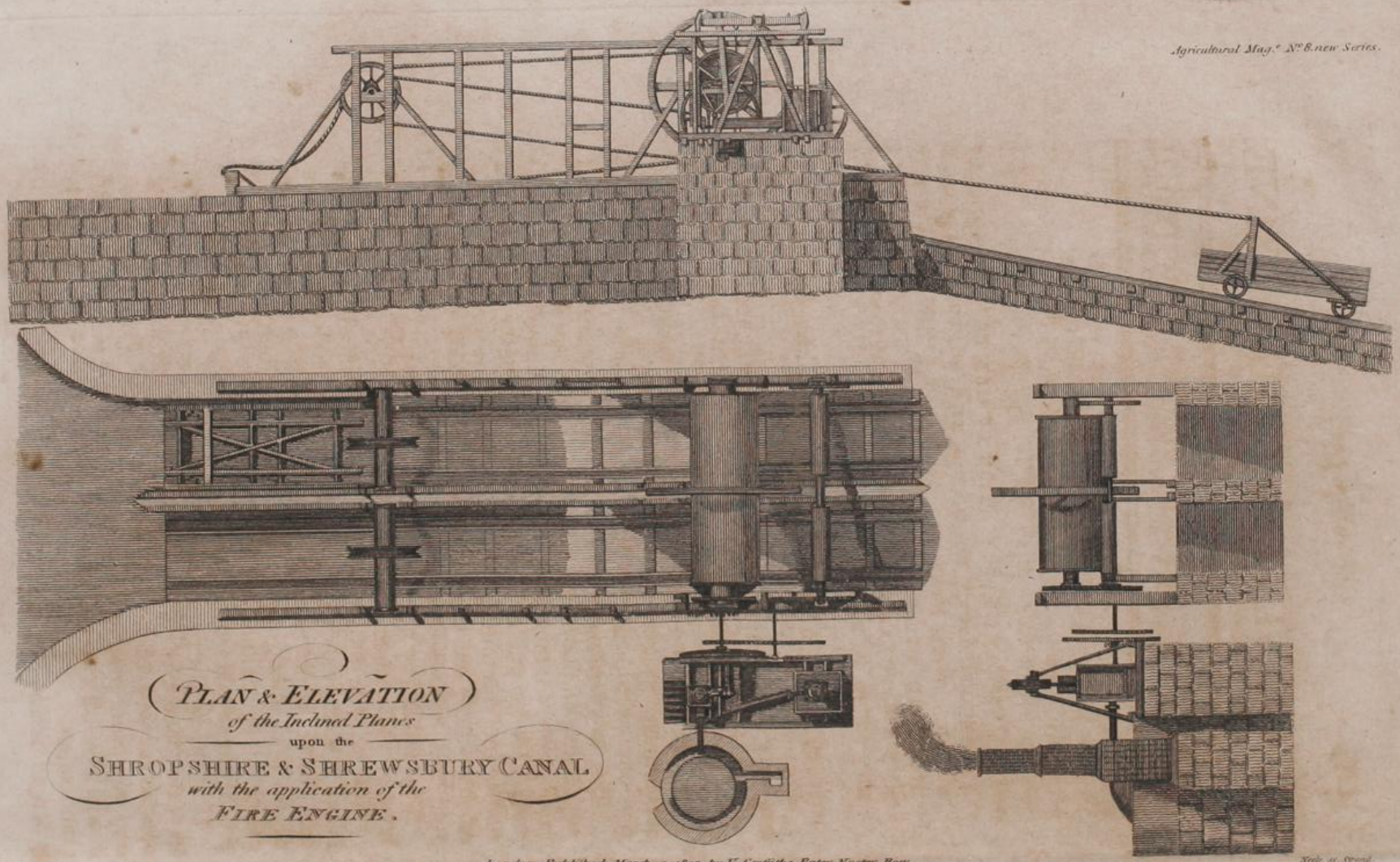

PLAN & ELEVATION
of the Inclined Planes
upon the
SHROPSHIRE & SHREWSBURY CANAL
with the application of the
FIRE ENGINE.

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THE

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ON THE USE AND APPLICATION OF HAY TEA, AS A CHEAP AND ECONOMICAL FOOD, FOR THE SUPPORT OF STORE SWINE. WITH HINTS ON THE BEST KINDS; THEIR HABITS AND UTILITY; THE VALUE OF THEIR MANURE; AND A TABULAR VIEW OF THE PROPORTION OF DIFFERENT SORTS TO BE KEPT.

To the Editor of the Agricultural Magazine.

Sir,

THE communications which I have the honour to offer, will, I trust, be deemed of sufficient importance to merit your notice.

To discuss and consider discoveries in Agriculture, and to recommend such as are useful, is a leading object of your patriotic exertions.

