determine.

I agree with your correspondent, that the spirit of improvement is not sufficiently great, and that we are too apt to think we have gained the *acme* of perfection.

What he has stated as to the perfect Hogarthean line of beauty, &c. is, no doubt, intended as *a set-off* against what I mentioned as to the heron necks and dromedary backs, &c. of the Spanish sheep. I must remark, however, that he has, in a considerable degree, admitted the truth of my statement, and that the correctness of his picture of the new Leicesters, will be disputed on good grounds, at least

by the *northern* breeders of this very valuable kind of sheep. If it will apply to those near Mr. Bartley's district, I can assure him it will not to those in the north, where their legs, necks, and ears, are long, fine, and beautiful, and their heads of a proper size, with fine prominent eyes.

I grant that when they were first introduced into the neighbouring county of Northumberland (by Messrs. Culley), they were short both in the legs and necks; but experience has proved that judicious selections did not only increase the length of their carcases, legs, and necks, but that they did not alter their form in other respects, or impair their valuable property of attaining early maturity.

The above eminent breeders, and many other followers of Bakewell in the adjoining counties, have lately asserted, that their sheep are now superior to any other, in any part of the kingdom; and their opinion seems to be corroborated by Mr. Bartley's comparing the form of the new Leicesters of the *south*, to that of a turtle or a toad. Now, Sir, as I should be extremely glad of assistance against my too able opponent, I must here beg leave to address a few lines to some southern breeders, and to tell them, that if the above remarks pass without animadversion, most assuredly many of their brethren in the eastern counties, and between Somersetshire and Scotland, will either introduce the flat sides and dromedary backs,* or send their money for rams into the north; for it is now almost universally admitted, that "sheep should stand well up in the pen."

Mr. Bartley says, that from his various communications to you, on Spanish sheep, seven conclusions, demonstrative of their superiority, may be drawn. (See page 336, No. 64.)

In answer to the first, however, it does not appear to me, that Spanish sheep will produce more wool per acre, than any species of British sheep; for, if I am not mistaken, their warmest advocates have not stated the average weight of the fleeces of Merino (washed) wool at more than about 3½lb., while it is well known that that of the new Leicesters is from 7lb. to 9lb. Now, as there can be no doubt but such land as will support his ten sheep per acre the year throughout, will support, *at least*, six of the Leicester breed,† it is obvious, that the latter will raise the greatest weight of wool per acre. I cannot avoid remarking, however, that unless the land was of a very productive kind, such enormous stocking would be rather dangerous with either species of sheep.

The second and third seems to have been better proved.

The fourth, as far as it respects the quality of the mutton for the use of the followers of *Epicurus*, I admit to be just;

* I mean not only the Spanish, but even the South Down breed of Sheep.

† Probably more.

though I believe it is inferior to that of a Cheviot or Forest wedder bred and fattened upon heath and aromatic herbs, the produce of pastures in a state of nature. For the superiority of the mutton of the new Leicesters, for *general consumption*, I beg leave to refer to my letter in your 63d Number. As to the aptitude of the Spanish sheep to fatten at an early period, What is it when compared with that of the Leicesters? Why, as one inch* is to five or six inches.

The fifth, I am inclined to dispute, for though the South Downs have a more close and impervious coat than the Cheviot and Forest sheep, yet in the pastoral district in Northumberland and Roxburghshire, the latter breeds have proved more hardy than the South Downs.

Part of the sixth, viz. That the fleeces of one million of sheep from the Merino breed, would supply our fine cloth manufacturers, I am not at present prepared to dispute. But it is inconsistent with the estimates of Mr. Arthur Young and others, that this number of sheep amounts to one twentieth of the flocks of this kingdom; which, I think, they have reckoned at thirty millions. Perhaps Mr. Bartley has not included Ireland: but why should we poor Scotch or Irish be excluded, in such cases? Was he conscious that the humidity of Ireland, or the cold of Scotland, was not congenial to the constitutions of Spanish (crossed) sheep? But, Sir, if we *suppose* that one million of these sheep, in England, would raise a sufficient quantity of wool for the manufacture of our finest cloth, we are *certain* they would displace an equal number of our own breed, and that, as we now manufacture all the wool of our own growth, besides one million of fleeces from Spain, annually, there would be a defalcation in the markets for our coarser wools, and, consequently, an advance of price, while that of the finest wool would decline. If we suppose the number of the finest fleeces increased to one million and a half, or two millions, is it not obvious that the price of such wool would decline *greatly*, while that of the coarser sorts would rise in proportion? And does not this prove what I before asserted, that, if Spanish sheep were to supplant our own breeds, as extensively and indiscriminately as their advocates have contended for, their wool, *the article for which they are thrusting them upon the public*, would sink so much in value, as to oblige us, *in our comparative estimates*, to calculate on data very different from those assumed by certain new-fangled breeders. Besides, these gentlemen should recollect that we are excelled by the French in the manufacture of the finest

* With so thin a coat of fat, Spanish mutton would neither make a sufficient quantity of broth, nor *glide* down the throats of the labouring class; nay it would absolutely *stick* in the dry and dusty throats of the pitmen and coal-heavers on the Tyne and the Wear.

cloth, while in the fabrication of the coarser articles, our workmen defy the world; that the Spaniards cannot afford to wear the cloth of their own wool; that it is with the produce of our coarser wools, we purchase so much of the gold and silver of Mexico and Peru; and, in fact, that these wools have contributed largely to make England "the Peru of the old world." If they will also take the trouble of investigating the state of America, and indeed of almost all those countries we supply with woollen goods, they will discover that the manufacture of the finest cloth may easily be overdone; while the demand for the coarser sorts has increased, is increasing, and in all probability will not be diminished.

Perhaps they will also discover that Great Britain and Ireland afford the best markets for our finest cloth; and that certain breeders are anxious to clothe their richest inhabitants from fine wool of British growth, at the risk of reducing the quantity of food for their most numerous class of inhabitants, the labourers and manufacturers.

The seventh militates against the established principles of our most experienced, successful, and eminent breeders. How could the weight of the fleeces of long-woolled sheep be increased by a cross with a ram of the Spanish breed, but by rendering the wool more close and thick? And is it not well known that the open-woolled sheep of the new Leicester breed, are the thinnest skinned, and much the most profitable feeders? The public utility of the cross, then, would be a matter of calculation as to the comparative importance of of food and raiment, or, as we say in Scotland, between the *back* and the *belly*. That the supply for the latter is of the most importance, will scarcely be disputed.

I have now, Sir, arrived at that part of the conduct of the advocates of Merino blood, which I deem the most liable to censure. What! and these gentlemen, in the extreme warmth of their zeal, not maintain the propriety of introducing one million, or more, of the finest-woolled sheep into Britain, without recommending the deterioration of the most valuable breed, for raising large supplies of human food, ever possessed by any country! without throwing us back to those "rough materials" from which the discriminating and active genius of Bakewell and his numerous followers has so happily delivered us! And this too in a country where the diffusion of wealth, prosperity, and liberal reward of labour, enable her inhabitants to live incomparably better than any other people on the face of the globe; and where the utmost exertions of rural managers cannot raise an adequate supply of provisions! Are the meritorious and beneficial exertions of so many eminent breeders (for upwards of half a century) in raising so great a supply of human food as that produced

by the new Leicester sheep, to be brought into disrepute, merely that we may be enabled to decorate our persons with the *finest cloth*, and to raise the wool for its manufacture in Britain?

We can import fine wool from Spain. Can we import *mutton*, that Britons would be satisfied with, from any country? I am really a little indignant at this conduct of the breeders of Spanish sheep. Could they not sound the praise of their favourite breed, without presuming to compare them with or attempting to deteriorate the new Leicesters?—a breed so admirably adapted to the circumstances of this country. Could they not thrust out some of our ugliest and least profitable short-woolled sheep, from our middling pastures? I say *middling pastures*, because it is obvious from the enormous stocking which they have found necessary *to preserve the fine quality of their wool*, that their purpose would hardly be answered on productive lands. That purpose, it appears, cannot be accomplished without putting their sheep upon short allowance; and here we again discover the false principle of sacrificing human food to fine coats.

It is this false principle, Sir, that has induced me to draw my pen against such a writer as Mr. Bartley; for I am apprehensive that the arguments, &c. of such able and ingenious advocates may tend to mislead many breeders of the new Leicesters; and when I take as comprehensive a view of the circumstances of this country as my information and abilities will admit, I see considerable danger in the sweeping and indiscriminate conclusions of several breeders of Spanish sheep: their good intentions, however, I do not doubt.

I am open to conviction; and what change may take place in my sentiments, it is impossible for me to determine: it is very improbable, however, while I continue in the occupation of the land I now possess, or any other of nearly similar quality, that I shall be induced to prefer the Merino to the new Leicester blood. Nevertheless, I thank Mr. Bartley for his offer of a Spanish ram: the three yards of cloth, however, at 20s. per yard, from a single fleece, conveys to me no precise idea of the value of the wool *to the farmer*; and I am equally uninformed after reading the letters of page 339 of your last Number; for, though the expences of manufacturing are stated at 7s. per yard, yet the profits of the wool merchants, staplers, &c. and the expence of carriage, are to be deducted from the price received by the growers; and, besides, the fifteen fleeces manufactured by Mr. Browne were, perhaps, picked out as uncommonly large. If we could obtain the value of our manufactured wool, after remu-

nerating the manufacturer, we would undoubtedly receive much more than we get from the wool buyers.

The cause of agriculture has certainly been well upheld by the abilities and exertions of Mr. Arthur Young. This, however, should not have been acknowledged by me if he had not been, generally, more judiciously and usefully employed, than in publishing the experiments mentioned by Mr. Bartley; the quoting of which, by so intelligent a man, I confess, astonished me; and had he not, in the succeeding page made a kind of apology, with some judicious remarks on experiments, I should have been inclined to animadvert pretty freely upon that part of his letter. *Many* experiments should be made, with the utmost impartiality, judgment, and accuracy, ere proper conclusions can be deduced. The number of each species of sheep should be very considerable. A *slight* internal disease in one species, may cause a result very different from that which would be obtained from animals under *precisely* similar circumstances. Hence the danger of drawing conclusions from experiments of *one* against *one*. I am not of opinion "that the extra size of an animal has but little influence in the extra consumption of food;" but that a large animal, if well formed, thin skinned, and small boned, will not consume so much, in proportion to its weight, as a smaller one with large bones, a thick skin, and an indifferent, or ugly shape. And, from my own experience, and the trials of others, I have not the smallest doubt but the new Leicesters will convert their food into more money, per ton, than any other kind of sheep; and that while the Merino's and other ill-formed sheep, produce bone to the extent of about one-twelfth of their weight, the Leicesters will produce that substance in no greater proportion than about one-twentieth to one twenty-second of theirs. They will also, beyond all doubt, produce a far greater proportion of fat, an excellent substitute for butter, *which now sells at fifteen pence per lb.* What a vast diminution of human food, then, would be the consequence of suffering a considerable proportion of these valuable sheep to be supplanted by a considerable number of Merino blood!

It appears that Mr. Young weighed the sheep, but not the food. What will accurate men think of such an experiment as this! It also appears that he considered it necessary to *pamper* with oil cake: but, Sir, if the foreign breed, or any other, will not produce a great quantity of fat without putting it into their mouths, *ready formed*, let us have nothing to do with them; let us continue to prefer the new Leicesters, which require no *pampering*, and produce the greatest quantity of fat and other human food, on the articles which nature designed for the support of our sheep, and which we

have in abundance, viz. grass and turnips. Neither cattle nor sheep should be bred in this country, that will not fatten, *completely*, in a short space of time, with these articles.

I agree with Mr. Bartley, that it is of great importance to know what species of animals will consume the least food in proportion to their weight, and convert a given quantity of it into the most money. If we are to judge, however, by the practice of the most intelligent and active farmers in the kingdom, by the conduct of the occupiers of our best managed districts, *where good husbandry is practised, and the properties of cattle and sheep best understood and attended to*, it will appear that this question is decided in favour of the new Leicester sheep; for in such districts, they have, upon all proper lands, displaced (by their superior merits) every other breed. Surely, Sir, Mr. Bartley will not say that these intelligent and attentive men would have given them the preference, without examination and comparison.

He has stated, in the 60th Number of your Magazine, that the late Duke of Bedford was a likely person to promote useful experiments: I am persuaded, however, that if that lamented nobleman had promoted any, with a view of deciding a question on which some breeders of short-woolled sheep have lately been rather noisy, he would not have pursued the mode of Mr. Billingsley and Mr. Young. Will you, or Mr. Bartley, be so obliging as to inform me why his Grace, and another distinguished and public-spirited breeder, Mr. Coke, did not bring forward any sheep of the *Merino blood* at their public shows?

I should be glad if Mr. B. would clearly state the data on which he would reason and calculate in determining the comparative merits of the new Leicester and Merino sheep.

I am, yours, &c. PASTORIUS.

P.S. There are some errors of the press in my paper, in your 63d Number.—It seems of consequence to rectify that at page 241, line 13 from the bottom, where *5 lb. per quarter*, should have been *15lb. per quarter in twelve years*.

OF THE LIVE STOCK OF SOME NORTHERN COUNTIES.

To the Editor of the Agricultural Magazine.

SIR, *Dec.* 24, 1804.

IF the subjects on which your correspondent H. H. (in your Magazine for October last) requests information from me, had not been pretty copiously treated in various Numbers of your work, I should have had much pleasure in complying with his wishes; though I apprehend my exertions would not have justified the opinion he has done me the honour to express.

In this district (Northumberland, Durham, Berwickshire, and Roxburghshire), the sheep chiefly bred are of the new Leicester and Cheviot kinds,—the former on the best and middling lands, and the latter on the pastoral tract or elevated grounds, which have never been subjected to the plough. In some of the most exposed, mountainous, and healthy pastures, the black-faced hairy-woolled, or forest sheep, have been introduced. Some of the South-Down have also been tried, in a few situations, both on the high, and the middling (improved) lands. As the hilly and mountainous pastures are very extensive, the flocks in the district are very numerous, and, of course, vast quantities of wool are produced, which are annually sold to the Yorkshire wool merchants.*

The cattle bred in this district are almost all of the short-horned, or Dutch breed. Great numbers of kyloes and middling-sized Scotch cattle (called runts) are annually bought by graziers aud other farmers in this quarter, principally in autumn.

Your correspondent may be more particularly informed as to the live-stock of this district, in the papers of your Berwickshire correspondent *Pastorius*. In the Critical Catalogue of your last Number, and in some of my papers of intelligence, as well as those in answer to *Agricola Meridionalis*, on the horse and ox question.

With respect to the diseases of sheep, an important subject, † I beg leave to refer L. L. to a long paper, extracted from the Agricultural Survey of the County of Tweedale, and inserted in your forty-seventh Number.

The author of that survey is the Rev. Mr. Findlater, of Newlands, in the above county ; a most able, zealous, and active friend to the great cause of agriculture, and a distinguished writer on rural and political economy. The paper I have just mentioned is the best I have seen on the diseases of sheep, and on their management in the southern parts of Scotland ‡; and I cannot sufficiently commend your taste in selecting it for the benefit of your readers. The diseases mentioned by Mr. Findlater, are as prevalent in this district, as in Tweedale ; and we have not been more successful either in their prevention or cure.

In several parts of this county, calves are subject to a rapid inflammatory disease, called the " quarter ill ;" and cattle of all ages, to the " dry murrain," and " red water,"

* In some years considerable quantities, especially of long wool, are purchased by buyers from Linlithgow, Aberdeen, and other parts of Scotland.

† It is the opinion of some authors, who have collected pretty extensive information, that the diseases of sheep cause an annual loss of three millions sterling in Great Britain.

‡ Which is much the same as in this part of the country.

or "bloody urine." The latter, if soon discovered, is considered as the least dangerous; but at present, the pressure of business prevents my communicating our modes of curing it, and those of treating the different diseases of calves.

I have suffered the loss of many cattle by the dry murrain: indeed, the efforts of all the cow-doctors (or, as you call them in the south, "Cow Leaches"), I employed, were so ineffectual, that I believe it would always prove fatal. A few years ago, however, after losing two steers in one winter, I determined to attempt the cure myself, and have been so fortunate as to succeed in two instances—the only attacks of the disease on my stock since that time.

In this disease, which proceeds from costiveness, the excrements soon become very hard. Their accumulation seems to be the cause of inflammation and fever; and, with a view of preventing the increase of these symptoms, I took away about three pints of blood from the neck, and then injected the following *glyster*:—

Thin gruel, three pints.
Tincture of senna and olive oil, of each half a gill.
Epsom salts, four ozs.—Mixed.

Immediately after, I gave a *drink* consisting of boiled turnips, gruel, butter, and castor oil.

In one case the animal was completely relieved within five or six hours, without a repetition of the medicines. In the other, however, they were repeated without success, till I administered the following laxative drink, instead of the boiled turnips, gruel, butter, and castor oil (still using the glyster):—

Cream of tartar, half an oz.
Carraway-seeds, half an oz.
And senna, one oz.; boiled together for ten minutes, in a pint of water.

After straining; four oz. of glauber salts, and one oz. of tincture of jalap, were added.

These medicines soon produced plentiful evacuations. Indeed, the discharge was so great, that I gave the animal considerable quantities of flour and water, boiled; which sufficiently checked it.

Cattle under this disease, should be kept moderately warm, and properly supplied with warm water and cordial mashes of bran, malt, &c. during its continuance, and for some days after. It is most prevalent among cattle which are fed entirely with straw, after wet harvests. I have found a small quantity of turnips, given daily with the fodder, a good preventive.

These remedies (except the boiled turnips, butter, and castor oil) are prescribed by Mr. Taplin for horses in cases

of cholic; and *perhaps* your correspondent *Veterinarius* will consider my success in using medicines for *oxen*, which were intended for *horses*, as not very favourable to his (Mr. T.'s) celebrity. I, however, think them powerful remedies in the diseases for which he has recommended them. *Probatum est.*

How far it may be proper to use medicines for cattle, which are prescribed for horses, I am quite unable to determine; but if *Veterinarius* is acquainted with the anatomy, &c. of both species of animals, it would probably be gratifying and useful to your readers if he would inform them in what cases his treatment of horses might be beneficially practised on cattle.

I am, Sir, yours, &c.
AGRICOLA NORTHUMBRIENSIS.

P.S. I intended to have offered some remarks, for your next Number, on *Chorographus*'s Paper on the Agriculture of Nottinghamshire; at present, however, I have not sufficient leisure. A. N.

ON SMUT, AND OTHER DEFECTS IN WHEAT.

To the Editor of the Agricultural Magazine.

SIR, *Dec.* 17, 1804.

I AM glad to observe, in your last Number, that Mr. Dowlen does not consider smut in wheat, and blight and mildew, as diseases proceeding from the same cause; for I have long been of opinion, that the confounding of these maladies has been the cause of many chaotic and inconclusive arguments. I cannot, however, think with him, that he has satisfactorily answered the objections stated by *Agricola Northumbriensis* and L. L. against the theory, *that smut proceeds from some impurity or infection in the seed.*—He says, "Can any man suppose that an equal quantity of this infected or impure seed is sown every year: perhaps, in some years, there is as much more of this impure seed as in others; and if there is as much more sown, why should there not be as much more reaped?"—Strong reasoning this!—Here is an argument in two propositions, and, unquestionably, if the first be granted, the other seems to follow of course. Let Mr. D. establish the first, and then he will have clinched his arguments against his opponents. But how can he establish the first with regard to last year?—a year remarkable, I think, for pure and clean wheat in almost every part of the kingdom. There would, as A. N. has stated, be as much pains taken, last year, in choosing and preparing seed, as in others, with the advantage of an excellent stock to choose from; yet "*smut is unusually prevalent*

this year." But, Sir, the points upon which I am most desirous of information from Mr. Dowlen, are these; and I am led to them by these words of his: "As to choosing, I believe no farmer can tell with any certainty, whether the seed will produce smut or not; but it is the general opinion amongst farmers, that wheat which has got smut-balls in it, will produce smut again; this I am confident is, generally, but not always, the case." Here follows an account of an experiment in which unprepared *clean* seed produced smut. Does Mr. Dowlen really mean to assert, that farmers should not be cautious in choosing clean seed, or excluding that which contains smut-balls, and that they cannot judge *from appearances* as to the probability of its producing pure grain? If the smut amongst the seed be not the cause of smut in the crops, to what are we to attribute that effect? Not, surely to the weather; or what would be the advantage of preparing seed? I have frequently seen *much* smut from clean seed; but then it was when the seed was not prepared, or improperly prepared.

Does Mr. Dowlen believe that there is some other matter besides the powder of smut-balls, in seed wheat, which is the *cause* of smutted crops?

I am, yours, &c.

ARATOR.

ON LEICESTER SHEEP.

To the Editor of the Agricultural Magazine.

SIR, *Jan.* 24, 1805.

IN my former communications to you on the subject of Merino Sheep, I have studiously avoided as much as possible to enter into comparison with any particular sort of our established breeds, confining myself chiefly to the consideration of wool alone, the which article I have abundant reason to conclude, with high profit to the breeder, and with infinite advantage to this country, may be produced, by extending the race of Merino sheep, in such sort as to supply the utmost demand of our *finest* cloth manufacturers.

But, in the course of the correspondence, it has happened, with the purest intentions it must be granted, that some of your other correspondents, digressing from the principal object, have agitated another question, about the merits of Merino sheep in point of carcase, or, which I take to be much about the same thing, the quantity of mutton they might be supposed capable of producing from any assigned quantity of food or pasturage; and it has also happened, fortunately perhaps, that in this discussion, the improved

Leicester breed has been brought forwardin a prominent point of view.

I say, fortunately perhaps *for this country*, inasmuch as the agitation of the question, *(in this instance collateral)*, it is hoped it may give rise to such a serious degree of attention as that actual experience may succeed to the indefinite and fanciful idea of form and construction, about which scarcely any two persons can precisely agree,—but it is agreed on all hands, that when an animal has acquired such a certain degree of fatness as to be *en embonpoint*, it is a handsome animal, handsome because the idea of profit seems to be connected with it. But even this idea is often fallacious.

Not long since I was in conversation with a well-known capital breeder in the West, who was proceeding to the last Smithfield meeting, with a prime ox amongst other things; and certainly it was what every one would term a most beautiful animal, so fat that he could not make his short stages, but with great difficulty. What was its fate at the meeting, or whether it ever arrived there, I am to learn. It came out in discourse, however, that this same ox had been pampered for the last three years in a fattening state, and I had curiosity to inquire the result of all this as to profit. The gentleman, smiling at the simplicity of the question, answered, No profit; on the contrary, the beef has cost me at least 2s. 6d. per lb.! But, magnificent exhibitions at periodical festivals are well enough! Leicester sheep are held by some persons to be of a perfectly profitable form. This is doubted by many others; but if it were so, has not their constitution been deteriorated by an excess of domestication? Hath not the artificial pampering of the progenitor with corn, oil cake, &c. produced any hurtful effect on the posterity, by inducing dainty, slothful, and indolent habits? Philosophers will answer; for myself, I profess not to be competent: but I know many *common farmers* in these parts, who reason in this manner, after the disappointments they have actually experienced by introducing Leicester sheep into their flocks, particularly with Southdown sheep, which, under similar circumstances of feed, have constantly evinced a most striking superiority in every point, more especially that they produce double the weight of rough fat, the Leicester falling back in condition the moment they are not to be supplied with a full bite of rich herbage.

I have to congratulate your correspondents, for that the important question of the comparative preference between large and small animals, is now proceeding to an issue, by such systematical and well-conducted experiments as doubt-

less will prove to be satisfactory and conclusive to the practical farmer.

It will also naturally flow from these experiments, that the relative profits of the most distinguished breeds of sheep will be fairly appreciated.

Bath, I remain, Sir, your obedient servant,
17 *Jan.* 1805. NEHEMIAH BARTLEY.

ON DOUBLE-FURROW PLOUGHS.

To the Editor of the Agricultural Magazine.

SIR, *Jan.* 15, 1805.

BEING in the occupation of a pretty extensive farm, and but a young farmer, I have shewn, amongst my neighbours and friends, considerable anxiety for information on the best modes of management in rustic business; and amongst other sources of information your Magazine was recommended to me; I have therefore taken it in regularly for many months past, and now acknowledge myself highly indebted to your intelligent correspondents, and am very glad that so useful a work is so well supported by correspondents, of experience and ability, in so many different parts of the kingdom.

The price of labour has now become so extremely high in many parts, that when we combine that circumstance with the great increase of rents and taxes, and the very high prices of iron, wood, and, in short, of every article of consumption upon a farm, it becomes more necessary than, perhaps, at any other period, for the cultivators of the soil, not only to discern the most advantageous modes of management, in the culture and stocking of their grounds, but to endeavour, as much as possible, to use those implements, &c. which, upon the whole, are cheapest and perform the most work, in a proper manner, in a given time.

With regard to the power which should be applied to ploughs, I have concluded, from the various arguments and calculations which have been advanced in your interesting Magazine, and from the practice of some able husbandmen, that, on almost all kinds of land, *two-horse ploughs*, driven by the holder with long and proper reins, are the most profitable. But with regard to the most proper implement, we are not so well informed; and indeed there exists so great a diversity of opinion and practice, with respect to the most advantageous kind of ploughs, that it is very difficult, without long practice and very accurate trials, to determine to which we ought to give the preference.

Some persevere in using strong, heavy, wheel ploughs, whilst others have exploded that practice and use none but the common, light, swing plough of the north; and I learn,

from information lately received from some travellers, that, in the west of England a plough has been invented with two "mold-boards," which lay over, in a proper manner, two furrows at once! Now, I consider this as a most important discovery, in any country, but more especially in Great-Britain, where the expense of all field-operations is so extremely great; and I should deem myself very much obliged to any of your intelligent correspondents who will have the goodness to transmit to you, for publication, an *ample* description of this powerful implement, together with the necessary observations, in *consequence of practice in the field, or information derived from proper sources*, respecting its real superiority in cultivating the soil, and the power required to draw it, *for a sufficient length of time.*

If the implement really answers the purpose intended—that of cultivating the soil as well as the common ploughs—I think its inventor, who, if I am not mistaken, was said to be Lord Somerville, should almost be put upon a level with the man exalted by Swift, where he says, "He that causes two blades of grass to grow where only one grew before, is, so far, a creator."

I should also be glad to be informed as to the expense of this plough, and to be furnished with an account of its duration, compared with that of other kinds; and also with the comparative advantages of wheeled, and the simple swing ploughs, by those who have tried each with exactness.

I observe that you have several intelligent friends in Norfolk, a county celebrated for good husbandry, and for raising vast quantities of barley; will any of these intelligent gentlemen be so obliging as to inform me, what is found, *from experience*, to be the best mode of cultivating that grain after turnips? that is, whether the land should receive one, two, or three ploughings, and within what space of time, in the spring; whether the seed should be committed to the ground in March or April, without any regard to the forwardness or lateness of the season; or whether that operation should be deferred till the foliation of certain trees, or till other marks are distinguished, of the weather being favourable to the vegetation of tender plants, a class in which barley is generally placed.

In consequence of the author of a late voluminous publication, (which I understand is considered, by many, as a very useful work), having asserted that land ploughed in the autumn was more exposed to the frost, and better pulverized and fertilized, *when harrowed*, than when left without the latter operation—this subject has of late been much agitated in my neighbourhood, as well as that of "ribbing," or half ploughing, fallow land in autumn. I understand that

the majority is against harrowing; and, for my own part, I am of opinion, that the operation is injurious at that season, as it *lessens* the surface exposed to the atmosphere, and the beneficial effects of frost. I also think that ribbing exposes a greater quantity of soil to the frost, than common ploughing; and it should be considered that it can be done at little, if any thing, more than half the expense. I should, with much pleasure, however, observe the remarks of your experienced readers, on these different modes of practice.

If you reckon this epistle worth a place in the Agricultural Magazine, I shall be obliged, by your inserting it as soon as you can with convenience, and, perhaps, I shall occasionally write to you on other subjects.

And am your humble servant,
A YOUNG FARMER.

ON THE CAUSE OF SMUT IN WHEAT.

To the Editor of the Agricultural Magazine.

SIR, *Dec. 26,* 1804.

I HOPE your correspondent, Mr. Dowlen, will not suppose that I am inclined to make an attempt against the progress of discovery. It seems to be his opinion, that impure seed is the cause of smut in wheat; and I have declared that I am more inclined to support that than any other hypothesis, which, as far as the opinion of an humble individual goes, is certainly in his favour.

Mr. Dowlen has said that his opinion is founded on experience gained in the field; and as it proceeds from that source, I think it is entitled to the greater respect. His confidence in his hypothesis is, no doubt, upheld by facts within the sphere of his own practice.

I can assure him that I, also, have paid great attention to the disease in question, not only in the field of practice, but in the writings of several scientific men of great experience, and accuracy of observation; and though I agree that it may be prevented, yet I have not been enabled to account for it in a way perfectly satisfactory to my own mind. *Facts* have presented themselves in the course of my investigations, which, I am not ashamed to acknowledge, suggested arguments against my hypothesis, too strong for my feeble powers of refutation. Part of these I mentioned in the letter you have inserted in your Magazine for October last, not with a view of injuring Mr. Dowlen, (for I highly approve of the practice of "pickling" seed wheat, and communicated an account of a comparative experiment in its support, without

in the smallest degree intending to insinuate any thing whatever against the utility of *his* mode,) but of bringing the question, as to the cause and prevention of smut, into discussion ; and of giving him or some of your other friends an opportunity of refuting those objections which appeared too strong for my own faculties.

How far he has succeeded, with your readers, in refuting those which seemed to arise from the greater prevalence of smut in one year than another, and which have occurred to your correspondent L. L. as well as myself, I cannot determine. I am sorry to say, however, that his arguments have not carried conviction to my mind. Whether that mind is overloaded with scepticism, is a question upon which I cannot probably form a just opinion ; I am, however, inclined to think, that in cases where *clear demonstrations* have not been brought forward, though circumstances may very strongly support the adoption of *opinion*, it is more prudent to *doubt* than to be *confident*. Many, many cases may be adduced to illustrate the truth of this position, and to shew the presumption and finite powers of man.

In Chemistry, a science connected with Agriculture, and many other important arts, the doctrine of phlogiston, *in which Staahl was long followed by all the philosophers of Europe*, has lately been completely overthrown by the experiments and discoveries of the celebrated Lavoisier, a philosopher, who suffered under the bloody and unjust axe of the French revolution, *whose doctrines are now embraced by almost all the philosophers of the present time*. The experiments and astonishing discoveries of Spallanzani and others, should also tend to diminish the presumption, and shake the confidence of man, in cases where nature has spread a more than ordinary *veil*.

In my endeavours to discover the cause of smut, I have attended to very minute circumstances ; and amongst others, have often examined with much care, all parts of the smutted ears. In a note in your 63d Number, I have stated that in some of those from the unprepared seed, as well as from that prepared in different modes, I found in some rows, a sound grain near the middle, and black balls both above and below it. This, also, I consider as rather adverse to the hypothesis which Mr. Dowlen and I have adopted. He has not, however, offered any remarks upon it.

Perhaps other *facts* might be advanced in opposition to that hypothesis. At present, however, I shall refrain from naming them, or from going into detail against Mr. Dowlen's arguments ; not only because I think there are already *facts* enough, unanswered, but because I could rather wish to see our principle established, than overthrown. For it appears

obvious, that upon the hypothesis "*that the cause of smut is in the seed,* the practice of "pickling" will seem most rational; and of the utility of that practice, I am convinced from long and accurate experience. And, besides, the grand *desideratum,* upon many farms, is not to be furnished with the means of tracing the smut to its *cause,* but with the most cheap, convenient, and effectual mode of prevention.

That a complete knowledge of the cause, however, might be considerably advantageous in the application of remedies, is very probable; and if a disposition is evinced by your correspondent, still farther to investigate that part of the subject, I shall view it with pleasure, and perhaps, take a part in the discussion, if I conceive I can be at all useful. It may be proper to observe, however, that before I can thoroughly understand and fully reply to some parts of Mr. Dowlen's letter in your Magazine for November last, it will be necessary for him to explain whether he thinks the seed which produces smut is injured by animalculæ, or in what other way.

I concur in his opinion, that in the experiment he has mentioned, it would have been difficult "for any practical farmer to make it appear how the blight was the cause of the smut." I am, Sir, yours, &c.

AGRICOLA NORTHUMBRIENSIS.

AN INQUIRY INTO THE CAUSE OF THE PRESENT LOW PRICE OF BARLEY.

To the Editor of the Agricultural Magazine.

SIR, *Jan.* 11, 1805.

FOR a considerable length of time I have read your Magazine with great attention, from which I have derived much very useful instruction and information. It is certainly a publication of much public and private utility; and I heartily wish it all manner of success.

I have for some time past observed with pleasure, that some of your correspondents have been labouring to prove that your work will be more extensively useful, by embracing the discussion of all circumstances and regulations which have a tendency to obstruct the most advantageous modes of cultivation and improvement, as well as details of practical husbandry; and in hopes that their arguments will prevail, I now beg leave to request the attention of your friends to a subject which I consider as important.

From the extreme low price of Barley, the produce of 1803, I conceived that the quantity cultivated last year, would be much below the usual proportion; and it would, of course, sell higher this season than any other kind of grain. I therefore sowed more than almost any of my neighbours. But, mark how I am disappointed; it is, in fact,

much below the proportionate prices of the other species of corn, and much duller in sale. From the information in your Magazine, however, as well as that obtained from people who have received accounts of the late harvest from many parts of the kingdom, I find I have been right with respect to the quantity cultivated. I am also informed that there seems to be as much ale and porter consumed as usual, and that the high price of wheat has led to modes of consuming barley which are but rarely pursued. Now, Sir, I could wish to be informed of the cause of the present state of the barley markets; and I hope some of your intelligent correspondents will endeavour to investigate it, and speedily inform you of the result for publication; that some mode may be recommended which will hold out sufficient encouragement for the cultivation of this species of grain. For it appears to me that the agriculture of this country will be much injured, if our artificial grass seeds are to be sown among oats, instead of barley; which most assuredly will be the consequence of the present disproportion of price and difficulty in selling the latter kind of grain. The evil will not be so severely felt on soils which are adapted to the growth of spring wheat, though even on these, in late and untoward springs, oats will be preferred to barley, which I believe is superior to all other grain for laying land to grass. That consideration, however, will not generally counterbalance the prospect of *immediate* profit. Yours, &c.

A FRIEND TO AGRICULTURE.

[We know not whether the respectable author of the following letter intended it for publication; but we hope he will pardon its insertion, as we very much wish to recommend to our friends upon such high authority the idea of assisting us to form such a glossary as he proposes.]

SIR, *Bath, Jan.* 25, 1805.

I Conceive that a glossary, to explain the provincial and local terms employed in the affairs of husbandry, so various and multifarious as they are, would be a very appropriate and useful appendage to your Publication.

I would willingly concur with your other correspondents in occasionally supplying you with materials, to be published in your Numbers as you receive them, partly for the purpose of information, and partly with a view to subsequent correction, amendment, and enlargement, in order to an ultimate alphabetical arrangement.

I remain, Sir, your obedient servant,

NEHEMIAH BARTLEY.

STATEMENT OF THE POPULATION WHICH A FARM OF 504 ACRES OF FERTILE LAND WILL MAINTAIN, WHEN UNDER A JUDICIOUS MODE OF CULTIVATION, THE INHABITANTS LIVING ENTIRELY ON VEGETABLE FOOD; AND THE NUMBERS WHICH CAN BE SUPPORTED ON ANIMAL FOOD BY THE PRODUCE OF A LIKE FARM WHEN IN PASTURE. By Mr. MACKIE.

WITH a view to ascertain this point with as much precision as the nature of the calculation will admit of, I called at the families of several labourers and mechanics in this place, who live entirely on vegetable food, to learn, if possible the exact amount of their consumption, which I knew, that, out of policy, they are always at pains to exaggerate. In the first house I entered, I luckily found the kettle full of potatoes, just ready to be put upon the fire, to be boiled for dinner; the family consisted of one man, his wife, and one child, a remarkable stout boy of eleven years of age. I was informed, they regularly dined and supped upon them every day, and that the quantity in the kettle served them for both the meals. I immediately weighed the potatoes in the kettle, and found that they amounted to nine pounds avoirdupois, and was informed that eight pounds of oatmeal served them for breakfast, in pottage, a week. The second family I entered was composed of three men, one woman, and six healthy children, three of whom were born at one birth: this family also dined and supped upon potatoes; the quantity they had prepared to dress for dinner weighed thirteen pounds, and I was informed it required near four pounds oatmeal each day for their breakfast. After examining the consumption of several families that had two meals of potatoes per day, I found, to my astonishment, that about 2 2-3 lbs. avoirdupois raw potatoes, and 5½ oz. good oatmeal, when made into pottage, did actually maintain, for one day, in good health and condition for labour, on an average, each individual of a family, composed of two parents and three children, as long as their stock of potatoes lasted. Having thus ascertained the length which potatoes and oatmeal will go as food, when a vegetable diet only is used, I shall proceed to calculate the quantum of population that the farm of 504 English statute acres, fertile land, well cultivated, will maintain, under the following mode of cropping:

PRODUCE AFTER DEDUCTING SEED.