But to guard against scarcity, and to meet the increased population of the nation, and its greater prospective increase, (arising more immediately from the adoption of vaccination, and to render that invaluable discovery a never ceasing blessing to the community) by augmenting the produce of the earth:—these are objects which cannot fail to excite all your care and attention.

Population, by a law of nature, *will* be kept down to the level of subsistence.

Now it is the opinion of Mr. Malthus and others, that this island is already peopled up to its present produce; if therefore, there should arise a greater increase of population, the necessity of enlarging the means of subsistence, by improvements in agriculture, without resorting to expensive and precarious supplies from foreign markets, is self-evident.

If then, by the general adoption of a discovery, which I have the honour of communicating, the result shall be—"*An obvious increase throughout the kingdom, of both its animal and vegetable productions, (and of which it is so capable")*, it will ever offer to my mind a perfect source of heart-felt gratification.

Manures are the life and soul of agriculture; and animal manures are the first in proof and quality. Lands manured with animal dung, will yield a greater produce than lands not so manured. The crops of the one, generally speaking, will be nearly double, and, in many instances, more so. For, "let it not escape the memory of any one concerned in manuring land, that lime, ashes, burning, and all forcing articles, or methods, by warming, loosening, and intimately dividing the particles of the soil, stimulate to its utmost exertions; which, if continued, without the support of the most substantial animal manures, and earths, must end in total exhaustion and barrenness."* It is certain, then, that animal manures must form the chief basis of support and improvement.

The first mode, therefore, of enlarging the means of subsistence, is, "*To increase the quantity of animal manure,*"—which can only be effected by "*multiplying the live stock of the kingdom.*"

How this desirable end is to be attained, is our next consideration. And herein lies my discovery. I still call it a discovery, although I have lately been informed a gentleman of great agricultural knowledge has tried it, because to me that circumstance was unknown.

It consists in enabling the nation, "*To rear and support any number of swine, throughout the year, and at the low rate of one penny a-head per day.*" And here it is necessary to explain the circumstances that led to the discovery.

I had purchased about fourteen acres of land contiguous to my dwelling, and could obtain no manure. I was satisfied that hog's manure, (whatever may have been said to the contrary) is of the richest quality. I therefore turned my attention to keeping a given number of swine. I began with two sows and their litters; and though I lived in the neighbourhood of a market town, and bought most of the common wash that I could meet with, I, at times, experienced a want of food to maintain them. I then bought a quantity of potatoes, and enlarged my stock, but found the potatoes too expensive. These circumstances made me apprehensive I must relinquish my object.

I now directed my attention to the nature and habits of swine. I remarked their immense value to us as an article of food; their rapid growth; their early maturity; and their great fecundity. It struck me, that, for these reasons, it might be the design of Providence, that the species should be more largely propagated; and that, thus augmented in

* New Farmer's Calendar, p. 166 4 Edit.

number, a new means of subsistence might be resorted to. I observed their mode of life, and particularly their manner of grazing, and especially upon *clover*: for it is known, that swine will thrive greatly upon *clover*, *sainfoin*, and *lucerne*, but that the common meadow grass, which will fatten the largest ox, will starve the smallest pig: and the circumstance fully establishes the immense worth of these artificial grasses.†

The analogy between the grazing of cattle, and grazing of swine, struck me forcibly; and knowing that it is customary to *wean calves* with *Hay Tea*, I conceived that swine might be fed with a somewhat similar food.

I made the experiment, and found, after a few trials, that it succeeded beyond my expectations.

I thickened the tea or wash indiscriminately, with, either grains, or bran, or pollard, or any kind of meal, or boiled cabbages, or *boiled potatoes;* (carrots, though excellent, I had none); sometimes adding two or more of these articles, as my stock of either most enabled me.

But I had the greatest satisfaction to find, that I made *a single sack of boiled potatoes*, when mixed with wash, and *without any other ingredient*, go as far as *four or five sacks*, (though boiled), when I gave them to the pigs alone; and the expense of the wash, thickened with potatoes, is considerably lower than potatoes alone.

Thus foreseeing the general utility of the discovery, I determined to establish, in full proof, to the satisfaction of the country, the practicability of prosecuting it individually, upon a larger scale.

I therefore gradually increased my stock to upwards of *four* hundred; and in the course of my experiments, I used nearly *fifteen* hundred hogsheads of the wash, consuming, when my stock was at its highest, about five hogsheads daily. And incredible as it may appear, I maintained them, collectively, at the very low rate of one penny a-head per day; and in excellent store order, and many of them fit for the butcher.

It deserves particular attention, that, in a week or fortnight after I commenced my experiments, the pigs, which I had before been feeding with potatoes alone, improved in their coats, which, from looking coarse assumed a gloss, and became fine and short; a proof surely of the great nutrition of the food, and of its perfectly agreeing with pigs.