No.	*lbs. potatoes*
I. 84 acres of potatoes, average produce of Lancashire 250 bushels per acre, at 90 lbs., deducting 18 bushels for seed, -	1,753,920
II. 84 acres wheat, at 30 bushels per	

acre, at 58 lbs. per bushel, deducting 3 lbs. per bushel rough bran, product 2520 bushels of meal, at 55 lbs. per bushel, - *lbs. meal,* 138,600

III. 84 acres pease and beans, at 24 bushels, 2016 bushels, one half eaten by the horses on the farm; one-half, 1008 bushels, at 40 lbs. meal per bushel, - 40,320

IV. 84 acres barley, at 36 bushels, 3024, at 46 lbs. meal per bushel, 139,104

lbs. bread,

Pounds meal, 318,024 or 397,530

V. 84 acres clover consumed by cattle.

VI. 84 acres oats, at 60 bushels, 5040 bushels, 13,444 pecks of oatmeal, at 8 lbs. per peck.

504 *acres,*	1,753,920 lbs. potatoes, at $1\frac{1}{3}$ lbs. per meal to each individual, - *Meals.*	1,312,940
26 *	397,530 lbs. bread, at $\frac{3}{4}$ lb. per meal to ditto, -	530,040
530 *acres,*	13,440 pecks oatmeal, at 24 meals per peck to do.	322,560

365 days, at 3 meals per day, 1095)2,165,540(1977

In this manner, 504 acres of fertile land, the garden ground not included, will maintain, when well cultivated, 1977 people old and young; and if the population of Great Britain amounts to nine millions, it would require only 2,412,746 fertile acres, well cultivated, to maintain them when living on the same portions of vegetable food as the common people do in Scotland.

I shall next proceed to inquire into the number of people which the same farm of 504 acres, in pasture, would maintain when living entirely on animal food.

This branch of rural economy, of determining the quantity of animal food which land will produce, although of considerable importance, has never been properly attended to. Mr. Young, indeed, has begun the investigation; but as yet it has been confined to ascertain the fattening quality of different animals and vegetables. Upon consulting several intelligent farmers, it seemed to be their opinion, that an acre of good grass might, in the season, increase the weight

* Garden Ground.

of the animals fed upon it twelve stone, at 14 lbs. to the stone; which, at 5s. per stone, would afford a good rent, and leave a handsome allowance for management and profit on the capital employed. Fixing, therefore, upon twelve stone as the quantum of animal food which an acre of our farm will produce; upon this data, the 504 acres will give 6048 stones, or 84,672 lbs. I have not been able to learn what proportion of weight the bones in the carcase of an ox bears to the flesh; but, allowing three quarters of a pound of bones and flesh, on an average, to a meal for each individual, at three meals per day, 84,672 lbs. will support an individual 37,632 days; or, in other words, the produce of the farm will support a population of 103 individuals throughout the year; dividing these into 20 families, and allowing one-fourth of an acre of garden ground to each family, it amounts in all to 509 acres. Upon calculating from these data, it will be found, that it would require 44,475,728 fertile acres, to maintain the population of Great Britain, each individual, upon an average, consuming 2½ lbs. of butcher-meat per day; but the same number of acres would support a population of 165,921,725 individuals of all ages, if the inhabitants lived on the same portions of vegetable food which at present subsist the common labourers in Scotland.

EXTRACT FROM THE APOLOGY MADE FOR THE DISTINCTION BETWIXT THE GREAT AND THE LITTLE MODE OF CULTIVATION, BY M. BUTREÉ, OF THE SOCIETIES OF AGRICULTURE OF PARIS AND ORLEANS.

I HAVE gone over a great part of the provinces of Touraine, Poitou, Limosin, Marche, Berry, Xantonge, Angoumois. I have measured most of the estates in those countries; I have drawn up memorials from the different provinces; I made accounts of the produce and the price for several years, and the result will appear from the following articles. It will no doubt appear extraordinary, that on all those estates which are cultivated by poor tenantry, without capital, there is almost no sum to be carried to account after paying the expences and taxes; that the King, very much to his disadvantage, is thus the sole proprietor of half the lands in his kingdom. The produce of these lands being scarcely sufficient to nourish those who cultivate them, can in a manner contribute nothing to the nourishment of the other classes in the kingdom. A bad season must of course afflict France with a famine that extends itself to all those who are employed in conducting this sorry species of cultivation; from which it follows, that with respect to the State at large, these lands are in a manner of no value, which authorises us to remark, that there is much more waste land in the kingdom than people think of.

ON THE TIME AND METHOD OF SOWING.

BY DR. DICKSON.

IN accomplishing these different operations, different modes are practised, according to the manner of preparation and the particular circumstances of the land. In respect to the first, or the periods of putting in the grass seeds; the most usual has been in the spring, at the time that the grain crops are sown: but where the ground has been brought to a suitable state of preparation by means of green or other fallows, the latter end of the summer, as about August, has been the more general season. In the former case they are commonly put in with the grain crops; but in the latter, without any other sort of crop. There has been much diversity of opinion among agricultural writers with regard to the superior utility of these different seasons of introducing the seeds, as well as with regardto their being sown with or without other sorts of crops. The advantages of the autumnal over those of the vernal sowings are contended to be: those of the grass plants being less exposed to danger from the shade, closeness, and choking that must necessarily occur at the latter season; there being less risk of stocking the ground with noxious weeds in case of the seeds of hay chambers being indiscriminately sown*; their being put in upon a better preparation and more mellow and fertile state of the land: their growth being more strong and vigorous, from their not being robbed of their proper nourishment by other exhausting crops, and the great superiority of the hay produce: while on the contrary it is maintained in support of the vernal sowings, that besides their being less precarious, shade is necessary in the early growth of the grass plants, to protect them from the effects of heat; the moisture is better preserved in the soil for their support; small annual weeds more effectually prevented from rising to injure them; and the loss the farmer must sustain from the want of the grain crop guarded against.†

But though some of the arguments urged on both sides of this controverted point may be objected to, the autumnal sowings not preventing the perennial weeds from rising and shedding their seeds in the following summer, nor the great closeness of grain crops being without injury to the growth of the young grass plants; there are facts that render it not improbable but that each method may have advantages under

* Close, in Communication to the Board, &c. Vol. III. It is remarked by this author, that "sowing rubbish in August is not of so great importance as in the spring. In the former season all the annual seeds vegetate; and if the beginning of the winter be mild, they will blossom; but they cannot perfect their seed, and the first frost destroys them. If sown in the spring, they vegetate, blossom, perfect and shed their seeds, and thus stock the land with noxious weeds. The facts he has stated must, he says, do away the objections to sowing rubbish. It is immaterial, he thinks, what you sow, if you do but obtain an abundant crop, and leave your land clean and in good order."

† Anderson's Essays, Vol. I.

particular circumstances. In the more southern districts, where the severity of the winter season is later in its approach, the autumnal season may frequently be made use of with advantage, after fallow crops, for sowing grass seeds, especially in cases where the lands are in too rich a condition for the successful growth of corn. But in the more northern parts of the kingdom, and exposed situations, where the frosts set in at an early period, it may be in general the most adviseable practice to put the seeds in, in the vernal months, with suitable crops of the grain kind. An intelligent writer of much experience has indeed observed, that grass seeds answer almost equally well in either method: he prefers the August sowing without corn, though the success of his trials in the different seasons has not justified any decisive conclusion.* It is even admitted that in moory and mountainous situations, where the snows come early, autumnal sowings are not adviseable, or to be performed later than the very early part of August; the vernal season with oats for being cut young for soiling, or hay, is constantly to be preferred. Mr. Dalton, in Yorkshire, after trying other methods, recommends the autumn without corn as the most adviseable. And the Rev. Mr. Close states that a "friend of his, wishing to procure a good meadow or pasture around his house, fallowed the land for barley; but the spring proving wet, and the soil being a strong loam, he could only put half of it in order for that crop, which was sown, and laid with clover and rye grass. The other part was fallowed, and sown in August with the sweepings of hay chambers. The barley was a good crop, and the clover and rye grass were probably equal to the first year's cut of hay. The second year the artificial grasses began to fail; worse the third, fourth, and fifth: the sixth year, after having received two dressings, the spontaneous product of the soil began to give a fleece over the surface of the land. About ten years after these lands were sown, Mr. Close saw this field, when the part sown in August was worth at least fifteen shillings per acre more than the part which had been sown with artificial grasses in the barley. Thus from actual experiments, numbers of which he could adduce, he concludes that sowing the sweepings of hay chambers in August is preferable to sowing artificial grasses in the spring with any crop of corn. "Suppose, (says he,) the corn worth five pounds per acre, the difference in the price of hay or seed in the second, third, fourth, and fifth years, would more than counterbalance this; and the proprietor would find a permanent improvement in his land of from fifteen shillings to twenty shillings per acre."

On comparative experiments being made with corn in the

* Rev. Mr. Young in Communications to the Board, &c. Vol. III.

spring months, and without it in August, the latter was found by much the best mode by different cultivators.*

But in the experiment of an accurate agricultor, mentioned by the Rev. Mr. Young,† in comparing different methods of vernal sowings, in which four acres were sown with seeds alone, on pease and buck-wheat ploughed in the preceding autumn; five acres with barley; and five more with the seeds put in alone without corn or manure: the portions sown alone were overrun with weeds, and only preserved from being smothered and destroyed by being eaten down by a dairy of cows.

Others, after repeatedly trying the experiment of sowing in the spring with corn, and the autumn without, and from long and extensive practice, conclude, "that, even if we were to have no regard to any other circumstance except the grass crop alone, it would always be best to sow it with some kind of grain; but when we consider likewise the loss that the farmer thus sustains for want of a crop of grain, the practice of sowing alone must be looked upon as highly pernicious to the farmer."‡

It is probably in this last respect that the greatest disadvantage of the practice consists, as without it the farmer can derive no immediate recompense for his great expense of tillage and preparation of the land.

Where the vernal sowing with other sorts of crops is had recourse to, barley is that which is the most usually recommended, and "there seems to be no question that barley is in general the fittest grain to be sown with grass-seeds. The same tilth which answers for the one is requisite for the other. Barley has a disposition to loosen the texture of the ground in which it grows; a circumstance highly favourable to the vegetation of grass-seeds, which require a free and open soil to extend their roots in; the tender and delicate fibres of which have much difficulty in contending with the resistance of a stubborn soil. And this points out the reason why grass-seeds so frequently fail on strong land not in a proper state of cultivation. In the choice of barley, that sort should be preferred which runs least to straw, and which is the soonest ripe." ‖ But as from the grassy nature of the stem, and the large size of the ear in this sort of grain, a considerable degree of closeness and shade must constantly be kept up, it should never be sown so thickly as in other cases where there are no grass-seeds. Some object to sowing grass-seeds with barley on other principles—as those of its drawing its nourishment from the surface, which is also the

* Mr. Lyester in Lincolnshire, and M. Burgoyne, Esq. in Annals of Argiculture Vol. XIX.

† Mr. Dixon of Belford. ‡ Anderson's Essays, Vol. I.

‖ Cartwright, in Communications to the Board, &c. Vol. III.

case with the grass-plants, and that in consequence they must be greatly retarded in their growth from the want of due support *. Where the land is in a proper state of preparation and tillage, if sown with oats, they will be apt to become so luxuriant as to greatly injure, if not wholly destroy, the young grass-plants by the closeness of their shade. † In some cases, they, however, succeed tolerably with this sort of crop. On the stronger kinds of land the sowing of grass-seeds has been found to answer well with thin crops of beans. In an experiment of this kind, Mr. Dalton found that the beans did not "rob, but sheltered and nourished" the grass-plants, the plan answering beyond his expectations.

The importance of having the surface mould in a fine state in order to the more regular distribution and more perfect vegetation of the grass-seeds, has been already noticed. But to effect these purposes in the most complete manner, the seedsman should be accustomed to the business, and the seeds, as being of different weights, as little mixed with each other as possible. It is much better to have more casts, than to blend the seeds together, for the sake of dispatch. For all the smaller sorts of seeds, it has been suggested as preferable to deliver them by means of the Norfolk turnip-trough, which has lately been adapted to clover and rye grass ‡. This operation should always be performed as soon after the land has been ploughed as possible, as under such circumstances the seeds vegetate in a much more quick and vigorous manner. But it should never be attempted in such a wet state of the land as produces any great degree of tenacity or adhesiveness in the mould, as in such circumstances the seeds would be apt to come up in a tufty unequal manner. Nor, for the same reasons, should the lighter sorts of grass-seeds ever be sown in windy weather; as the delivering them in an equal and regular manner is a point of consequence to the forming of good grass-land. In the covering in of the seeds, care should be taken that none are left in an exposed state on the surface of the ground, as when that is the case many of them will be destroyed or picked up by birds, and the sward appear patchy. This business is executed in the most complete manner by a pair of light short-tined harrows at one tining. The practice of employing bush harrows is improper, as in that way the seeds are liable to be drawn into lumps. In all the lighter and more spongy descriptions of land, it may be advantageous to pass a light roller over the surface immediately after the seeds have been well harrowed in.

In cases where the tenants and not the proprietors of the

* Dalton, in Communications to the Board, &c. Vol. III. † Close in ibid.
‡ Young in ibid.

lands are to lay them down to grass, it may be the most advisable practice for the latter to procure the seeds; but at the expence of the former, especially where they have a sufficient interest in such lands,—as, without this precaution, from their general propensity to keep the grounds under the plough, and their indifference in respect to the obtaining of the most proper sorts of seeds, there may be danger of the business being improperly performed.*

ON THE REARING OF CALVES.

By Dr. Dickson.

THIS is a practice that every farmer who is desirous of having a good cow stock should be careful in attending to, by selecting the best cow calves from such cows as are the most quiet, give the richest milk, are the most hardy, and most adapted to the comparative goodness of the farm,—and rearing them with every possible attention. There are different modes of conducting this business: but the most natural and convenient, as well as that which is most advantageous to the animals, is permitting them to suck for a sufficient length of time to get into perfect order before they are put to other food, as in this way they become much stronger, and more disposed to thrive, than where brought up from the first by the hand; and, besides, the trouble is infinitely less. The proper method would therefore seem to be, that of letting the calves be suckled twice or oftener a day for some length of time before they are weaned. But this is a practice that is not by any means general, different districts having particular methods, which they consider as the best.

In Yorkshire the usual method is, for the first two or three weeks, for them to get milk warm from the cow; but for the next two or three weeks, half the new milk is withdrawn, and skimmed milk substituted in its stead; and at the end of that period the new milk is wholly withdrawn; they are then fed on skimmed milk alone, or sometimes mixed with water, till they are able to support themselves by eating grass, or other food of that sort. They are very seldom allowed to suck. But in Cheshire the practice is to allow the calves to suck for the first three weeks. They are then fed on warm green whey, or scalded whey and butter-milk mixed: with the green whey water is frequently mixed, and either oatmeal or wheat and bean flour added. A quart of meal or flour is thought sufficient to mix with forty or fifty quarts of liquid. Oatmeal gruel and butter-

* Communications to the Board of Agriculture, var. loc. Vol. III

milk, with an addition of skimmed milk, are also used for the same purpose. Some one of these prepared kinds of food is given night and morning for a few weeks after the calves are put on that diet, but afterwards only once a day, till they are three months old or more. Calves in Gloucestershire are not allowed to suck above two or three days; they are then fed on skimmed milk, which is previously heated over the fire. When they arrive at such an age as to be able to eat a little, they are allowed split beans or oats and cut hay, and water is mixed with the milk. And the Sussex method is still materially different from any of these. It is common there to allow the calves either to suck for ten or twelve weeks, or to wean them at the end of three or four, and to give them a liberal allowance of skimmed milk for six or eight weeks longer. It is the custom in Suffolk to let the calves suck six or seven weeks, and then to give them coarse pollard and oats with skimmed milk and water, letting them have some nice green hay constantly till they are turned to grass. Carrots might likewise be used with advantage as a substitute for the oats. In Norfolk, with early calves, the method is for them to suck twice a day for a fortnight, then to have the pail twice a day for an equal length of time, afterwards once a day for a month or six weeks longer; cut hay, turnips, and sometimes other materials being put in the racks and mangers. The latter is an excellent food where they take well to it, as they require but little water with them. With this combination of milk and turnips the calves are generally found to thrive extremely well.

In Scotland they have two methods for rearing calves; the first is by giving them a pailful, containing about a gallon, of milk warm from the teat of the cow, morning and evening, for eight or ten weeks; and the second is to allow the calf to suck its dam.

Where calves are reared with skim-milk, it should be boiled, and suffered to stand until it cools to the temperature of that given by the cow, or a trifling degree more warm, and in that state be given to the calf. Milk is frequently given to calves when made warm only; but that method will not succeed so well as boiling it. If the milk be given over-cold, it is apt to cause the calf to *skit* or purge. When this is the case a little rennet may be put in the milk. If, on the contrary, the calf is bound, bacon or mutton broth is a very good and safe thing to put into the milk. From a gallon to a gallon and a half of milk per day will keep a calf well till it be thirteen weeks old. It may then be supported without milk, by giving it hay and a little wheat-bran once a day, with about a pint of oats.

The oats will be found of great service as soon as the calf is capable of eating them. The bran and oats should be given about mid-day: the milk in equal portions, at eight o'clock in the morning and four in the afternoon. But whatever hours are chosen to be set apart for feeding the calf, it is best to adhere to the particular times, as regularity is of more consequence than is commonly supposed. If calves go but an hour or two beyond their usual time of feeding, they find themselves uneasy, and pine for food. It is always to be understood, that calves reared in this manner are to be enticed to eat hay as early as possible; and the best way of doing this is to give them the sweetest hay that can be procured, and but a little at a time. Turnips or potatoes are very good food as soon as they can eat them; and they are best cut small and mixed with the hay, oats, bran, and other similar substances.

There is another mode that may sometimes be adopted, which is that of sacrificing the milk for the benefit of the calves, by letting one or more run with the cows in full milk till they are capable of providing for themselves; but this is a method that has been objected to, as not letting the cows take the bull; which is probably a mistake. The more rapid growth of the calves, and the great convenience of the method, are however greatly in its favour.

When the calf is suffered to suck the mother, it should have the first of the milk, the rest being afterwards milked. It will thus have the thinnest part, which is the least liable to injure it by producing a scouring. As calves are frequently subject to be affected with looseness from a sort of indigestion being produced in their stomachs, which, when it proceeds to any great length, is termed the *skit*; great care should be taken, especially where they suck stale milched cows, or when taken from sucking and put upon other food, to guard against this effect; which may in most cases be accomplished by not letting them have too much at once, and gradually accustoming them to the change. When this effect rises to the state of disease, the best remedy is probably that of boiling pounded chalk, in the proportion of half a pound or more to four quarts of water, adding a couple of ounces of the shavings of hartshorn, with a quarter of an ounce of bruised cassia, for a few minutes, and then straining off the liquid, which may be given with the milk or other food, suitably warm, to the quantity of from half a pint to a pint, once or twice a day, according to circumstances. In these cases the calves should always be kept dry and warm under shelter from wet. If other materials be necessary to be mixed with the milk, wheaten flour will probably be found the best.

ON THE ROT IN SHEEP,

BY MR. LAWRENCE.

Blood-rot, or Inflammation of the liver. In this disease the liver is bloated and inflamed, of a dark hue, but covered with a white film or membrane, the substance brittle, and full of white specks, like seeds, knots or schirri. Seldom much water. The yellows or ague sometimes terminate in abscess in the liver. Lambs will die suddenly of the blood-rot, others will be affected by it to a certain degree, and yet feed tolerably to the end of their time. Granting it could be distinguished, I know of no probable remedy but salt or salt marshes.

Catarrhal or Glanderous Rot. I have in diverse instances seen the clearest marked cases of glanders in sheep: the fœtid, purulent discharge from the nostrils, either one or both, the membrane excoriated, the wool parting easily from the body, the symptomatic dullness and indifference, and the "mourning of the chine." The disease terminates in atrophy, the animals die carrion, and the pelts are good for nothing. The old writers mention the snivel and glanders. Cause, as in horses, inveterate, repeated, and neglected cold, or sudden influenza. I know not that the disease is contagious in sheep, nor have I ever been able to obtain knowledge of a clearly ascertained case of glanders, caught by one horse of another, in the common course; nor can any notion be more groundless, than that the disease is most commonly so caught. Yet the extreme pungency of the putrid stench emitted seems to prove that its miasms must possess sufficient activity for infection; and veterinary experiments have long proved, that the disease is communicated by absorption. In sheep, the disease, taken in time, may be cured in a good warm dry straw-yard.—Nostrils to be well cleansed, and washed with soap and water which may be injected warm. Salt. If fever, sal-prunel. The comfortable things recommended for oxen in colds, in quantities properly reduced, namely, the dose to be generally one-eighth to one-quarter of the quantity given to oxen. Mashes. Kiln-dried peas, &c.

Pelt-Rot. This malady is the consequence of the animal lying about wet commons, copses or woods, in a starving condition, its wretched fleece always soaked with water, which, from low-spirited and sluggish poverty, it is unable to shake or dry. Sheep in the last stage of this misery, are fit for nothing, but to have their throats cut, and their car-

cases thrown on the dung-hill. When taken in time, drive them to a good straw-yard (the general and the best winter resort in all such cases), pull off the ragged wool, and give them an artificial coat, well rubbed in, of tar, turpentine, and grease. Good straw-yard physic, viz. the best and heartiest keep.

Hunger-Rot, ditto, ditto, premising, if needful, pollard-marshes, cordial-ball, veterinary balsam, &c.

Foot-Rot. Its general cause is the wetness and poachiness of the soil, with the common exception of salt marshes, where sheep seldom have the foot-rot. Much travel backward and forward to fold, or by suckling ewes from the hot dung of a sheep-house, will occasion it. Some suppose it occasionally originates in the same cause which brings chilblains in the human feet. Dr. Wilkinson, of Enfield Chace, whose authority from practice stands very high, considers moisture as the predisposing cause, and has found the disease to be produced from the sheep continuing in long grass, during a mild winter. With respect to its being contagious, without denying the possibility, I must say, that I have never seen the probability of it. The same cause generally, although perhaps gradually, operates upon the whole flock, and then it is quite in order, for the lookers-on to suppose they catch it one of another. Prevent on suspected grounds, by constant examination, and rubbing-in well, between the claws, oil of turpentine and common brandy, shook up in a bottle. The disease confirmed, cleanse the foot from dirt, and the discharge, and pare away the decayed and infected parts, using the milder caustics first. It may be necessary to apply pledgets, and bind up the foot, keeping the sheep in a dry place. See foul of the foot in cows. The pain of the foot-rot stops all thriving. Heavy sheep, I believe, are most liable to it.

Very opportunely, I have this instant, the honour of a communication from Lord Somerville, on the subject. His lordship having read, in some late work, that the Merino-Ryeland breed of sheep is incurably subject to this malady, states, that part of his pasture-land in the West, was peculiarly apt to produce the disease, and that his father's long-woolled sheep always suffered heavily from it; that his own Merino and Ryeland sheep were in some degree affected, but that the disease was entirely prevented or rooted out by a careful selection in autumn, by paring the hoofs of those whichbegan to be affected, and by the use of "*styptics not too corrosive.*" The disease has long since entirely ceased in Lord Somerville's flock of fine-woolled sheep; nor are any sheep in the kingdom more sound in the feet than his Merinos and Ryelands.

CRITICAL CATALOGUE.

1. *A General Treatise on Cattle,—the Ox, the Sheep, and the Swine. Comprehending their Breeding, Management, and Diseases. Dedicated to the Right Hon. Lord Somerville.* By John Lawrence, &c. London. Symonds, Paternoster-Row, 1805. 8vo. 648 pages.

MR. Lawrence, the author of this work, has, by former publications, made his name scarce less eminent than those of Marshall and of Young, in the literature of agriculture and rural economy. His "Treatise upon Horses," his "Modern Land Steward," his "New Farmer's Calendar," are, on their respective subjects, perhaps the most convenient and satisfactory books which we possess in the English language. He is neither a mere shepherd and plowman, nor a mere book-maker. The man of letters and the practical farmer are, as we should judge, happily united in his character. His books have met the favourable reception which they deserved. They are in the hands of almost every farmer. And, we doubt not, but public curiosity must have been very generally and highly excited, when the publication of a new work, by the same respectable author, on the interesting subject of Cattle, was first announced.

We have taken up his book with eagerness: we have read it with care. As the title expresses, the Ox, the Sheep, and the Hog,—in their species and varieties known to the rural economy of this country,—in our modes of rearing, feeding, and fattening them,—in their health and diseases,—in the means, by which alone, they can be brought with full advantage into the market,—are skilfully and diligently treated of, in it.

1. In his account of the ox or neat cattle, where he assumes the task of the philosophical naturalist, we cannot perceive that Mr. Lawrence writes with great learning or skill. But, when he comes to speak of our British economy in regard to the ox, his proper character and talents immediately break out into advantageous display. He teaches in a manner well adapted to engage the favour of those to whom he writes—by intermingling pointed anecdotes with shrewd unaffected common-sense observations. Take the following specimen, which is certainly nothing the worse for the ample extract involved in it from a valuable paper by Lord Somerville.

"*The original or established Species or Breeds of Cattle, in Britain, with their permanent varieties, as they are found in the beginning of the Nineteenth Century.*

"The Devons. From these have derived the Hereford, old Glocester reds, and Sussex.

"The Kentish homebreds.

"The Welch mountain and lowland cattle.—Isle of Anglesey.

"The Lancashire, or North Western, and Midland County long horns.

"The Shropshire wide horns.

"The Northern short horns, or Teeswater, Lincoln, Holderness, or Yorkshire short horns.

" The Northern half long horns. The polled.
" The Norfolk homebreds, Suffolk duns.
" The Scotish Iisand, mountain and lowland cattle.
" The wild cattle of England.
" The Alderney and Irish cattle.

" The celebrated red cattle of Devonshire are thus described in the 'Annals of Agriculture,' No. 172, by Lord Somerville, an exquisite judge, and a native and resident of the county in which these cattle are bred. His Lordship first observes, that 'to describe the breed, not as they might be, in imaginary individuals, but as they really are found, it may in general be observed, speaking of this, as of all other breeds, that conclusions must not be drawn from the shape and size of the bulls, but from the general quality of their stock. Certain it is, that, individually, handsomer bulls are often to be found in other breeds; and it is as certain that this race, of which the *whole produce* is brought to view, stands the confessed favourite, or among the very first, at Smithfield, where prejudice cannot find the way. And in forming an estimate of merit or demerit, the annual produce is to be the object attended to; this in oxen, which for superiority of grain, activity in labour beyond all competition, and what in horses is termed blood, will be found a right criterion to judge of the bulls which got them.'

'Beginning with the *shape of the bull*, in any very handsome individual, the horn is found neither drooping too low, nor rising too high, nor with points inverted, called here *stag-headed;* tapering at the points, and not too thick, or *goary*, at the roots; the colour yellow, or waxy. The eye clear, bright, and prominent; looking well behind, and showing much of the white:—a dead-eyed ox not often a good prover, or fine in skin:—an occasional variation of colour round it. Forehead flat, indented and small:—this found almost universally in this breed, and is a point that shows much blood. Cheek small, and muzzle fine:—if the forehead is fine, the muzzle is so too. The nose of a clear yellow, if possible like the horn, or mottled:—a black nose always to be avoided; for although occasionally a black-nosed ox may bear work, and die well, yet it is a point often demonstrative of a bad constitution, of such as turn scourers, or *skinters* provincially, and particularly when the cast of the coat is of too pale a colour. The nostril high and open. In respect of throat, the bulls of this breed are sometimes reproached with being *throaty*, or with the skin too profuse and pendulous. The hair curled, giving an apparent coarseness to the head, not to be found in the New Leicester bulls, when carefully trimmed with scissars. The neck perhaps thick, and *goary*, in the estimation of strangers, with which property the oxen of this breed are not to be reproached, or they would not labour as they do.

'Generally speaking, the bulls are, relatively to oxen, not of a large size; and it should be observed, respecting size in general, that nature operating in food and climate, is imperious, and will produce oxen proportioned to those two circumstances in due course of time, whatever may have been originally the size of the bulls and cows.

'Here end the points wherein there is any essential difference between the bull and the ox; the variation in others is small and unessential: a remark which is, however, subject to limitation: for individual instances will occur, which, if too much attended to, would seem to establish a different rule.

'The neatness of form, and energy and vigour in labour, greatly, if not wholly, in this breed, arose from breeding by heifers, and year-old and two-year-old bulls. Although an old ewe may produce a finer lamb than a younger one, yet the quality of vigour is unnecessary and extraneous to sheep. This is a prejudice deeply rooted in the minds of all practical men; although much, in the estimation of some, may be given to climate.

'Compared with the horse, the shoulder is low. It should correspond with the general thickness of the animal--on no account projecting. If a bullock is *in-kneed*, or bending inwards towards each other, the point of the toe must be out; the point of his shoulder must be the same; and he must be hollow behind the withers, (an incorrigible point in an ox for feeding,) and he must be, of necessity, a slow worker.

'The bosom is not sharp, with a loose, pendulous dewlap; but wide in form, and mellow in handling. In buying an ox, great notice should be taken of the breadth of the bosom, and between the fore-legs, standing quite wide, the legs like straight pillars supporting a great burden. Much in buying is lost or gained by attention to this point: it is not for symmetry only, but implies strength and speed; a proportionate breadth of breast giving wind; and here we find the application to a working ox.

'The legs are straight; and the more blood an ox shews, the smaller will they be. The circumstance of this breed shewing more blood than any other in the kingdom, has been remarked by many persons ignorant of cattle, but deeply skilled in horses. The leg neither too long nor too short; an undue length is to be avoided.

'Very much of a bullock's proof is admitted, on all hands, to depend on the size of the rib, rotundity of the barrel, and mellowness of the skin. These are the first points to handle, in a lean and in a fat ox. The two hind ribs should be bold, prominent, and widely independent of each other. The skin rising easily from the ribs, mellow, and *elastic*, affording room to lay fat on below it. A man buying a lean ox would do well to handle him on both sides; it often happens, that the frame or barrel is not equally round on both; one evidently to the eye and hand flatter than the other.

'The hips, or pins, lie so high as to be on a level with the back, either in a fat or lean state; by no means dropping. The older the animal, the lower the upper flank drops, and, consequently, the higher the hips appear. In this point of the upper flank, a skilful judge will discover much of the inward properties of a fat bullock. The hind-quarters from the pin to the catch, or point of the rump, should be long and well filled up: handling the centre of this space, is a leading feature in the estimation of choice judges, and ascertains more of the substantial quality of the flesh and fat of a

beast than the prominence of fat so much admired by bad judges on the catch of the rump.

'The setting-on of the tail is on a level with the back, somewhat elevated, nothing depressed: size long, small, taper, and with a round bunch of hair at the bottom; the tail, as in a horse, denoting much of high blood.

'The gaskins are not too much cut away, nor, as in the Holderness breed, heavy and loaded; bearing always in mind, that these oxen are not bred for inactivity, but for wind, vigour, and strength: for, although a breadth in the bosom, inasmuch as it is essential to wind, in a working animal, is beneficial; yet a load of flesh on this hind part tends nothing to activity; and, being of second-rate quality, is not desirable for profit.

'In point of skin, they are among the thinner classes, rather than the thicker. It is very rarely that an ox is found with a hard or wiry skin. Much depends on colour: the shades most admired are the mahogany; and the more glossy silkiness, if smooth, the better. Those with curled hair are deemed excellent provers, and a very glossy mahogany skin, paler or lighter, with curls like ripples of wind on a smooth mill-pond, is also in the highest estimation. It is hard to say which of these is the best; all turning out such numbers of good fat oxen. The paler shades, if the eye is clear and good, will bear hard work, and prove as well as any. This rule only is absolute, that a pale skin, hard under hand, with a dark and dead eye, too often denote a *skinter* in hard work, and rarely, under any indulgence, a good prover.

'Respecting the lower flank, and the cod, they do not deserve that attention which many persons pay them, who consider these points of prime importance.

'The graziers like this breed best at five years old. The worked-out steers of the vale sell for more, at five years, than at six: but six is the proper age. At eight, nine, and ten, they are going back in all their points; and in their value after seven. No ox should be kept after seven, or, at most, after eight.'

"I have already made a copious extract from this admirable memoir, written so much *con amore*, by the noble and patriotic West countryman. I yet leave it with regret, referring the curious reader to the original. The following generals, however, must not be omitted.

'They (the red cattle) are yoked at two or three years old, and lightly worked—labour increased at four; from that period to six, full worked.—Worked oxen attain a larger size than unworked, finish their growth generally at six years old, but the larger size grow the longest. According to Lord Somerville's own practical experience, the pole and yoke form the true lever of an ox, and he can draw a greater weight, in yoke, than in collar or harness, particularly in a steep country.—The bullocks never come home in the middle of the day; a bundle of hay is carted into the field—all the calves of this breed reared.

'These oxen are not parted with by the tillage farmers until the barley-sowing is over, and in many cases the turnip-ground once

stirred, yet they are grazed fat, in six or eight months, to the average weight of forty-five score: those kept on after Christmas, fattened on hay alone, which in the grazing districts of the west is held equally nutritious with any sort of corn—oil-cake feeding not practised—these hay-fed oxen stand the drift to London, without waste. Instances of Marshfeeding-heifers bought in April or May, quite poor, fit for the butcher by the middle of July; in August, uncommonly fine beef.

"The station of this breed begins at Barnstaple, and is traced by pursuing the line of the river Taw, as high as Chumleigh, then to Tiverton on the Ex, Wellington, and nearly to Taunton. Then turning north, straight to the sea, over the eastern boundary of the Quantoc hills, to Stoke Courcy; from which place on the eastern extremity, to the mouth of the Barnstaple river on the western, includes the whole to the length of forty-five miles, and to the breadth, across from Tiverton to Minehead, of twenty-two. To the east of this range, the breed gets into a mixture of Gloucester, Welsh, Upper Somerset, &c. being a varied dairy sample: and, more to the west, a Devon, verging on the principle of the Cornish stock. To the south, the variety of the south hams is found—coarse, with a good deal of white and brown, with black and white mixtures, of uncertain properties. Exmoor is the highest point of the district thus defined, the country shelving from it in every direction, the source of all the rivers, and the head-quarters of all the cattle. At Bampton and Wyveliscomb, they are found in great perfection.

"Fairs for the red cattle—Ashbrittle, (between the two counties, Devon and Somerset) Feb. 25, for oxen.—Bishops Lydiard, March 25, for ditto.—Barnstaple, Friday before 21—The great monthly markets of Taunton, Wyveliscomb, Tiverton, and Moulton, until the fairs of Crediton, May 11.—West Bagborough, the 12th.—Wyveliscomb, the 13th.—North Moulton, third Tuesday after May 11.—Bampton, Whit-Tuesday.—South Moulton, Wednesday before June 22."

"I have paid the greater attention to this race of cattle, in justice to their superior and well-grounded claims of antiquity, purity of blood, high form, and extensive utility. The red cattle of North Devon and Somerset are doubtless one of our original breeds, and one of those which has preserved most of its primitive form: the excellence of this form for labour is best proved, by the fact, that the fashionable substitution of horses has made no progress in the district of these cattle; by their high repute as feeders, and for the superior excellence of their beef, which has been acknowledged for ages. Robert Blackwell paid them the highest compliment they could possibly receive, by declaring to an inquirer, that the Devons could not be improved by any alien cross.

"In my opinion, the purest Devons frequently run to too great length of leg, crooked behind, or sickle-hammed, and of insufficient general substance. They are also, I think, more apt to be *in-kneed*, that is, crooked in the fore-legs; a defect analogous to

that styled sickle hammed in the hinder legs, or, as we say of the human animal, knock-kneed, than any other reputed race. A demonstration of inveterate negligence in respect of the form of the breeding animals, but which, by the old school, would have been attributed to a defect of crossing the breed. By a proper selection from their own stock, they might be bred somewhat more square and substantial, without at all detracting from their delicacy, show of blood, or speed. Their labouring powers might be thus increased, and their quantity of beef, without either debasing its fine qualities, or rendering necessary a larger portion of keep. These cattle have generally, for a century past, commanded the best price at Smithfield; but of late years the buyers there have shrewly remarked, that although blood and fine form are very pleasing to the eye of the gentleman breeder, yet substance and weight are, and ever must be, the grand objects at market.

The Devons are the speediest working oxen in England, and will trot well in harness; in point of strength, they stand in the fourth or fifth class. They have a greater resemblance to deer than any other breed of neat cattle. They are rather *wide*, than *middle-horned*, as they are sometimes called; some, however, have regular middle horns, that is, neither short nor long, turned upward and backward at the points. As milkers, they are so far inferior to both the long and short horns, namely, both in quantity and quality of milk, that they are certainly no objects for the regular dairy, however pleasing and convenient they may be in the private family way. Yet they have been formerly used with success at Epping, in Essex, in one or two instances; as a balance to which, they are universally rejected by the dairies of their own and the neighbouring counties. It is, however, rather an anomaly, that they do not produce greater quantities of milk, considering their form, the thinness of their skin, and the meagre and milky appearance of many of their heifers; this is doubtless owing to their property of their quick feeding. I must, however, take it for granted, that the South Devons, which, from known facts, as well as from appearance, have been so much crossed with Norman and Alderney stock, have considerable milking properties, of which I recommend the trial. Zealous as I have ever been for that which we call blood, both in the stable and in the ox-stall, it is now too late for me to regard the whims and vagaries of my boyish days. I have long since given up the idea of the general use of bred hackneys, and have learned, that the substantial is, at least, an equal requisite with the delicate, in an ox. Nothing surely could be more preposterous in speculation, than the idea of crossing Devon cattle, already sufficiently fine, with the Indian zebu; unless indeed with the view of raising a breed for carrying burthens, or for the saddle, in which case it is probable that the introduction of the bison would be a more effectual step. I have yet seen Devon heifers apparently having Indian blood, squarer in form, and shorter legged, than the pure Devons, and equally well laden with flesh. Impartiality demands of me this avowal.