Nor is it less remarkable, that this voracious animal, though fed with this food but twice a day (which I prefer to

† See New Farmer's Calendar, p. 461, 4 Edit.

oftener) would lie down contented for the remainder, provided he was *well-ringed*, and had a warm and dry place to shelter himself under.

And this I attribute to the following causes, besides the nutritive properties of the wash.

I found it beneficial to store the boiled potatoes in large casks (in which I conceive they would keep good above a twelvemonth) and when they had remained in them sometime, freed from the water that they were boiled in, (which is considered noxious§) they not only went further, but they generated a spirit; and the wash being also, as I apprehend, of considerable strength, they disposed the animal to betake himself to rest, from their *soporific* and intoxicating qualities; a circumstance evidently conducive to his quicker growth. Nor can an objection be raised to this food, when applied to the flesh of the animal. So far from possessing any pernicious quality, it communicates, perhaps, a richer and more delicate flavour to the pork and bacon than they receive when fed after the common mode; and the butchers and others, not only eagerly purchased my pigs, but commonly remarked that they rapidly improved when put up to fatten.

And hence arises another most important consideration.

I am confident I could make *one* sack of meal, of whatever description, go as far as *two* sacks in the common mode of fattening. For, by *gradually thickening* the wash with meal, it forms the best introduction to the higher and last stages of fattening, both for pork and bacon; indeed that method should be followed throughout the process; using the wash instead of water. The increased quantity of a cheap and highly nutritious food, thus administered, will satisfy the voracious habits of this animal, and yield the greatest profit; and this alone would cause an immense annual saving of corn, which would tend to insure plenty and cheapness; the grand desiderata in all experiments. For the price of a commodity, in a great degree, depends on the relative quantity produced, and the regular consumption; to lessen the consumption therefore, diminishes the demand, and has the same effect as increasing the supply, which must necessarily cheapen the article.

Another most important consideration is, the tendency which the prosecution of this discovery would have to promote the increase of that invaluable root "*The Potatoe*," of late so universally and so deservedly recommended; and which, as an article of food, both for human sustenance, and for animals of almost every description, either baked, or

§ See Bath Society's Papers, v. 6. p. 382.

boiled, or steamed, (but not when given raw) is inestimable: for the action of the fire dissipates the crude juices of the raw potatoe, and renders it more nutritious.

As a "green or fallow crop," to be raised in alternation with corn, the potatoe stands unrivalled. It hollows and mellows the ground, especially when enriched with manure, and from its growth, and the hoeings it receives, keeps down the weeds, and thus admirably fits it for the reception of seed-corn; and, what is more important, it contributes to render the declining custom of "*naked* or *summer* fallowing" in a great measure unnecessary. A garden, well cultivated and manured, needs no naked or summer fallow, and our island, well cultivated and manured, might become as a garden. How preferable then must a fallow crop be to a naked fallow.†

Nor need the farmer be apprehensive of too great an accumulation of this desirable article (the potatoe) so as to become unprofitable for want of a ready market. His means of disposal will lie at his home. His swine will consume the potatoes on his land, which will thus yield him a superior return in the shape of live-stock, and hence of animal manure, and, consequently, of more abundant crops.

And now, Sir, you perceive the application of my discovery, and my manner of supporting it.

The above artificial grasses, converted into hay, and, when boiled in water, forming thereof the tea or wash, the various incorporating ingredients that I have enumerated, and especially *potatoes*—all, or most of these, may be had, *at a cheap rate, in any quantity, at all seasons of the year, throughout even the winter, and over every part of the kingdom.* These advantages are not local, or confined to particular districts; to large towns; to breweries; or to distilleries; but they are universal in their operation and extent.

I conceive the result would be as follows.

It would *increase the quantity,* and, consequently, *reduce the price* of *animal food;* (and, what is infinitely important, *cows* and *oxen,* &c. may be maintained with this food as well as swine); it would *enlarge the product of animal manures,* which, in its agency, would *increase the quantity* and *reduce the price of corn of every kind, and of all other vegetable productions;* it would improve the poor and waste lands of the kingdom, by communicating increased facilities of culture, and might *lessen the objections against a "General Inclosure;"* it would *promote the cultivation of sainfoin grass,* which will thrive upon the most rocky soils, but will improve greatly under superior culture and a meliorated soil; it would thus

§ See New Farmer's Calendar, p. 274, 4th Edit.

call into action the most unpropitious, sterile possessions of the kingdom; it would lower the price of labour, while it might *better the condition of the poor, and of every other class of the community*; it would *support, and employ an increased population*; (and the strength and prosperity of a nation consist in its numbers properly supported and employed), and, in so doing, it would *promote the progress of the Jennerian Institution.*

In case it should be remarked, that, *latterly*, the emaciated appearance of my stock, depreciated the value of my discovery, I deem it right to explain the cause of this. My pecuniary resources were unexpectedly cut off; and hence the pigs were deprived of their usual support.