Mr. Young, in his last western tour, tells us of a breed of *natt*, or polled Devons, in the neighbourhood of Barnstaple. The op-

portunity did not occur to me of viewing these cattle whilst I was in the west; but, on inquiry, they were described to me as coloured, middle-sized, thick-set, and apt to make fat, but coarser than the true-bred Devons. If they have sufficient speed to be valuable for labour, there is certainly a convenience in the natural exemption from the incumbrance of horns.

The best-bred North Devons, being a hill cattle, are much more hardy, and better winterers, than could reasonably be predicated of their appearance. To indulge a curious conjecture, which I acknowledge is not of one farthing consequence, at present, true or false—after all, this famous race may be a permanent variety growing out of an original stock of black cattle of close affinity to the Welsh mountain, crossed and rendered fine, through a series of ages, by Norman or Alderney bulls, or the descendants of such, easily communicating with the hill country from the Devonshire coast. The proud swelling crest is a characteristic of the Norman bull, and, perhaps, generally of southern stock.

The Herefordshire cattle are correctly described by Mr. L. as remarkable for the large proportion of their beef to their general bulk, for their quickness of growth, for magnitude of size, and for their union of strength and speed in labour. They do not commonly yield any uncommon abundance of milk.

The Old Glocestershire reds and browns were of Welch origin, apt to fatten, not abundant in milk. This variety is, by crosses, now almost extinct.

The Sussex are flat and deep, red or brown in colour, wide or middle horned—the horns pointed upward and backward, of various sizes, in very high estimation for beef and labour, in milk not very abundant.

The Kentish home-breds are a cross of the Sussex with the Welch and Alderney, &c. Shortness of leg, length of carcase, crooked horns, coarse bones, vast substance—are their distinguishing characteristics.

The white cattle of Surrey are no longer known—though of great celebrity among the old breeds of this country.

The Welsh are generally deep and flat in form—some of them cloddy and of great substance. The Glamorgan, Pembrokeshire, and Montgomeryshire are their principal varieties. The annual exportation of cattle from the Isle of Anglesey alone, is 10,000 head of from one to four years old. These weigh, when fat and full grown, from 60 to 120 stone of 8lb. The Welch cattle have not lately been improved in the general qualities of the breed.

The Holderness, the offspring of native Holderness cows by Norman or Alderney bulls, are justly distinguished by Mr. Lawrence, as being, for the dairy, the yoke, and the shambles, the best breed in any country. He, however, shows a disposition to abate somewhat of the praise with which this race has been frequently distinguished by others. We regret that we cannot abstract for the use of our Readers, the other descriptions of the remaining varieties, which Mr. Lawrence has, with so much industry and discernment, introduced into his book. He every where associates practical knowledge

of his own, with the best printed information which has been given to the Public on the same subjects. " A Collection of various Opinions and Practices relative to Cattle, from Ancient and Modern Authority," concludes that part of his work which treats of the ox.

In the division which treats of sheep, we find, among other valuable materials, the following observations on the " *Lambing Season and Lambs.*"

Our lambing season, for the most part, may be said to commence soon after Christmas, and to continue throughout the spring. The ewes generally shift upon the fallows and wastes; but whatever kind of stock they may be, or however made to shift in general, a farmer who knows his own interest, will endeavour to get them in good heart towards their lambing time; at which critical season, starved ewes may be so feeble, as absolutely to be without throes, or ejective powers to bring forth their offspring; and in this miserable state they perish together, in the storm, the snow, or upon the wet earth. It is here that nature requires the fostering hand of art. The shepherd should always be prompt with his manual assistance to the ewe which may need it, in her labour, and he should be mindful to act cautiously and gently, following the indications of nature. The old practice confined the ewes to lamb within doors, a rule at present followed upon the continent; but however exposed the flock may generally be, it is certainly indispensable, that the ewes about to lamb should be driven to the most dry and sheltered pastures, where they may have the best keep the farm or walk will afford. The shepherd will now exert himself to save the weak lambs, holding them up to the teat, providing those which have lost their dams, or, in fine, taking those home to nurse, which are too far reduced to exist abroad, which, if debilitated by cold, must be wrapped in woollen, and thrust into a warm hole in a hay-stack, or have the benefit of moderate artificial heat, the universal preservative of that degree of animation which may remain in young animals of every description. The ancient writers recommend to draw off the *colostra*, or first milk, vulgarly called beestings, from the erroneous notion that it would injure the lamb. Sometimes from cold, or other causes, the udder of the ewe is inflamed, the milk cores, and the lamb is unable to draw it, or the orifices of the eats are obstructed by a waxy substance. These defects may be occasioned by the lamb being too weak to suck, whence the udder becomes inflamed and obstructed by too long retention: in this last case, the vigilant shepherd must be careful to draw off the milk, unless he have at hand a lamb in want of milk; and it is safest to confine the ewe whilst sucked by a strange lamb. The remedy for an inflamed udder will be found in its proper place.

I have often wished it were more practicable to keep a stud book for a flock of ewes, as we are aacustomed with the larger animals; for great mistakes are made, respecting the precise time at which the ewes will drop their lambs, and many are lost in consequence, under the common system, being lambed in the night, perhaps in a fold where they are trodden to death, or in the deep snow, or in some exposed place, where they are caught up by vermin. The shep-

herd now must watch his ewes night and day, during a succession perhaps of four or five weeks, a dreadful duty, in a rigorous climate and exposed situation. It is even necessary to visit the flock at midnight, for the purpose of arousing the ewes, indolent and torpid with cold, and of obliging them to stand and suckle their lambs, which might otherwise perish for want of sustenance and comfort.

In very young ewes, the teats are sometimes so tender, that it is with difficulty they will admit their lambs to suck; in which case, the best method is to confine the ewe with her lamb, until the difficulty cease; the same with a step-mother; to which last, when again turned out with the lamb, regard must be had that she does not desert it, to prevent which they sometimes *hopple* the ewe, as it is termed, by tying her hinder or her fore leg for a few days. A twin will, of course, be given to the ewe which has lost her lamb; but should the ewe be in her first milk *(colostra)*, and the foster-lamb of an age beyond the period when such milk is proper, the ewe's udder should be drawn clean. Ewes with twins should be kept awhile by themselves, as such are apt to lose one of their lambs. It is convenient at this season to have a reserve of cow's milk for an occasional want; but it is generally given boiled to lambs, being otherwise apt to gripe and purge them, when very young. The putting a strange lamb to a ewe, it ought to be remembered, is sometimes a matter of difficulty. I have known an instance of singular obstinacy in the case: a lamb was confined with a step-mother, which was found a few hours after butting the little stranger to death; it was, however, saved, and the skin of the ewe's deceased lamb sewn over it; she then permitted it to suck, but after a while, detecting the fraud, from the artificial covering becoming loose, she once more attempted to kill the lamb, nor was she reconciled to it, until after a considerable time; hence the necessity of confining the ewe by the head with a strange lamb.

Many years since I recollect the following circumstance:—There was a lamb in the flock, remarkable for its fine size and roundness of barrel; this roundness seemed to increase daily, until about the third or fourth day, the lamb was observed to stagger and strain very much, and to make a great quantity of urine. The bailiff who was inspecting the lambs, ordered the shepherd to catch this, and on examination, it appeared to have no vent for the excrement, the skin being continued over the orifice of the anus. The shepherd perforated the part with a sharpened stick, and the lamb continued to be the finest of the flock. From these few hints it will be at once perceived, what demands must necessarily arise on the vigilance of a shepherd, and how imperfectly he will be able to perform his duty, to an immense, straggling, promiscuous flock, under little or no system of controul.

As we are now treating of sheep at the season when they require our greatest care, I will briefly give the outline of that plan which has invariably appeared to me preferable to all others, in point of safety to the flock, in course of profit to the farmer. To every farm-yard ought to be attached a sheep-yard, or home-fold, com-

pletely fenced in, and either totally, or in sufficient part, surrounded with sheds composed of faggots or any cheap material, excepting furze, which may damage the wool, thatched and secure from the weather. The sheds to be closed up, having windows for the admission of air, to as great an extent as may be judged necessary, the remaining space to be left open. The whole to be divided into pens for the needful separation of the flock. The bottom to be laid with chalk, well littered, and I think it is better for the health of the sheep, that the dung be frequently cleared away, rather than suffered to remain a whole season, as usually practised in cotting. On extensive sheep-farms, as many of these covered folds, in the most convenient situations, if surrounded by plantations the better, are necessary in order to completely secure the whole flock. The most convenient part of these folds or enclosures, must ever be reserved for the first ewes expected to lamb, and thither they must, after selection, be driven and confined in good time; and so on, in succession, by which a numerous train of risks and mischiefs may be avoided. If the sheep must in general go out to feed from necessity, yet the occasional use of these folds will assuredly render the largest proportional profit of the whole sheep system. And I greatly prefer keeping sheep of all descriptions at home in the fold, wherever a constant supply of provender can possibly be stored, advantage being diligently taken of fine weather, to lead out the flock for air and exericise. In feeding, the sheep should be divided into lots sufficiently small, and properly assorted as to strength and condition. In grazing abroad, upon enclosures, the practice of division into small flocks of strong and weak, is excellent, and productive of numerous advantages unattainable in the old system.

To return to the lambs newly fallen, the ancient practice was to keep them within doors, until they had acquired sufficient strength to follow their dams abroad; an usage long become obsolete, and indeed no farther necessary, than in the case of severe weather, or of weakness in the lambs, when nursing will ever be found the most speedy and certain restorative, notwithstanding all the pleas of indolence to the contrary. To counsel that the suckling ewes be fed with the best food in the farmer's power, is to repeat what every one knows; it is to somewhat more purpose to say, that the articles should be at once productive of milk, and of substantial nutriment; for these animals are too often fed with such loose and washy meat, that, what with the floods of watery milk and of urine, which are excited, they are reduced to skeletons, before the weaning time arrives, and are not easily recruited afterwards: a plenty of such food, however, is far better than starving whilst they suckle, because in the latter case, they do not always reach the weaning time; and few experienced shepherds, in certain districts, but have too often witnessed the horrid sight of a starving lamb tugging at the teat of its expiring mother.

The history of the introduction of the Spanish breed into this country, and of the crosses by which it has been here improved, is given by Mr. L. in considerable detail, and upon very correct infor-

mation. The number of the sheep in this island, is here stated to be six and twenty millions; the quantity of the wool, of British and Irish growth here manufactured, 700,000 packs.

On the subject of swine, Mr. Lawrence writes with peculiar intelligence. The following anecdote is introduced to prove, that when meat of any sort is excessively fat, much of it must necessarily be wasted in the kitchen.

Almost all the prize-pigs which I have hitherto seen, were of a mixed breed, and of the tonky species, pretending to no merit whatever in respect of form or symmetry, but solely that of carrying the smallest possible quantity of *flesh* upon their bones. I submit it to improvers, whether the regularity of form and just proportions are, or are not, of any consequence in swine: if they are, *whether a thorough-shaped pig of one of our best reputed and unmixed breeds, ages equal, would not produce a greater weight of pork or bacon, in return for a given quantity of food, than one of our present fashionable tunks?* The former would, at any rate, most probably be worth a penny per pound more than the latter, allowing the predilection of a *minority* for all fat. But, however well-fattened and ripe this old-fashioned meat might be, there is a respectable corporation of citizens whose relish it would not suit, because it would militate powerfully against their interest.—I allude to the cooks, both on board and a-shore. To be silent on the head of naval perquisites, as I have, years since, left state affairs to abler judges, I shall give an example on shore, which my readers need not doubt. A mistress, some time since, succeeded to a large boarding-school. She told the cook, it was her determination not to allow the perquisite of kitchen-stuff, but a certain sum in lieu thereof, demanding what might be the annual amount. Mrs. cook answered very reluctantly, about five or six pounds, she believed. Well then, said the mistress, I shall allow you seven guineas. The kitchen-stuff was sold for thirty-five guineas the first year. I could tell some tales of this kind of far more general consequence; in which case, those who ought to receive most benefit from the intelligence, would, no doubt, most justly blame me for interrupting their repose.

The following description of the proper form of a pig also deserves the reader's attention:

As to the form of a pig, the improving reader will advert to those general ideas of proportion and symmetry already so repeatedly insisted on: they are of equal validity and consequence, be the animal, pig, sheep, or ox. Depth of carcase, lateral extension, breadth of the loin and breast, proportional length, moderate shortness of the legs, and substance of the gammons and fore-arms are great essentials. These are qualities to produce a favourable balance in the account of keep, and a mass of weight which will pull the scale down. In proportion too, as the animal is capacious in the loin and breast, will be generally the vigour of his constitution; his legs will be thence properly extended, and he will have a bold and firm footing on the ground, to which, however, it is farther necessary that his claws be upright, even, and sound. To be sure, a good

hog may have a coarse, long, ugly head and ear; he carries them himself: and the thing may be safely laid among the non-essentials; yet a short, handsome, sprightly head, with light, pointed, pendulous ears, of moderate size, are pleasing to the view, and may sometimes have a favourable effect in the market. For head and ears, the Oxford or rather smaller Berkshire pigs are good models, and for true shape the improved Shropshire, Hereford, and Glocester. If colour deserve any consideration, I should prefer the light and sandy and yellow-spotted; at least such skins appear far the most delicate when dead. In respect to the skin of pork, I have elsewhere stated my preference of the thick to the thin skin, assigning my reasons for it. Our best-bred pigs are often thick-skinned; but such skin is tender, gelatinous, shining, easy to masticate, even in the shape of roasted *crackling*, and very nutritious; whereas to eat the crackling of thin-skinned pork, case-hardened by the action of fire, requires teeth equal to the division of block-tin. The health of swine is to be estimated by their cheerfulness, by the gloss upon their coats, and their skin being whole and free from eruption: it is an extremely unfavourable indication when the head is hung down, the snout approaching the earth like a fifth leg, and when the flanks heave and are hollow. Our old sages teach, that in plucking the bristles of a hog, if he be diseased, globules of blood will stand on the roots of the hair. If pigs *bark* on being alarmed, it is an excellent sign of sound health and good keep.

The varieties of the breeds of the hog in this country are enumerated with diligence, and distinguished with skill. But we cannot greatly commend Mr. Lawrence's observations on the fattening of hogs. But "enough," says Mr. L. "of closet and grub-street pig-feeding." The following facts are curious:

Quantities of Corn.—Fifty large Norfolks, thriving fast, between 18 and 19 stone each, consumed per day, on the average, 4½ bushels of peas, with wash, or about three quarts each, daily. Hants sow about 11 stone, store state, ate daily 2½ quarts of pease, with roots and wash. White hog (chiefly Shropshire) near three years old, in fleshy store state, weighing by estimation nearly 80 stone, consumed three bushels barley-meal, with house-wash, regularly, every seventeen days, or 11 pints per day, the owner assuring me of the accuracy of the account. Earl of Winchelsea's prize pig (1803), of the Suffolk breed, ate of corn and meal, in fourteen weeks three days, 1 qr. 1 bush. 1 pk. or upwards, or 2½ pecks per week. A Kentish hog, weighing, at six months old, 161lbs.or 20 stone 1 lb. and in forty-two weeks from that period 53 stone 3 lb. (London bacon fashion, or stripped of head, feet, flare loose fat, skirts, and kidnies) consumed within the forty-two weeks, 46 bushels of peas and barley. Black and white Essex pig (tonkey) weighing, at four months old, 104½ lb. consumed in forty-seven weeks, 11 bushels 2 pecks hog peas and 18 sacks of meal, at 85 lb. per sack, dying in about three weeks after, 33 stone 2 lb. London fashion. A pig weighing 388 lb. or 48½ stone alive, consumed in thirty-one days three bushels barley-meal mixed with water.

A treatise on "Cattle-Medicine," containing some good nostrums, some correct descriptions, some sensible observations, concludes the work. The following anecdote is curious:

"I remember in former days, on the borders of Suffolk, several scores of lambs were seized with uncommon malady, leaping and jumping about the fold-yard in a strange manner, and a dung-heap being raised to the level of the eaves of a low-tiled barn, a number of the lambs ran skipping up to the top of the roof, as though they had been possessed by more devils than Mary Magdalen, or even the Nuns of London. The whole parish wisely concluded they were bewitched, and a wretched and aged pauper became the object of their suspicions and their deadly hatred. I do not precisely recollect, but I fear the brutal, senseless, and infernal supposed preventive of witchcraft was recurred to, burning one of the poor animals alive! This tragedy was really acted at Ipswich in 1744, in order to the burning of Grace Pitt, whose family I well knew, and of whose death, supposed by Dr. Trotter to have been the consequence of spontaneous combustion, from the habit of gin-drinking, the Doctor has given an account in his late curious Essay on Drunkenness."

Of this book in the whole, we can with truth affirm, that it is worthy of the careful perusal of every country gentleman, every farmer, and every naturalist. It exhibits, together, the best opinions and explanations hitherto printed concerning the varieties, the uses, and the profitable treatment of the horse and the ox. It combines with these many valuable facts and remarks which Mr. L. has gathered from *viva voce* information. It adds to all this, the estimable judgment, and personal knowledge of this author himself, one of the most industrious and useful contributors to the improvement of British husbandry now living.

II. *Principles and Practice of Agriculture, systematically explained, &c.* By Robert Forsyth, Esq. In 2 8vo. vols. Edinburgh, Constable and Co. London, Vernor and Hood. 1804.