It is not my desire to obtrude upon the public, by communicating the misfortunes of an individual, though they may have been partly brought on in an endeavour to promote the public good. I wish to remove every *prejudice* that may have existed in the minds of those who may have seen the pigs in the above unfavourable state. Such prejudices might be injurious to the public interests. I intreat the public to make its own experiment; and in doing this, I shall be happy to offer my aid, and to communicate every information in my power; for it cannot be expected, that, in the short compass of a letter, I should enter into the discovery in its detail, or that I should answer the various suggestions or objections of persons upon the subject—I have deemed it sufficient to offer the out-line of the discovery, reserving a discussion of its minuter considerations and advantages (if called upon) for a further opportunity.

But before I dismiss the subject, I think it proper to offer a few remarks on *two* objections that may be stated.

First;—it may be objected, that to enlarge the breed of swine, would tend to injure the breeding of sheep," and thus affect a staple commodity of the kingdom, namely, "*Wool.*" But I apprehend the reverse of this. For hence our breeders of sheep, might make the article of wool, in some measure, a primary, and that of mutton, a secondary object; the contrary of which, I presume, is at present the case. And as the smaller breeds of sheep, and especially the Spanish, produce the finest wool, by multiplying them, to the extent required, an advantage of moment might be derived to the nation; for it might ensure a regular supply of fine wool, at moderate prices, to our manufacturers, and enable us to keep pace with our neighbours in this respect. The French, in particular, it is known, are extending the breed of Spanish sheep with all possible energy; and, indeed, it has attracted

with us a like attention.* Thus I think the first objection is removed, and an additional encouragement is holden out to increase the breed of swine.

With respect to the second objection that may be stated. I think it can no longer be contended by any, that *abundant crops are prejudicial* either to the landholder or farmer. The latter is better acquainted with his true interests. The intelligent farmer wishes for a large quantity of corn, and, in general, is best paid in years of the greatest plenty, though the prices should be low; for the superior produce will overbalance the reduction in value, and facilitate payments. His capital thus becomes augmented, and with it, that of the *landlord* and of the *nation*. A deficiency in crops, on the contrary, must ever impoverish and distress the nation. These circumstances appear to me sufficiently to answer the second objection.

It is indeed, through a want of capital, that many of the most solid improvements in agriculture, have hitherto been prosecuted with so little effect. The lower order of farmers most experience a want of capital. And hence, small farms, in comparison with large ones, are found the least productive. To place them upon an equality, it is necessary to equalize the comparative capital of the farmer. Improvements in agriculture would then proceed in an equal progressive order throughout the kingdom.

I need not repeat, that internal improvements form the chief basis of our wealth and prosperity. The people of this country should learn, that their political greatness will principally be found, in rendering themselves independant of all other nations and countries, for the necessaries and conveniences of life, and by rendering other nations and countries, at the same time, more or less dependant for such things upon them.†

Our internal resources thus augmented and perpetuated, would communicate additional vigour to our army and navy, to our trade and commerce, our arts, manufactures and agriculture;—for I conceive they are all intimately connected with the latter—and may ultimately, with the advantages of a "free export trade," contribute to render this island to a certain extent, the *granary*,‡ as it is the unrivalled nation, of Europe.

Thus I hope I have made it appear, as far as my slender abilities have enabled me, and unaccustomed as I am to

* See Agricultural Magazine.

† See ditto.

‡ New Farmer's Calendar, 4th. Ed. Preface, page 19.

write on agricultural subjects, or indeed, on any subject destined to meet the public eye, that the discovery I submit to your consideration, may lead to the most important improvements in agriculture; and is calculated to promote an increase of the animal and vegetable productions of the kingdom, which, as I have shewn, are *creative* of, and *greatly dependant upon each other*; and may thus support a greater population, may promote the progress of the Vaccine Institution, and may materially contribute to the health, strength, and prosperity of the British empire.

I am, Sir,

Your respectful humble servant,

Stroud, Gloucestershire, JOHN SAUNDERS.
Jan. 4, 1807.

SUPPLEMENT TO THE FOREGOING LETTER.

I HAVE said that my pigs cost, collectively, a penny a head per day; in which I include *all* ages. As I was continually increasing my stock, I did not keep an account of the exact quantity of food they consumed daily. The principle is nevertheless true; as I believe I made no error or misreckoning in my general calculations.

Swine are fond of wash or swill; they thrive upon whey, or skimed-milk, and *liquids* constitute their chief food. This is the foundation of my experiment. The hay-tea or wash forms the main article, and the ingredients that go to thicken it, should be added in the proportion of one to ten, or thereabout; that is, nine, or, at most, *eight parts in ten* of the food, should consist *solely of tea*.

Clover, or Sainfoin hay, at 4l. 13s. 4d. per ton, is four shillings and eight-pence per hundred, and one halfpenny per pound; and twenty pounds of either, well boiled, will make, with the addition of the incorporating ingredients, sufficient wash or food to maintain, throughout the day, fifty *store* pigs, from three months old, to an indefinite age upward.

Estimated expences of the daily maintenance of fifty stores.

	L.	*s.*	*d.*
To potatoes, two bushels, (120 lb.) at 5s per sack	0	2	6
To clover, or sainfoin hay, 20 lb. (which will give ten quarts, or 2½ gallons of liquid food to each pig) - - - - -	0	0	10
	0	3	4

	L.	s.	d.
Brought forward	0	3	4
To coal ¼ bushel (at 6d. per bushel, average value)	0	0	3
To attendance, boiling food, serving, &c.	0	0	6
Total	0	4	1

This is 1d. short of 1d. a head per day.

Again;

Potatoes, 1 bushel, (60 lb.) - -	0	1	3
Grains, 2 bushels, at 6d. per bushel -	0	1	0
Clover, &c. - - - -	0	0	10
Coal - - - - -	0	0	3
Attendance - - - -	0	0	6
Total	0	3	10

This is 4d. short of 1d. a head.

Or;

Potatoes, 1 bushel - - -	0	1	3
Meal of any description (particularly oatmeal, as being the cheapest) or pollard - -	0	1	4
Clover - - - - -	0	0	10
Coal - - - - - -	0	0	3
Attendance - - - - -	0	0	6
Total	0	4	2

This is exactly 1d. per head.

NOTE.—Carrots, either raw or boiled, are excellent; and these, with oatmeal and grains, would make a cheap and good addition. The hay, when put into the furnace to boil, should be inclosed in a net, or a basket with a lid to it, or in a tin kettle and cover, filled with large holes, and the potatoes, (or carrots, &c.) should be steamed over the tea, whilst gently boiling or simmering. This may easily be done, by fitting to the furnace, a vessel, having a number of holes of the size of a common auger, bored through the bottom of it, so as to allow the steam to pass through the potatoes with which the vessel is filled; and having a little moist clay, or a wet flannel or cloth put circularly round the bottom, where it rests on the mouth of the furnace, so as to secure the steam from escaping. By this mode of steaming the potatoes, a consiberable saving will be made in the article of coal. The potatoes should be but slightly steamed

or boiled, and not reduced to a pulp, and, *whilst hot*, should be trod or rammed in casks for *future* use. The hay, after boiling, may he dried, and perhaps, offered to store-cattle; or else, thrown to the pigs as litter, or, to add to the dung heap. The wash should be carefully given to the pigs in a *lukewarm* state, and if meal or pollard be added, it should be thrown into the tub or cooler, immediately after boiling the wash, and well mixed together;—but steaming the meal or pollard, and even the grains, might be a further improvement. The water, where there is a sufficient fall, may be led into the furnace, without any trouble whatever, by means of a leaden pipe; or may be conveyed into the furnace by a spout from the pump; and the tea may be drawn off, through a cock into a cooler, which should be placed by the side of the furnace. To convey the wash to the pigs, I used an open barrel or hogshead, suspended upon a pair of shafts, with wheels to it, and drawn by a single horse.

Farmers, as *one* reason, I apprehend, why they have not cultivated the potatoe on a larger scale, is the difficulty they might experience of disposing of them at a profit. But this inconvenience is obviously removed.

Wheat yields the worst crops in wet summers, and potatoes the best, and, vice versa, (or contrariwise); and these circumstances, so far as the seasons are concerned, will ensure a supply of one or the other of these articles. While the potatoe remains plentiful, the price of corn cannot be very much enhanced. The high price of corn, has, of late years, deterred the *cottager* from rearing and feeding pigs; and hence his family has been, in a great measure, deprived of animal food, and his garden of its accustomed fertility; but the family pot might boil the tea and potatoes, (which might always be rendered cheap to him), and then his pigs, as heretofore, would supply his table with flesh, and fertilize his garden with their manure. Pieces of waste land lying contiguous to cottages, might be made to yield the requisite supply of potatoes. There is, at times, an overflow of pig-stock in the country, arising from the facility with which pigs may be multiplied, and a *want of food* to maintain them; and hence a person, with a large stock, may occasionally sustain a loss;—but an abundance of food, from the mode I have pointed out, being always obtainable, this inconvenience need no longer be felt; and the markets may be regularly supplied with *profit* to the seller.