Scotland is now, most pre-eminently, the land of book-making and of literary ribaldry. Its "Encyclopædia Britannica" is a trash viler than the vilest Scotch haggish, or seaman's lobschutz, or Spanish olio, or French frog-and-snail soup, or Tartar's pilau, or Esquimaux's whale-oil fry, that ever excited the throes of loathing, while offered the gasping ravenings of famine! A prodigious mess in which the best materials are so debased in the compilation, as forcibly to remind us of the proverb deservedly common in Scotland—"God sends our meat, but the Devil sends us cooks."—And since the undertaking of the AGRICULTURAL MAGAZINE set the example of the possibility of diffusing valuable intelligence in husbandry—and of exciting laudable inquiry respecting subjects allied to it, by means of a popular monthly publication;—the paper-defilers of Edinburgh have, with true Scotch absurdity and impudence, commenced, and carried on, a "Farmer's Magazine," filled with all such stuff respecting husbandry as might be expected from farmers who have been all their lives *ploughing* a Scotch whinrock, *milking* he-goats, or *shearing* swine. The Edinburgh book-makers

exult and cry '*Quæ regio nostri non plena laboris?*' The grand Constable of the Augæan stable still encourages the beasts to yield new filth. This treatise on Agriculture by squire Forsyth, the pride of the 'Encyclopædia Britannica' the last *chef-d'œuvre* of the Edinburgh school, must, in the estimation of all men of taste, and of all intelligent farmers, consummate its disgrace. It betrays the grossest ignorance of the history of agriculture. It shews the author not to know the difference between *theory* and *practice*. It is the effort of a Grub-street writer that surely never saw turnips grow, nor green oats wave with the wind, nor sheep graze on a mountain's side—but, to write on agriculture in his garret, took for his chair a *tub of cow-dung*, for his table a fresh sod with the earth-side turned up—and so scribbled, scribbled, scribbled! Ah! Forsyth! thou wouldst not be *sacrificulus in paga*—and yet *rusticos decipis?*—Even *Jeffery* or *Brougham*, with all their alacrity at *sinking*, with all their talent for presumptuous absurdity, could scarce do worse than this.

HISTORY.

Agriculture.

REPORT *of the* STATE *of* HUSBANDRY *for the Month of* JANUARY.

THE *Corn* has been threshed out, for the market, in a larger proportion than is usual at this period of the season. The *tillage* of the preceding months was accomplished in very favourable circumstances: And the *Wheats* had begun to spring up in a promising manner, without having become too prematurely luxuriant. They are not, in any parts of the country, fatally checked, even by the intensity of the present *frost*. The *Sheep* in the distant moorland districts, suffer a good deal by the *frost*; and in some parts of *Scotland* and *Wales*, numbers have perished under the drifted snows. The *turnips*, uninjured by the season till the present month, are, in most places, very sensibly spoiled by the frost It is matter of regret and surprise to some of the most intelligent judges, that the culture of PARSNIPS, which so happily resist the frost, and of that most delicious food for cattle, the hardy Scotch *Red Cole*, is not, in many more instances, preferred, for winter use, to that of every sort of *turnips*. The *Outlyers* Black Cattle, in the more distant and barren parts of the country, suffer considerably by the frost. In general, however, this intense cold, with frost, snow, and sleet, is regarded by farmers with satisfaction,—because it alone can destroy those nests of insects whose spring-progeny, when they outlive winter, become the causes of blasting, mildew, and all the other diseases of growing grain, which most terribly defeat the Farmer's hopes of a new crop. The wonted farm-labours for the month, are, by the best intelligence we have been able to obtain, every where in great forwardness. The average price of wheat in London was,

last week, by the mealweighers returns, 99s. 2¼d. per quarter. Hops continue to vary in price from 4l. to 5l. per bag—from 4l. 8s. to 8l. per pocket. The exportation of grain from the continent in general, especially from the countries of the North, is interrupted—partly by the freezing up of the Baltic—in part, by the home-necessities of those countries.

PROCEEDINGS OF AGRICULTURAL SOCIETIES.

Leicester Agricultural Society.

AT the Annual Meeting held at the Three Crowns Inn, in Leiceſter, on Friday the 28th day of December, 1804.

Preſent.

CLEMENT WINSTANLEY, Eſq. Vice-Preſident in the chair;
GEORGE ANTHONY LEGH KECK, Eſq. } Members for the
Sir EDMUND CRADOCK HARTOPP, Bart. } County.

Mr. Roſe,	Walter Ruding, Eſq.
John Mansfield, Eſq.	Mr. Samuel Stone.
Samuel Miles, Eſq.	Mr. Watkinſon.
Mr. Nichols,	Joſeph Wilkes, Eſq.
Thomas Paget, Eſq.	Cl. Winſtanley, jun. Eſq.

The accounts of the preceding year were examined and approved, on which a balance of 102l. 8s. 4d. appeared in favour of the Society.

The following premiums were adjudged, and ordered to be paid by the Secretary:—

To labourers in huſbandry, having reared families of children, without burthen to their pariſhes:

Thomas Birchnal, of Wymondham, ſeven children	£4 4
William Smith, of Eaſt-Lake, ſeven children	4 4
To ſervants in huſbandry, for long and faithful ſervices.	
John Dexter, 43 years, with Mr. John Jones, at Gracedieu	4 4
James Hill, 31 years, with Mr. Simons, at Ullesthorpe	4 4
To labourers in huſbandry, for long and faithful ſervices.	
John Neale, 36 years, with Robert Hall and his ſon, at Arneſby	4 4
William Leedham, 28 years, with John Beeby and his widow, at	
William Heap, 25 years with Mr. Colliſhaw, at Tonge	3 3
Shenton	3 3
Francis Croft, 23 years with William Harriſon, at Coſtock	3 3

A premium of five guineas was adjudged to Mr. Oldakers of Kirby, for the beſt two-years-old Fat Wether Sheep.

Mr. Iliffe of Humberſton exhibited a Sheep of extraordinary ſize and fatneſs; but not coming within the claſſes for premiums, no bounty was awarded to him.

Application to be made by the Secretary, for payment of ſuch Subſcriptions as may be in arrear for more than one year.

It having been ſuggeſted, that a reviſion of the preſent Rules and Orders of the Society, had, from a change in circumſtances, become neceſſary; a motion was made, and ſeconded, and agreed to unanimouſly, that

A SPECIAL GENERAL MEETING OF THE SOCIETY

ſhould be convened and held, on the third day of the next Summer Aſſizes for the county of Leiceſter, at the Three Crowns aforeſaid, at Twelve o'clock, for the purpoſe of ſuch reviſion; ſuch Meeting being hereby authoriſed and declared to be competent to alter or reſcind all or any of the preſent Rules, and to introduce and adopt ſuch new laws and regulations, as ſhall appear to be expedient for giving full and due effect to the import-

ant objects of this inſtitution; and that in the mean time the offer of all Premiums be ſuſpended.

By order of the Society,

Leiceſter, Dec. 28, 1804. R. COOKE, Secretary.

The Annual Meeting, inſtead of the uſual time in October or November, was poſtponed till the 28th December, in expectation, I ſuppoſe, of the Earl of Moira's company, the Inſtitutor of the Society, and Preſident; but he was not in the country.

The Society have paſſed on another year in the ſame ſnpine manner as all the others ſince the inſtitution: but they ſeem to be rouſing from their lethargy, in ordering a Special General Meeting at the next Summer Aſſizes, for the reviſion of their preſent rules and orders, and to alter or reſcind all or any of them, and to introduce ſuch new laws and regulations as may appear expedient to give full and due effect to the important objects of the Inſtitution, and that till then the offer of Premiums be ſuſpended.

It is to be hoped, that after the Special General Meeting the public will be gratified with the production of remarks and directions recommended to be practiſed for the improvement which theſe capital breeders of Sheep and Cattle have made; and, like many other Agriicultural Societies, impart ſome of them for the benefit of the nation in general, and not monopoliſe all their knowledge to themſelves, or, at leaſt, that their Secretary will favour us with ſome account of what the Society have done in the courſe of ſixteen years, for, as I am informed, he is ſteward for ſeveral gentlemen, and therefore, one may ſuppoſe, very adequate for the purpoſe.

At one time they were extremely anxious for an Experimental Farm, and ſeveral of the Members put down their names as ſubſcribers of one hundred pounds each; but the plan ſeems at preſent to be dropped, although it has been recommended from the Board of Agriculture, and the pretended difficulty was owing to the want of money.

But that difficulty will ſoon be removed, and a Meeting is to be holden the 24th of this month at Loughborough, to meet the earl of Moira relative to the incloſure of Chamwood Foreſt, which contains ſeveral thouſand acres.

January 23, 1805.

The CANAL *of* LANGUEDOC.

Hiſtory of the CANAL *of* LANGUEDOC, *conſidered in relation to Art, Invention, Adminiſtration, &c. by* ANDREOSSY, *General of Artillery, Firſt Officer of the Legion of Honour, Member of the Order of Egypt, &c.*

The Canal which joins the Ocean to the Mediterranean, by croſſing the ancient province of Languedoc, has become ſo celebrated in Europe by the advantages which it has for more than an age procured to the commerce and agriculture of a part of France, that to publish the hiſtory of this Canal is, in some measure, satisfactory to general curioſity, and an object of the greateſt intereſt to civiliſed nations.

General Andreoſſy, about five years since, publiſhed an account of the Canal of Languedoc, in one volume, octavo; but this form not permitting him to join to the text all the plates neceſſary to the perfect explanation of the different hydraulic conſtructions, of which he gave a description; on the other hand, the author, ſince that time, having continued his inquiries about the Canal of Languedoc, has collected more numerous obſervations, giving a greater developement to his firſt ideas, which has ſupplied him with matter for a new work, much more comprehenſive.

In an Introduction, placed at the beginning of this laſt work, Mr. Andreoſſy has enumerated the different kinds of canals which are uſeful to agriculture and commerce. He goes back to the time which preceded the invention of ſluices, and, ſupporting himſelf on divers hiſtorical teſtimonies, he proves, that this invention is due to the Italians; that two brothers, Dennis and Peter Dominique, of Viterbi, engineers of the republic of Ve-

nice, made uſe of it for the firſt time in 1481, on a canal drawn from the Brenta, near Padua. He proves, in ſhort, that ſluices have been brought from Italy ſucceſſively into Holland, France, and different parts of Europe.

The Author, after having ſhewn all the advantages which a commercial people might expect from this diſcovery, gives an account in the firſt chapter of his work, of the attempts which have been made to join the Ocean to the Mediterranean, by croſſing the ſouthern provinces of France. This project of junction, which they have already thought of, under the reign of Charlemagne, appears to have been revived under that of Henry the Great; but although the poſſibility has been from that time known, circumſtances would not permit them to employ themſelves in it. It was not until 1662, that they returned to this project, and that they propoſed to join the river Aude to that of Agout, by eſtabliſhing a point of diviſion at Graſſens.

About this time, F. Andreoſſy, living in Languedoc, near M. Riquet, communicated to him the ideas which he had occaſion to collect in Italy on the parts of hydraulics, and propoſed to him to apply them to the execution of the canal on which he employed himſelf.

M. Riquet, endowed with an excellent genius, was ſtruck with the utility and grandeur of the project. He received with joy the propoſitions of F. Andreoſſy, who, after having ſtudied with the greateſt care the topography of that part of France by which the bed of the Ocean is ſeparated from that of the Mediterranean, finiſhed in 1664 the general project of the Canal of Languedoc.

This project was compoſed entirely of a view of the whole length of the Canal, of the inquiry after, and gauging the waters which were to ſupply it, of the determination on the place where they ſhould be united; in ſhort, pointing out the different reſervoirs and ſluices which were to unite them. It was ſent to M. Riquet with all the details, and preſented by him to the Miniſter Colbert, who iſſued a commiſſion to examine into it.

This examination terminated in the month of January 1665, bearing no doubt of the probability of executing the projected canal. In conſequence of which, the Chevalier Clerville, Commiſſary-General of the Fortifications of France, was ordered to employ himſelf in planning the canal for the junction of the Ocean and the Mediterranean. But as this form, exacted by the Miniſter, tended to paſs the project of the canal of Languedoc under the name of this engineer, and to deprive its true author of the advantages he had a right to expect from it, M. Andreoſſy and Riquet concerted together in order that the neceſſary alterations diſcovered during the execution of the works carried on according to the plan of Chevalier Clerville, ſhould be ſuch, that the glory of the invention, and of the finiſhing this great work, ſhould remain entirely with them.

This was, in fact, the project preſented to Colbert by Riquet, and drawn by F. Andreoſſy, that Louis XIV. had executed, which commenced in 1667, and was totally finiſhed in 1681.

If we caſt our eyes over a map of a country of a certain extent, and watered by two ſeas, it will be perceived that the rivers which water it, falling from the ſummit the moſt elevated above the level of theſe ſeas, run in their reſpective beds, following the courſe of the greateſt declivity. Thus the river Aude, ſwelled by the waters of the Freſquel, and the Treboal, which derive their ſource from the foot of the Corbieres, running from Weſt to Eaſt, and emptying itſelf into the Mediterranean, at ſome diſtance from Narbonne, whilſt on the other ſide of the mountain Noire, the Sor, and the Laudot, fall into the bed of the Garonne, and from thence into the Ocean. Thus the point of diviſion ought neceſſarily to be placed between the courſe of the rivers. It is neceſſary to read, in the ſecond chapter of the Hiſtory of the Canal of Languedoc, the topographical deſcription of that part of France: it is ſhewn there, with a preciſion which might ſerve as a model; and the remarks which the author adds to it, on the reſearch for points of diviſion in general, and the circumſtances of locality which characteriſe

them, ought to be ſtudied by engineers, employed to form canals of junction between two different waters.

But this was not ſufficient to determine the culminating point between the baſon of the Ocean, and the Mediterranean; it was neceſſary to bring there a ſufficient quantity of water for the projected navigation; in this the author of the project has ſucceeded, by uniting, in an immenſe reſervoir, known under the name of the Baſon of Saint Fereol, a part of the waters furniſhed by the Abzau, the Bernaſſonne, the Lampi, &c. ſtreams which all take their ſource in the mountain Noire. A part of the valley of Laudot, encompaſſed by a bank of eight hundred feet in length, and thirty in height, forms the baſon of Saint Feroel. A canal, almoſt level, called Rigolle de la Montagne, the execution of which has required conſiderable excavations, conduct there the greater waters. In coming out of this great reſervoir, the waters follow the ancient bed of the Laudot, till their re-union with a ſecond canal, called Rigolle de la Plaine, which is derived from the river Sor, which runs from the ſouth ſide of the mountain Noire. By means of theſe two trenches, the waters deſtined to ſupply the canal are conducted to the baſon of Naurouse.

Beſides the waters brought to this point, the Canal, in deſcending along the ſide of the Mediterranean, ſtill receives a certain addition furniſhed by the rivers Fresquel, Orbiel, Ognon, Ceſſe, Orb, and Heraut. At the ſide of the Garonne it is not ſupplied by any river of conſequence.

In order rightly to appreciate the merits of Francis Andreoſſy, in the choice that he made of the paſſage of Naurouse, as the point of diviſion, and of the mountain Noire, as proper to furniſh water to this point, we muſt recur to the time in which he lived. The ideas of natural geography, which are not even at preſent ſufficiently ſpread abroad, were then much leſs ſo. What ſucceſs has rendered evident to the eyes of all ſince the execution of the Canal of Languedoc, was then, to the greateſt number, problematic; the idea of bringing together copious rivers on a barren mountain, appeared a chimerical project; in ſhort, F. Andreoſſy had not only to ſurmount the real difficulties of his enterpriſe, but he had ſtill to vanquiſh the prejudices, by the aid of which ignorance and private intereſt oppoſed him.

The author of the project, wiſhing to eſtabliſh a great navigation, underſtood, as we may perceive, how to draw the beſt poſſible part of all waters which deſcend from the mountain Noire, and which may be received without inconvenience into the Canal; but as ſome of theſe rivers, on account of the great inclination of their beds, are ſubject to overflow, and then form torrents which would ſoon have deſtroyed the works of the Canal, if they had been received into it, it was neceſſary to take as much precaution to ſecure it from them, as he had care to procure clear abundant waters at the point of diviſion. Thus the Canal croſſes the torrent of Repudre, and a great many others, over bridges and aqueducts, and the Libron, at the time of its increaſe, croſſes the canal on a kind of aqueduct, of a particular conſtruction.

When running waters are received into a navigable canal, it is neceſſary that the quantity they take in ſhould be regulated according to the want they have for it; it is this which requires the eſtabliſhment of reſervoirs, aqueducts, and other works of this nature, which are in ſome ſort the regulators of the entire ſyſtem. General Andreoſſy has deſcribed all theſe works with much particularity in the third chapter of his Hiſtory of the Canal of Languedoc; the plates which form the ſecond volume of this hiſtory, relate particularly to this chapter. The author has joined to it many plates, in which are exhibited, in order, the dimenſions of the baſon of Saint Fereol, giving ſome important obſervations on the quantity of water received during many years at the point of diviſion; in ſhort, preſenting the enumeration of all the exiſting works on the Canal of Languedoc.

After having deſcribed this Canal, in all its extent, General Andreoſſy ſhews its actual openings into both ſeas; and that which induces him to

treat of this important queſtion is, to know whether it would not be advantageous to ſubſtitute, inſtead of the port of Cette, a new port, that ſhould be made in the road of Breſeon. He precedes this examination by a topographical deſcription of the coaſt of the Mediterranean, compriſed between the Rhone and the Eaſtern Pyrenees. He points out the courſe of dried rivers and ſeas, which for a great length of time have been converted into canals and cultivated lands, ſubject to accidental inundations; alſo the bays and creeks of the primitive coaſt of the Gulf of Lyons. He points out the ſands, which every year fill up the port of Cette, are the natural reſult of the current of the Mediterranean, and that the actions of the winds, which blow in various directions, throw into this port the ſands detached from the ſhore, when the ſea is agitated, ſands which cannot force the waters from the Lake Tehan, whilſt they are emptying themſelves into the ſea, by croſſing the port of Cette, and which, by conſequence, heap themſelves up in this port, and form there depots, more or leſs conſiderable, which muſt be carried off at a great expence every year. This great inconvenience ſhould have diſpoſed the adminiſtration of the ancient province of Languedoc to intereſt themſelves in facilitating the advancement of the canal which croſſes it, by multiplying, on its coaſts, the points at which they could land. The port of Agde, placed at the mouth of the Herault, which communicates with the Canal, is one of thoſe about which they are moſt employed. They have executed, there, ſome works which have been attended with ſome ſucceſs; but this opening does not preſent all the advantages which they expected. It is the ſame with the works undertaken at the mouth of the Canal of Narbonne, in order to facilitate the entrance into the Gran-de-la Nouvelle, which our trade with Spain makes a very important place.

It is upon the channel of Breſeon, that General Andreoſſy fixed his particular attention. This point was the only one of the Gulf of Lyons which could be ſheltered from the current, and, of courſe, from the overflowing of the ſea, he thinks that in making the principal mouth of the Canal of Languedoc open into the Mediterranean, and to inſure the duration of the eſtabliſhments formed there, it was ſufficient to ſtop, by known means and practices, the flood of ſand to which this harbour is expoſed, as are all the points of this coaſt.

The openings of the Canal of Languedoc into the Garonne ſhould excite the ſame intereſt as its opening in the Mediterranean. This indication induced General Andreoſſy to propoſe new views on the river navigation, and what he ſaid, on this head, added a new weight to the conſiderations which before had determined them, ſooner or later, to make canals which ſhould cut through France, ſhewing all the advantages that they offer to commerce, to induſtry, and to the draining and amelioration of the ſoil.