In the foregoing estimates of the expense of maintaining the pigs, it should be observed, that I have taken no credit for the article of *manure*; and thus his pigs will make the farmer a present of their dung, as well as pay him a good

price for their keep. *Fifty* strong stores, with a sufficient quantity of *stubble*, (which is frequently ploughed into the land,) or carpenter's shavings and saw-dust, or virgin earth, or sand, especially sea-sand, (where obtainable,) laid down in the yard, will make, in the course of the year, from two to three hundred waggon loads of excellent manure; the sea sand will add saline particles to the manure, and check evaporation.

It is necessary to remark, as a most favourable circumstance, that the hay-tea *binds the dung* of swine, and renders it *hard* and *black*, like *sheep's dung*; and if it does not produce this effect, it must assuredly, be either bad in quality, or not properly boiled, or not rendered sufficiently strong; all which particulars should be most carefully attended to; and the state of the dung is an admirable guide to go by. The hay should always be of an excellent quality; and that which heated best, and contains most of the saccharine juices, should have the preference. Bad hay is certain destruction to the pigs. Clover stands first, next sainfoin, and lastly, meadow hay. Indeed, most of my experiments were made (though not by choice), with meadow hay.

As there are many persons who may be desirous of keeping pigs of all ages and denominations, I shall here add a table, which is calculated to shew, *at one view*, the proportion of *sucking pigs* or roasters, to that of *stores, porkers*, and bacon, or *fatting hogs*, which a person should keep to maintain them, collectively, at the rate of one penny a head per day.

But note.—The suckling sows are classed, in the respective collumns, as stores, porkers, and bacon-hogs; and in the two first collumns, a proportionate deduction must be made from the number of stores and porkers, so as to allow after the rate of five-pence per day to each suckling sow; which will very well maintain them, *including all expences*. The observations that accompany the table, will more fully explain this.

TABLE—*Shewing, at one view, the proportion of Sucking-Pigs or Roasters, to that of Stores, Porkers, and Bacon, (or Fatting)-hogs, which a person should keep, to maintain them, collectively, at the rate of* 1*d. a head per day.*

Sucking Pigs.	Stores.	CLASS I. that is—As two to one—or in the proportion of two Sucking Pigs to one Store.
6	3	According to this column of figures—
8	4	If the *Sucking-pigs cost nothing to maintain them independent of the Sows, (which is the ground I assume)*, I can afford to
10	5	lay out 3d. upon each store pig; and the
12	6	pigs taken together, shall cost only 1d. a
14	7	head per day.
16	8	
18	9	As for example.
20	10	in
22	11	Nos. 50 *and* 25.
24	12	Here the 75 pigs, (the sum of 50 and
26	13	25) at 1d. a head, will cost 6s. 3d. per
28	14	day, as will 25 stores at 3d. But then the
30	15	proportion of sows will be about 7. If
32	16	therefore we deduct seven two-pences (or
34	17	1s. 2d.) from the stores to make up the
36	18	allowance of 5d. a-head to the seven
38	19	sows, there will remain 3s. of the 6s. 3d.
40	20	which will maintain the remaining eigh-
42	21	teen stores at somewhat more than 2d. a
44	22	head per day.
46	23	
48	24	
Ex. 50	25	Proof . . *L. s. d.*
		50 Sucking pigs . 0 0 0
52	26	7 Sows at 5d. . 0 2 11
54	27	18 Stores at 2d. . 0 3 0
56	28	75 Surplus . . 0 0 4
58	29	
60	30	Total 0 6 3
62	31	
64	32	
66	33	Thus it appears, I can maintain the
68	34	whole number (namely) 50 sucking pigs,
70	35	7 sows, and 18 stores at the rate of 1d. a-
72	36	head per day; and in which I allow 5d.
74	37	to each sow, and somewhat more than 2d.
76	38	to each store; and so progressively
78	39	throughout this column of figures.

80	40
82	41
84	42
86	43
88	44
90	45
92	46
94	47
96	48
98	49
100	50

The profit on the sucking pigs, if sold in the market, from three weeks to a month old, at 2s. 6d. and 3s. per head, (which is allowing a gain of about 6d. on each pig), will be 15*l.* per ann. and the profit on the 18 stores, at an average of 2d. a-head per day, will be 3s. per day, or 54*l.* 15s. 0d. per ann. which, added together will make a total net profit of 69*l.* 15s. per annum, at a maintenance of 1d. a-head per day, including the sows.

Sucking Pigs.	Porkers.
6	2
9	3
12	4
15	5
18	6
21	7
24	8
27	9
30	10
33	11
36	12
39	13
42	14
45	15
48	16
Ex. 51	17
54	18
57	19
60	20
63	21
66	22
69	23
72	24
75	25
78	26
81	27
84	28
87	29
90	30
93	31
96	32
99	33

CLASS II.

that is—as three to one—or three Sucking Pigs to one Porker.

According to this column, (by the same rule), I can afford 4d. to each Porker.

As for example.

In Nos. 51 and 17.

Here the 68 pigs (the sum of 51 and 17) at 1d. a-head is 5s. 8d. per day, as is 17 Porkers at 4d. But the proportion of sows will be 7. If then we deduct 7d. from the porkers, to make up the allowance of 5d. a-head to the 7 sows, there will remain 2s. 9d. of the 5s. 8d. which will maintain the remaining ten porkers at somewhat more than 3d. a-head per day.

Proof.	£	s.	d.
51 Sucking . .	0	0	0
7 Sows at 5d. .	0	2	11
10 Porkers at 3d.	0	2	6
68 Surplus . .	0	0	3
Total	0	5	8

Thus it appears, I can maintain the exact number, (namely) 51 sucking pigs, 7 sows, and 10 porkers, at the rate of 1d. a-head per day; and in which I allow 5d. to each sow, and somewhat more than 3d. to each porker; and so progressively throughout this column of figures. Here the net profits will be proportionably great with the first class,

Sucking Pigs.	Fatting Hogs.
8	2
12	3
16	4
20	5
24	6
28	7
32	8
36	9
40	10
44	11
48	12
Ex. 52	13
—	—
56	14
60	15
64	16
68	17
72	18
76	19
80	20
84	21
88	22
92	23
96	24
100	25

CLASS III.

That is—as four to one—or four Sucking-Pigs to one Bacon (or Fatting)-hog.

According to this column, (by the same rule) I can afford 5d. to each Fatting-hog.

As for example.

In Nos. 52 and 13.

Here the 65 pig (the sum of 52 and 13) at 1d. a-head, is 5s. 5d. per day, as is 13 hogs at 5d.

The proportion of sows will in this case be 7, which, taken from 13 will leave 6 hogs to be maintained at 5d. a-head per day.

Proof.	*L.*	*s.*	*d.*
52 Sucking pigs .	0	0	0
7 Sows at 5d. .	0	2	11
6 Fatting hogs at 5d.	0	2	6
65 Total	0	5	5

Thus it is clear I can maintain the precise number, (namely) 52 sucking pigs, 7 sows, and 6 fatting hogs, at the rate of 1d. a-head per day; and in which I allow 5d. to each sow, and the like sum to each fatting hog; and so progressively throughout this column of figures. In this instance the net profits will be in much the same proportion, as in the two former classes.

Note.—I allow 7, as the average number of sucking pigs to one sow. Take, for instance, any number of sucking pigs, as laid down in the table, which divide by 7, and the quotient will shew the proportion of sows that should be allotted to that particular number.

Example 7)50(7 Quotient

1

The utility of the table is obvious. If I lay out 2d. a-day on each store pig, and also 5d. a-day on each suckling sow, according to the first column of figures, I must keep the apportioned number of sucking pigs to enable me to maintain the whole stock at the rate of 1d. a head per day; and so, in like manner, if I lay out 4d. and 5d. per day on each porker, and bacon, or fatting hog, agreeably to the 2d and 3d columns.

Swine are ready for procreation at seven months old.‡ The sow goes nominally four months or 115 days, with very few days variation, bringing three litters of from five to twelve pigs each litter in about eighteen months, supposing the pigs to be weaned; but in two or three months less time, the pigs being suckled for roasters. The sow's "hogging," or being seized with her heat, is always induced by the reflux or turn of the milk, which takes place in three or four days. A sow should have a deep and large carcass. Want of age in the sow or boar, will frequently occasion a scanty litter; and a very young sow (I speak of my own knowledge) is a very bad nurse. Nine is an advantageous number. A boar is unprofitable for procreation until twelve months old, and is in his prime at two years. A boar, for the purpose of breeding, should be long bodied, and have a deep belly and sides, a short nose, thick thighs, short legs, high claws, a thick neck, and a thick chine, well set with large bristles.

Swine will grow till they are two years old. It is therefore, an advantage, to keep the breeding sows, of the age of from seven months up to two years, and not older; because, as they are growing all that time, they will pay for their food in common with the stores; and a penny a head per day, will maintain them during their pregnancy.

Young shoots, that is, swine three quarters of a year old, are best for pork, and those of a year and half, or two years, for bacon.

I prefer the Berkshire breed of swine to all others; they are, perhaps, the hardiest, and feed the best upon the tea, and are careful mothers.

The hay-tea or wash for the suckling sows, should be thickened with pollard and grains, or meal and grains, or you may add potatoes; and if the suckers should happen to scower, (which they will sometimes do, and die of, especially about the *third* day), a little alum should be immediately added to the food, which will correct the sow's milk, and save her young; I have also lowered the nutritious quality of the feed with good effect.

‡ See New Farmer's Calendar, 4th Ed. p. 536.