Here terminates the part wholly deſcriptive of the Canal of Languedoc. The fifth chapter has for its object the management and manœuvring of the waters which maintain it. The author diſcloſes there the principles and the forms neceſſary to rate the loſs of water, as well that occaſioned by the movement of the boats, as that iſſuing out by filtrations and evaporations. He tells there the quantity of water neceſſary for the navigation, and, comparing this quantity to the total produce of the ſources from the mountain Noire and intermediate ſupplies, he readily determines the quantity of water which can be drawn from the Canal to be employed in private works.

Although the body of water which ſupplies this Canal is ſufficient for navigation, as, even in its moſt flouriſhing ſtate it has exiſted, in our days, it may nevertheleſs happen that extraordinary demands will one time or other make a more conſiderable waſte of water than that on which they actually reckon: it is neceſſary, in the ſuppoſition of this order of things, to examine how new reſources can be added to thoſe which have been already diſpoſed of. General Andreoſſy found them in ſome ſtreams which run over the northern ſide of the mountain Noire, towards Sorge. He found it in a

new reſervoir projected above the head of the Alzan, and propoſed in later times by Clauſade, engineer in chief, under the name of *Reſervoir de Cals*.

In the different deſcriptions of the canal of Languedoc, publiſhed down to the preſent time, they confine themſelves to conſider it as a navigable canal. However, if they have obſerved with attention, that it croſſes a rich country, the fertility of which might ſtill be augmented by well-directed waterings, they would ſoon ſee, that the waters, which were more than ſufficient for the principal object, could, at their coming, be diſtributed with advantage over the ſurface of the cultivated lands. We are indebted to General Andreoſſy for having at firſt pointed out in what manner this great work could fill this important point, or, at leaſt, for having given to ſome good ideas of the late engineer, L'Eſpinaſſe, on this object, the publicity they deſerve. According to the project of this engineer, the canal of Languedoc, larger than all the waters which could be brought to the point of diviſion, ſhould ſerve to water the lands between Toulouſe and the ſluice of Freſquel. The lake of Marſeillette ſhould furniſh reſources ſufficient, as well to indemnify the navigation for the loſs of the waters employed in irrigation, as to water the lands of Lower Languedoc, as far as Bezurs, excluſively. On account of this project, General Andreoſſy entered into curious details on the practical proceedings of irrigation, by ancient and modern nations. His travels in Italy, Egypt, and England, have afforded him opportunities of gathering obſervations, which he gives an account of, and which furniſh the grounds for his opinion. It remained for General Andreoſſy to inſpect the Canal of Languedoc in his reports, with the lakes of the interior, and the lands which border on them. He went back to the draining of the lake of Montadi, undertaken in the 13th century. He afterwards treats of the queſtion, debated a long time ſince, of the draining of the lake of Marſeillette, by the aqueduct of l'Aiguille; and here thinks, contrary to the opinion of the engineer L'Eſpinaſſe, that in caſe the draining of this lake ſhould not be found impoſſible, the operation would be attended with ſo many inconveniences and expences, that it would be more advantageous to change the project, by altering the lake from which it ſwells, in preſerving the junction of waters, which overflow its banks, to ſupply the Canal of Languedoc, in caſe of a ſcarcity, and to maintain the ſyſtem of irrigation as before deſcribed.

Theſe obſervations on the drying up of ſome lakes in Languedoc, by draining, and particularly that of Capertong, by reclaiming it, are followed by details as little intereſting as underſtood, relative to the Canal of Languedoc. It muſt be, that General Andreoſſy found, in his own family, titles as ancient as the Canal; which preſerved, as he did, a connexion with the moſt part of the perſons employed in the then adminiſtration, to write the hiſtory of it from the year 1684 to the preſent time.

We know, that before the Revolution, the Canal was erected in feoffe, in favour of the family of Riquet, which had the charge of maintaining the works, by means of the rights of navigation, received to their own profit, according to a book of rates eſtabliſhed immediately after it was finiſhed.—Nothing relative to this part of the Canal has ever been publiſhed till now. The author here ſubjoins a table of the receipts, expences, and net profits of the Canal of Languedoc during 106 years ſucceſſively.

Another point in this hiſtory, the deſcription of which is not leſs new, and which General Andreoſſy treats with an intereſt, to which any one in his place might be animated, is the queſtion of the true author who projected the conſtruction of the Canal of Languedoc. When he thinks he has a well-founded right to reclaim the priority of an invention from which the country draws ſuch great advantages, it is allowable, without doubt, to demand it, and produce, to ſtrengthen his pretenſions, any authentic evidence which can juſtify their legality; for the reſt, General Andreoſſy, in claiming from his great-grandfather the firſt idea of the Canal of Languedoc, is but impreſſing that which was known before. It is nothing more

than to trace back the connexion which exiſted between M. Riquet and his predeceſſor to determine the execution of this project, ſuch as it was conceived, and the zeal with which he firſt aſſiſted this enterpriſe with his credit and fortune; the powerful means which have undoubtedly eſtabliſhed its ſucceſs.

The 11th chapter includes the meaſurements of different parts of the Canal and its branches; and the twelfth, an hiſtorical note, on the ancient province of Languedoc, which cannot be read without intereſt.

The work is finiſhed by explanatory notes and ſentences, and by an accurate idea of the materials, which, at the ſame time, is an analyſis of the whole work, and is a kind of dictionary of the art of canals.

Such is the ſhort account of *The Hiſtory of the Canal of Languedoc*, which General Andreoſſy is about to publiſh, and the beautiful edition of which does much honour to French typography and engraving.

This work is written in a plain, eaſy, and preciſe ſtyle. The choice of the ſubject, the excellent method with which it is treated, the diſcuſſions relative to the art which is there explained, and the learned remarks with which it is filled, recommend it highly to readers of all ranks, and form a claſſical work for thoſe whoſe employment leads them to the ſtudy of hydraulics, and the conſtruction of canals, for which that of Languedoc will a long time ſerve as a model.

The Rochdale Canal, communicating with the Calder and Hebble Navigation, near Halifax, and with the Duke of Bridgewater's at Mancheſter, is at length completed. This undertaking may be conſidered of national importance, as it opens a direct communication for barges betwixt the ports of Liverpool and Hull. To the town of Hull and neighbourhood, it muſt obviouſly be of great utility, by facilitating its commercial intercourſe with the Weſtern coaſt of this Iſland, by many local advantages, and, by its union with various canals, which immediately connect with the whole interior of the kingdom.

Artificial Mahogany.

THE difficulty of procuring mahogany, and other precious woods, and the conſequent exorbitant prices demanded for the ordinary articles of family convenience, has occaſioned the art of the chymist to be applied to a ſubject, peculiarly calculated to promote domestic embelliſhment at a triſling expence. It has been contrived to render any ſpecies of wood, of a cloſe grain, ſo nearly to reſemble mahogany, in the texture, denſity, and poliſh, that the moſt accurate judges are incapable of diſtinguiſhing between this happy imitation and the native produce. The firſt operation, as now practiſed in France, is to plane the ſurface, ſo as to render it perfectly ſmooth: the wood is then to be rubbed with a ſolution of nitrous acid, which prepares it for the materials ſubſequently to be applied. Afterwards, one ounce and a half of dragon's blood, diſſolved in a pint of ſpirit of wine, and one-third of that quantity of carbonate of ſoda, are to be mixed together, and filtered, and the liquid in this ſtate is to be rubbed, or laid upon the wood, with a ſoft bruſh. This proceſs is repeated with very little alteration, and in a ſhort interval afterwards, the wood poſſeſſes the external appearance we have deſcribed. When this application has been properly made, the ſurface will reſemble an artificial mirror; but if the poliſh become leſs brilliant, by the uſe of a little cold-drawn linſeed oil, the wood will be reſtored to its former brilliancy. It is ſingular, that the mahogany-tree, although ſo profitable an article of commerce, has received very little attention from European naturaliſts. If the plants are properly managed, they will make conſiderable progreſs in this country. Some are now, we believe, flouriſhing in Chelſea-gardens more than ten feet high, which are only of a few years growth from ſeeds.

Miscellanies.

METEOROLOGICAL REPORT

For the Year ended 25th December, 1804.

During the year there were 103 days in which rain fell, and 17 in which there was hail or ſnow; 144 may be reckoned as brilliant days, and the remaining 102 as that negative kind of weather which cannot be diſtinguiſhed either as fair or cloudy. The ſtate of the wind was as follows, viz. 25 days north, 96 north-eaſt, 33 north-weſt, 9 eaſt, 16 ſouth-eaſt, 11 ſouth, 135 ſouth-weſt, and 41 weſt. The mean height of the barometer for the year was 29d. 73m. and that of the thermometer 50d. 65m. The quantity of rain was more than 34 inches in depth, which is ſix inches more than fell in the year preceding.

HADDINGTON CORN MARKET.—Jan. 11.

Wheat had a heavy ſale, and prices rather low. Barley had a dull ſale, and prices were rather upon the decline; beſt 28s. current 25s. to 27s. Oats nearly as laſt week; higheſt 20s. 6d.; current prices 15s. to 17s. Peaſe and beans were cheaper; beſt 18s. current prices 15s. 17s.

There were 579 bolls of wheat in the market, whereof 546 ſold at the following prices, viz.

Bolls.	*Prices.* l.	s.	d.	*Bolls.*	*Prices* l.	s.	d.	*Bolls.*	*Prices.* l.	s.	d.
24	2	6	0	78	2	6	0	6	1	16	0
29	2	5	0	73	2	0	0	3	1	15	0
9	2	4	0	8	1	19	6	18	1	14	0
30	2	3	0	17	1	19	0	4	1	12	6
97	2	2	0	17	1	18	0	7	1	12	0
21	2	1	6	8	1	17	6	2	1	10	0
96	2	8	0	7	1	17	0				

Average 2l. 0s. 10d. 5-12ths per boll.

WAKEFIELD CORN MARKET. Jan. 4.

We have not had a large ſupply of grain for this day's market, and the ſales have been ſmall. Wheat is without variation. Oats that are good ſupported laſt week's prices; inferior ſamples very heavy at 6d. per quarter lower. Beans, except of a very ſuperior quality, 1s. lower. In other articles no alteration.

Friday's Market.—Per quarter Wincheſter.

	s.	s.	s.		s.	s.	s.
Wheat, South country,	50	80	90	Beans South Country	41	45	00
Ditto Lincolnshire,	50	80	90	Beans Lincolnshire,	41	15	00
Ditto Holderneſs,	50	80	90	Ditto Holderneſs,	41	45	00
Ditto ditto new,	50	75	85	Tares for ſeed,	56	00	65
Barl. Nor. and Suff.	40	00	41	Peas, white,	54	56	00
Ditto, Lincolnsh. old,	40	42	00	Malt, South country,	68	76	80
Ditto Yorks. Wolds,	39	41	00	Ditto Lincolnſhire,	68	76	80
Oats,	23	25	26	Ditto Yorkſh. Wolds,	68	76	81
Ditto, new	00	25	27	Rape ſeed per laſt,	47l.	to	48l.

Lately was produced in Axbridge market a ſteer of the native breed, only 1 year and 11 months old, which weighed upwards of 5 cwt. and had 56lbs. of rough fat; bred and fatted by Mr. Mills, of the King's Arms, Croſs, on hay and graſs only, and which for general fatneſs and fineneſs of meat was never exceeded.

STATE OF THE CORN MARKET AT LIVERPOOL.

Wheat, old Engliſh	13s 6d to 15s.	per 70 lbs.
new ditto	12s to 13s 6d	
old Dantzig	14s to 15s 6d	
Iriſh	11s 6d to 13s od	
Barley,	6s od to 6s 6d	per 60lbs
Malt,	11s 6d to 13s od	per 9 gallons
Oats, Engliſh,	4s 3d to 4s 8d	per 45lbs
Iriſh,	4s od to 4s 6d	
Beans,	50s to 53s	per quarter
Boiling Peas,	60s to 64s	
Rye,	68s to 70s	
Flour, fine,	70s to 74s	per 280lbs
ſeconds	65s to 66s	
Oatmeal, Engliſh,	40s to 42s	per 240lbs
Scotch	37s to 39s	
Iriſh	36s to 37s	

No American flour at market.

At Cheſter market on Saturday laſt, the average price of grain (Wincheſter meaſure) was as follows:—Wheat 10s 7½d.—Barley 6s 5d.—Oats 0s 0d.

CAUTION TO ALL PERSONS WHO KEEP HORSES.

It is a general practice to ſuſpend the lantern by a cord, which paſſes over a pulley near the centre of the ſtable. This cord in time will loſe its tenacity, by the heat and ſmoke of the candle and ſteam of the horſes, and is not an effectual ſecurity: the lantern ſhould be fixed againſt the wall, and out of the way of all litter, which would, in all probability, preſerve the lives of thoſe uſeful animals. We recommend the above hint to the ſerious attention of all perſons concerned.

Wakefield fat cattle market on Wedneſday Jan. 16th was well ſupplied, and not many buyers. The ſale was conſequently dull at declining prices.—There were 200 beaſts, and 4000 ſheep in the market.

HAVANT, JAN. 19.

The ſupply of wheat this evening was tolerably liberal; but there being an indifference on the part of the buyers to comply with the prices demanded, but little buſineſs was done, and that at laſt week's prices.

AGRICULTURAL IMPLEMENTS.

A new-invented threſhing machine, worked with the power of one horſe and two men, to perform five quarters per day, and removeable with eaſe from barn to barn. A fencing recommended from London for temporary diviſion of incloſures, or as a ſubſtitute for hurdles in folding of cattle or ſheep, of great utility, and very durable, will be found very ſerviceable in fencing againſt gravel walks, clumps, or plantations in pleaſure grounds, in order to admit of the adjoinidg lawns being depaſtured with ſheep for rendering the turf fine, and alſo anſwer a good purpoſe in parks or paſtures, for large pens wherein to lodge ſheep, &c. and prevent the manure being improperly left on roads and under hedges, &c. Four hundred yards will incloſe two acres, aud, if replaced but once or twice a week, will prove of great benefit.

ANNUAL STATEMENT OF WHEAT, FLOUR, AND BREAD,

FOR THE YEAR 1804.

WHEAT.

Quantity of Quarters returned per Month.	Highest price per Quarter in the Month.	Monthly Arrangement. 1804	Lowest price per Quarter in the Month.	Average price per Quarter for the Month.
Qrs. B.	s.		s.	s. d.
25,789 3	63	January	35	53 8½
19,253 5	60	February	32	52 1¼
22,465 2	61	March	35	50 8¾
22,813 1	62	April	30	51 8¾
17,198	59	May	32	51 8¼
18,877 4	58	June	32	51 1¾
30,517 4	70	July	32	54 11¼
50,437 2	80	August	37	64 2¼
45,199 3	85	September	42	70 6¼
64,684 7	93	October	42	73 5
69,001 1	122	November	50	88 11¼
51,933 3	135	December	62	104 3¼

Total, 438,170 Quarters, 3 Bushels. Average, per Quarter, 70s. 8½d.

FLOUR.

Quantity of Sacks returned per Month.	Highest price per Sack in the Month.	Monthly Arrangement. 1804	Lowest price per Sack in the Month.	Average price per Sack for the Month.
	s.		s. d.	s. d.
71,797	55	January	36 6	49 1½
61,191	50	February	37	44 9½
73,366	50	March	30	44 10¾
60,904	50	April	38	44 9¼
48,641	50	May	39	44 9¼
69,795	50	June	37	44 10½
86,321	60	July	37	49 4¼
67,421	75	August	45	63 2
40,586	75	September	50	63 11¼
84,443	84	October	56	71 4¼
49,954	105	November	65	87 8½
59,110	105	December	80	98 3½

Total, 773,529 Sacks. Average, per Sack, 58s. 1d.

BREAD.

Price of the Quartern Loaf, Wheaten, per week.

Note. The Assize is set on Tuesday in every week, and takes place on the Thursday following; therefore the under is dated on Thursday.

	d.		d.		d.		d.
Jan. 5	9¼	April 5	8½	July 5	8½	Oct. 4	12
12	9¼	12	8½	12	8¾	11	12¼
19	9¼	19	8½	19	9¼	18	12¼
26	9	26	8¼	26	9¼	25	12¾
Feb. 2	9	May 3	8¼	Aug. 2	9¼	Nov. 1	13¼
9	8½	10	8½	9	10	8	13½
16	8½	17	8½	16	10¼	15	14½
23	8½	24	8½	23	12	22	16
Mar. 1	8½	31	8½	30	12	29	16½
8	8½	June 7	8½	Sept. 6	11¼	Dec. 6	16½
15	8½	14	8½	13	11	13	16¾
22	8½	21	8½	20	11½	20	16½
29	8½	28	8½	27	11½	27	16¼

COMPARISON BETWEEN THE YEARS 1803 AND 1804.

WHEAT RETURNED.

	Qrs.	B.			Per Qr. s.	d.
1803	298,333	5	——	Average	59	1
1804	438,170	3	——	Ditto	70	8½
Advance	139,836	6	——	Advance	11	7½

FLOUR RETURNED.

	Sacks.			s.	d.
1803	779,895	——	Average	51	8¼
1804	773,529	——	Ditto	58	1
Reduction	6,366	——	Advance	6	4¾

AVERAGE OF THE QUANTITY OF FLOUR RETURNED PER WEEK.

	Sacks.	
For the Year 1803 - - - -	14,997	51
Ditto 1804 - - - -	14,875	29
Reduction	122	22

Which reduction, made into Bread, will produce 102,835 Penny Loaves per Week.

AVERAGE PRICE OF THE QUARTERN LOAF, (WHEATEN BREAD) PER WEEK.

1803 d. 9½ and a fraction.——1804 d. 10½ and a fraction.

Advance One Penny in the Quartern Loaf per Week.

Which advance, according to the quantity of Flour returned by the Bakers to the Lord Mayor, being 773,529 Sacks, amounts to the sum of £.257,843. within the limits of the Act.

Note. The difference between the average price of the Sack (or 5 Bushels) of Flour, delivered to the Baker, and the Quarter (or 8 Bushels) of Wheat in the Market.

		s.	d.
1803.	The Sack of Flour, under the price of the Quarter of Wheat	7	4¾
1804.	The Sack of Flour, under the price of the Quarter of Wheat	12	7½
	Advance - - -	5	2¾

LONDON PRICES OF GRAIN for *January*, 1803.

MARK-LANE, *Monday, December* 31, 1804.

We have a good supply of Wheat to-day, both of Foreign and English; the Mealing trade was, nevertheless, dull, and but few sales effected, owing to the apprehension of the business on the River being stopped by the frost.

Barley and Malt are dearer, say about 2s. per quarter.

Horse and Tick Beans are likewise higher; as are Grey Peas: Oats are also on the rise.

In Flour, no material alteration. Upon the whole, but little business done, and the prices below, in a great degree, nominal.

Prices of Grain, on board Ship, as under.

Wheat	84s. to 105s.	Malt	76s. to 82s.	White Peas	45s. to 55s.
Fine	108s. to 110s.	Oats	30s. to 35s.	Grey Peas	46s. to 50s.
Rye	50s. to 58s.	Poland ditto	35s. to 38s.	Sm. Beans	46s. to 56s.
Barley	45s. to 50s.			Ticks	44s. to 52s.

Monday, January 7, 1805.

We had this day some fresh Wheats in, which, with those over last week, constituted a pretty good supply; a few prime samples of fine old obtained rather more than our currency, but all others were cheaper.

Barley, at the close of last Monday's Market, fell 2s. per quarter, and should have been reported at 48s.; to-day, the sales were brisk, at something higher.—Malt continues dull.

Tick Beans are in plenty; but of these, as well as Pease and other articles, we have no particular observation to offer.

Good Oats sell freely at last prices; the supply moderate.

Flour is down 5s. per sack.

Wheat	76s. to 100s.	Malt	74s. to 80s.	White Peas	50s. to 54s.
Fine	102s. to 105s.	Oats	27s. to 33s.	Grey Peas	40s. to 49s.
Rye	53s. to 57s.	Poland ditto	34s. to 36s.	Sm. Beans	45s. to 55s.
Barley	44s. to 49s.			Ticks	42s. to 52s.

Monday, January 14.

Our supply of wheat this morning was but a middling one, yet there is no avidity in the Millers to purchase; the sales were, in consequence, heavy, and prices rather declining.

Barley being in request, that article found a brisk disposal at rather more money than last week.

Having Malt, with Peas and Beans, sufficient for the demand, neither of these have altered in price materially.

Good Oats sell quite as well as last Monday; but the ordinary sorts scarcely obtain our recent quotation: the supply ample.

Flour comes very plentifully up, and is rather cheaper

Wheat	75s. to 98s.	Malt	74s. to 80s.	White Peas	44s. to 50s.
Fine	100s. to 103s.	Oats	28s. to 33s.	Grey Peas	40s. to 48s.
Rye	54s. to 57s.	Poland ditto	34s. to 36s.	Sm. Beans	44s. to 54s.
Barley	46s. to 51s.			Ticks	40s. to 51s.

Monday, January 21.

Our supply of Wheat this morning was a pretty fair one, and, in consequence of having many buyers, samples of choice Dantzic, and fine old, were 5s. per quarter dearer; while the other sorts fetched little more than last week's currency.

Barley, likewise, obtained rather better prices.—We have little variation in Malt, and but few sales.

White Peas are dull, and lower: Grey Peas, on the other hand, fully maintain last week's quotation.—Horse and Tick Beans are on the decline.

Oats remain as before; the trade dull, and but few fresh arrivals.

The briskness of the Mealing trade has helped the sale of Flour; which, however, though getting up, can scarcely be named at 90s. per sack.

Wheat	80s. to 95s.	Malt	76s. to 82s.	White Peas	44s. to 50s.
Fine	100s. to 108s.	Oats	28s. to 34s.	Grey Peas	44s. to 50s.
Rye	50s. to 58s.	Poland ditto	36s.	Sm. Beans	48s. to 52s.
Barley	44s. to 51s. 6d.			Ticks	40s. to 46s.

Monday, January 28.

Our supply of Wheat to-day was but a moderate one, and the continued demand for fine samples has farther increased the price; more money was asked for Dantzic, and fine old, than we have stated; and Flour is up from 95s. to 100s. per sack.

Though a good supply of Barley, that article, as well as Malt, is dearer; the former in much request, and very free in sale.

Horse and Tick Beans, with Pease of the different kinds (the supply being equal to the demand), have not altered much since our last; if any thing, they are rather cheaper.

We have not many Oats at market, but they are not higher.

Wheat	85s. to 95s.	Malt	80s. to 86s.	White Peas	44s. to 53s.
Fine	100s. to 118s.	Oats	29s. to 34s.	Grey Peas	44s. to 49s.
Rye	54s. to 58s.	Poland ditto	36s. to 37s.	Sm. Beans	48s. to 52s.
Barley	48s. to 53s.			Ticks	40s. to 46s.

Prices of Hops, Meat, Seeds, and Leather, for January, 1805.

Price of Hops.	1st Week	2d Week	3d Week	4th Week	5th Week
Bags.	*s.* *s.*	*s.* *s.*	*s.* *s.*	*s.* *s.*	*s.* *s.*
Kent — —	76 to 95	80 to 100	80 to 100	80 to 100	80 to 100
Sussex — —	74 - 88	10 - 94	80 - 96	80 - 96	80 - 96
Essex — —	74 - 88	80 - 94	80 - 96	80 - 96	80 - 96
Pockets.					
Kent (new) —	80 - 110	86 - 110	88 - 112	88 - 112	88 - 112
Sussex — —	80 - 110	86 - 95	86 - 100	86 - 100	86 - 100
Farnham — —	140 - 168	140 - 160	140 - 160	140 - 160	140 - 160
Seeds.					
Red Clover (per cwt.)	40 - 100	40 - 105	40 - 115	52 - 105	52 - 105
White Clover ditto —	60 - 120	70 - 120	70 - 120	65 - 126	65 - 126
Trefoil ditto —	16 - 40	20 - 40	18 - 40	16 - 42	16 - 42
Carraway ditto —	130 - 140	130 - 140	130 - 140	110 - 136	136 - 140
Coriander ditto —	10 - 11	10 - 11	11 - 12	9 - 13	11 - 12
Turnip (per bushel) —	18 - 24	18 - 24	18 - 24	18 - 24	18 - 24
Canary ditto —	7 - 8	7 - 8	7 - 8	7 - 8	7 - 8
Rye Grass (per quarter)	20 - 30	20 - 30	20 - 30	14 - 30	14 - 32
Cinquefoil ditto —	— —	— —	— —	— —	— —
Rape Seed (per last) —	42l. to 46l.	43l. to 47l.	43l. to 47l.	43l. to 47l.	43l. to 48l.
Meat at Smithfield.					
To sink the offal, p. st. 8lb.	*s. d.* *s. d.*	*s. d.* *s. d.*	*s. d.* *s. d.*	*s. d.* *s. d.*	*s. d.* *s. d.*
Beef — —	4 0 to 5 8	3 0 to 4 8	4 0 to 5 4	4 0 to 5 6	4 0 to 5 6
Mutton — —	4 4 - 5 8	3 8 - 5 0	4 0 - 5 4	4 4 - 5 6	4 4 - 5 6
Veal — —	5 0 - 6 6	5 0 - 6 0	5 0 - 7 0	5 4 - 8 0	6 0 - 7 6
Pork — —	4 0 - 5 0	3 0 - 4 4	4 0 - 5 0	4 0 - 5 0	4 0 - 5 0
Lamb — —	— —	— —	— —	— —	— —
Head of Cattle, Beasts about	2,300	2,500	2,000	2,000	1,800
——— Sheep & Lambs	17,000	17,500	12,000	11,500	17,500
Price of Leather.	*d.* *d.*	*d.* *d.*	*d.* *d.*	*d.* *d.*	*d.* *d.*
Butts, 50lb. to 56lb. each	23 to 24	23 to 24	23 to 24	23 to 24	23 to 24
Ditto, 60lb. to 65lb. each	25 - 26	24 - 25	24 - 25	25 - 26	25 - 26
Merchants Backs —	— - 22	22½ - 23	22½ - 23	22½ - 23	— —
Dressing Hides —	22 - 23	22 - 23	22 - 23	22 - 23	22 - 23
Fine Coach Hides —	23 - 24	23 - 24	23 - 24	23 - 25	23 - 25
Crop Hides for cutting —	23 - 24	23 - 24	23 - 24	23 - 24½	23½ - 25
Flat Ordinary —	22 - 23	22 - 23	22 - 23	22½ - 23	22½ - 23
Calf Skins, 30 to 40lb. p. doz.	34 - 38	34 - 39	34 - 39	34 - 38	32 - 38
Ditto, 50lb. to 70lb. do.	33 - 37	33 - 38	33 - 38	33 - 38	34 - 38
Ditto, 70lb. to 80lb. do.	32 - 34	32 - 35	32 - 35	32 - 34	32 - 34
Sm. Seals (Greenland)	42 - 45	42 - 45	42 - 45	42 - 45	42 - 45
Large do. — —	120 -160	100 -170	100 -170	100 -170	100 -170
Tanned Horse Hides —	25 - 38	28 - 40	28 - 40	26 - 40	30 - 42
Goat Skins, per doz. —	— —	— —	— —	— —	25 - 65

Prices of Tallow, Raw Hides, Hay and Straw, for January, 1805.

Price of Tallow.	1st Week	2d Week	3d Week	4th Week	5th Week
	s. d.	s. d.	s. d.	s. d.	s. d.
St. James's Market —	4 4	4 2	4 2	4 1	4 2
Clare Market — —	4 3	4 1	4 1	4 1	4 2
Whitechapel Market —	4 1	4 0	4 0	4 1	4 2
Per stone of 8lb. Average	4 2½	4 1	4 1	4 1	4 2
Town Tallow — —	73 0	69 6	69 6	70 6	71 0
Russia ditto (Candles)	71 6	70 0	70 0	70 0	70 0
Russia ditto (Soap)	68 0	68 0	67 0	68 0	67 0
Melting Stuff — —	58 0	58 0	58 0	58 0	58 0
Ditto rough — —	40 0	40 0	40 0	38 0	40 0
Graves — —	14 0	12 0	12 0	12 0	12 0
Good Dregs — —	11 0	12 0	12 0	11 0	11 0
Yellow Soap — —	78 0	78 0	78 0	78 0	78 0
Mottled ditto — —	88 0	88 0	88 0	88 0	88 0
Curd ditto — —	92 0	92 0	92 0	92 0	92 0
Candles, per dozen —	11 6	11 6	11 6	11 6	11 0
Moulds — —	12 6	12 6	12 6	12 6	12 0
Raw Hides.					
	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.	s. d. s. d.
Best Heifers & Steers, per st.	3 8 to 4 4	4 0 to 4 4	4 0 to 4 4	3 8 to 4 0	3 8 to 4 0
Middling — —	3 4 – 3 6	3 4 – 3 8	3 4 – 3 8	3 4 – 3 6	3 4 – 3 6
Ordinary — —	3 0 – 3 2	3 0 – 3 8	3 0 – 3 8	3 0 – 3 2	3 0 – 3 2
Market Calf — —	10s. 6d.	11s. 0d.	11s. 0d.	11s. 0d.	12s. 0d.
Eng. Horse — —	14s. to 17s.	17s. to 19s.	17. to 19s.	16s. to 19s.	15s. to 20s.
Skeep Skins — —	3 0 – 5 9	3 6 – 5 9	3 6 – 5 9	3 6 – 5 6	3 0 – 6 0
Lamb Skins — —	— —	— —	— —	— —	— —
Hay and Straw.					
	l. s. d.	l. s. d.	l. s. d.	l. s. d.	l. s. d.
St. James's { Hay —	3 15 3	3 18 6	3 18 6	3 18 9	3 17 0
St. James's { Straw —	1 19 9	2 0 6	2 0 6	1 19 9	2 0 6
White-chapel { Hay —	4 2 0	4 5 0	3 18 1	3 17 0	4 1 0
White-chapel { Clover —	4 14 6	4 17 6	4 12 0	4 12 0	4 16 6
White-chapel { Straw —	2 0 0	2 0 0	1 19 0	1 15 0	1 19 0
Uxbridge.					
New Wheat, per load —	—l. to —l.	—l. to —l.	—l. to —l.	—l. to —l.	—l. to —l.
Barley — —	—s. — —s.	—s. — —s.	—s. — —s.	—s. — —s.	—s. — —s.
Oats — —	—s. —s.	— —	— —	— —	— —
Beans — —	—s. —s.	— —	— —	— —	— —
New ditto — —	—s. —s.	— —	— —	— —	— —
Peas — —	—s. —s.	— —	— —	— —	— —
Newbury.					
	s. s.	s. s.	s. s.	s. s.	s. s.
Wheat — —	70 to 115	50 to 114	58 to 110	54 to 112	56 to 115
New ditto — —	— —	— —	— —	— —	— —
Barley — —	32 – 48	39 – 50	44 – 53	44 – 54	46 – 53
Beans — —	— —	— —	— —	— —	— —
Oats — —	22 – 29	23 – 28	23 – 28	21 – 28	24 – 28
Peas — —	— —	— —	— —	— —	— —

AVERAGE PRICES OF CORN, by the quarter of eight Winchester bushels; and of OATMEAL, per boll, of 140 pounds Avoirdupois: from the Returns received in the Week, ended JANUARY 19, 1805.

INLAND COUNTIES.

COUNTIES.	Wheat		Rye		Barley		Oats		Beans		Peas		Oatml.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Middlesex	95	6	57	7	45	5	33	1	50	11	54	1	—	
Surrey	102	4	50	0	46	0	32	4	49	6	51	0	—	
Hertford	85	8	40	6	49	6	28	8	35	3	44	0	—	
Bedford	85	11	66	4	42	1	29	3	42	5	46	4	—	
Huntingdon	86	1	—		33	4	23	10	39	7	43	1	—	
Northampton	80	2	56	0	43	2	25	4	44	0	50	0	—	
Rutland	89	0	—		43	6	22	0	47	0	—		59	7
Leicester	80	8	—		43	5	25	5	44	3	52	8	41	8
Nottingham	92	2	51	0	45	3	26	5	45	1	47	0	—	
Derby	85	0	—		47	0	29	6	49	6	46	6	—	
Stafford	85	9	—		47	11	30	4	53	1	—		41	4
Salop	80	5	57	2	47	4	26	10	—		48	6	65	8
Hereford	77	4	48	0	47	1	26	5	48	2	47	1	60	2
Worcester	81	10	46	0	46	7	30	9	51	2	50	9	—	
Warwick	86	5	—		48	6	27	7	52	1	60	0	50	10
Wilts	89	4	—		47	8	28	10	58	4	51	0	—	
Berks	93	2	—		47	1	27	7	50	5	53	3	—	
Oxford	85	1	—		44	11	26	6	45	10	51	4	—	
Bucks	88	1	—		45	0	28	8	44	5	48	3	—	
Brecon	81	7	48	0	44	0	26	8	—		48	0	44	6
Montgomery	78	1	—		41	7	22	8	—		44	9	50	10
Radnor	79	2	—		45	5	25	2	—		—		—	

MARITIME COUNTIES.

Essex	95	4	53	6	47	0	30	8	47	9	50	0	—	
Kent	101	0	—		46	2	34	4	51	10	55	0	—	
Sussex	99	3	—		44	10	35	10	50	0	51	0	—	
Suffolk	95	5	48	11	44	1	27	0	43	5	46	11	56	8
Cambridge	82	11	—		39	11	21	11	40	11	35	10	—	
Norfolk	94	10	—		42	0	25	0	41	3	43	4	—	
Lincoln	79	1	54	4	41	5	23	10	40	7	62	0	—	
York	76	4	57	9	39	1	26	0	45	11	61	11	50	2
Durham	80	10	—		39	2	24	11	—		—		—	
Northumberland	79	6	58	0	41	9	26	0	—		48	0	18	0
Cumberland	78	6	43	11	34	4	26	4	—		—		19	1
Westmorland	84	0	58	4	36	0	26	2	—		—		19	7
Lancaster	80	10	—		46	5	30	8	47	0	—		23	5
Chester	81	10	—		50	11	34	8	54	4	—		25	5
Flint	91	7	—		41	4	24	11	—		—		—	
Denbigh	93	4	—		44	9	24	10	57	8	46	4	48	4
Anglesea	—		—		40	0	20	0	—		—		—	
Carnarvon	77	4	—		38	8	21	0	—		—		46	10
Merioneth	96	10	64	0	43	4	24	8	—		98	0	43	2
Cardigan	76	3	—		36	8	20	0	—		—		—	
Pembroke	69	2	—		41	10	20	1	—		—		—	
Carmarthen	88	0	—		46	5	20	4	—		—		—	
Glamorgan	91	4	—		53	4	25	0	—		—		—	
Gloucester	83	2	—		46	2	26	3	53	0	53	4	—	
Somerset	84	11	—		49	10	26	1	56	0	40	0	—	
Monmouth	91	4	—		49	6	27	10	—		51	4	—	
Devon	96	6	—		42	8	28	4	—		—		—	
Cornwall	84	9	—		41	1	24	0	—		—		—	
Dorset	95	8	—		49	4	32	0	60	0	58	0	—	
Hants	98	5	—		47	11	32	3	45	3	51	0	—	

TO OUR READERS AND CORRESPONDENTS.

We have been unavoidably prevented from gratifying our Readers with the Portrait of Mr. CURTIS's Prize Heifer, which we confidently expected to be able to give in our Magazine for this Month.

The Communication from J. C. of Newcastle, has been forwarded to the Secretary of the BOARD of AGRICULTURE.

We regret that we cannot, now, renew our recommendation of the Person after whom AMICUS inquires for such services as those in which his assistance is wanted. Nor, indeed, is that Person's address now known to us. If AMICUS shall please to favour us with his own private Address, we may perhaps be able to direct him to more useful assistance.

We particularly entreat the Communications of Gardeners and other Cultivators, in regard to the Culture of the Plants and Seeds which are to be dibbled or sown in February and March.

ALPHABETICAL INDEX

TO THE

ELEVENTH VOLUME

OF THE

AGRICULTURAL MAGAZINE.

ERRATA IN VOL. XI.

Page 34, 2, from the bottom, for *are* read *were*.
39, 18, for *founded* read *founding*.
40, 12, for *maintained* read *mentioned*.
96, 3, from the bottom, for *preveuted* read *prevailed*.
1, from the bottom, for *even* read *won*.
131, 1, from the bottom, for *Miniſters* read *miniſters of religion*.
206, 7, for *also* read *as*.
9, from the bottom, for *better* read *bettor*.
207, 25, from the bottom, for *states* read *states it*.
340, the note, *see page* 225, *No.* 62, ſhould have been in page 341 ; and I think * at the word *seed*, in page 340 is erroneous.
341, line 1, for *country* read *county*.
15, for *country* read *county*.
346, 8, for *cut* read *let*.
347, 22, for *letter* read *letters*.
342, 12, for *crops* read *crop*.
343, 8, for *cut* read *let*.
13, for *impropriator* read *impropriators*.
347, 19, for *as the poor* read *on the poor*.
414, 1, of the note, for *argument* read *knowledge*.
415, 16, for *larger*, &c. read *as great a profit as any other*, &c.
32, for *criterias* read *criteria*.
419, 8, for *experimentor* read *experimenter*.