There are but few things that would contribute more to lessen the price of butcher's meat, than a constant supply in the market of *roasting pigs*, which may be very successfully reared *throughout the year*; for should a sow farrow at *Christmas*, the litter, with a good bed, and warm and generous keep for the sow, will prosper;* and the supply might at all times be equal to the demand. In this point of view, the table is important. "Respecting the question," (says the author of the New Farmer's Calendar, 4th ed. p. 540), "of the practicability of breeding pigs to advantage, *independently of the dairy*, there really never was any question: the far greater part of the Hampshire and Berkshire pigs, particularly, are reared upon pollard, with the trifling addition of the house and dairy wash, which, on some farms, is very trifling. The cottage breeder (and I have purchased very fine pigs from such) rears entirely on pollard."

But though the principal of economy, should govern in all experiments, it ought not to be carried too far; it is doubtless, desirable, to maintain an unlimited number of swine, at the low rate of one penny a head per day; but the discovery embraces more enlarged views; and it ought never to be forgotten, that its principal object is to afford to mankind a plentiful supply both of animal food and bread.

I am, Sir,
Your respectful humble servant,
Stroud, Gloucestershire, JOHN SAUNDERS.
Feb. 4, 1807.

ON THE STAGGERS IN HORSES.

To the Editor of the Agricultural Magazine.

Sir, *Pickworth, Feb.* 10, 1807.

If you think the following observations of this terrible diosrder, worthy the attention of your readers, you may insert them in your Magazine.

Early one morning, I was informed a valuable draught horse of mine was dying; I immediately arose and perceived the horse had the staggers; which alarmed me, as my father twice in his life, lost nearly all his horses by it. The horse was so exceedingly ill, that I thought he could not survive an hour; my farrier lived six miles off, and perhaps might not be at home; however, that he might die in due form, I sent for him, but made myself certain he would die before he

* See New Farmer's Calendar, 4th Ed. p. 537.

arrived; and as these gentlemen in general censure every thing they do not perform themselves, we did nothing to him: sometimes he lay stretched out, to all appearance dead; then rise, stamp with his feet, beat his head against the wall, and seize the hay in the rack with such ferocity, that we expected he would pull the rack down, but eat nothing; indeed, he was as much deranged as possible; and I have often thought since, it was dangerous our standing so near him; for if he had seized one of us, in the manner he did the hay, a life might have been lost before a person could extricate himself.

About an hour after this he was stretched out on the ground, and I really thought him dead, or at the last gasp: I shut the door, and left him about a quarter of an hour; on my returning I was much surprised at finding him in a different attitude; instead of being on the ground he was standing up, and almost suspended by the jaws. In his struggles he had forced a board off the standing next to the rack, and, as the boards were cut off in a slanting direction, the next board then presented a sharp, projecting point; on this, as high as he could reach, he had got his jaws over, and could not get off again; and the blood flowed very copiously. I was shocked to see him so mangled, in addition to his other sufferings, and blamed myself for neglecting him. By going on the other side I managed to get his head off the board, and from that moment he was better; which I attribute to the bleeding relieving his head, and thus in all probability, by my negligence I saved the horse's life. When the farrier arrived, he was considerably better indeed; I informed him of the circumstance, and he could not help acknowledging, (though rather unwillingly) that it probably did save his life: but he said "the grand object now was to get a passage through him.", He raked him, and gave him a clyster, and in two or three days the horse was completely cured. I fumigated the stable well, and the other horses were not attacked by this alarming distemper.

The cause of the staggers appears to me to be brought on by too violent labour, and too high keeping in order to support that labour. The cure, it appears, may be effected by bleeding, and gaining a passage through the animal. Thus chance sometimes effects that which baffles art and skill.

I am, Sir,

Your very humble servant,

JOHN WRIGHT.

ON THE CULTURE AND COMPARATIVE EXPENCE OF RAISING AND DRESSING HEMP CROPS IN DIFFERENT SITUATIONS AND CIRCUMSTANCES.

To the Editor of the Agricultural Magazine.

SIR,

THE introduction of a more extended cultivation of hemp in this country is a matter of such importance to the interests of the nation, that I have been induced to send you a few observations on the methods of raising it, and the estimates of the expence that attends it in different situations.—Wishing you success in your agricultural labours.

I am, Sir,

Your most obedient

D. W.

IT is well known that hemp is a plant of the herbaceous fibrous-rooted kind, having a strong thick stem which rises to a great height in good soils, and affords a rind or covering of a firm strong texture, which is of much value in the manufacture of cloth, ropes, and various sorts of cordage; and though many other plants afford a strong fibrous covering, none has been yet discovered that are equal to hemp in these intentions. It is well understood that the soils most suited to the culture of this plant are those of the deep black putrid vegetable kind, which have a situation low, and somewhat inclined to moisture, as well as the deep mellow loamy or sandy sorts. But the quantity of produce is in general at present much greater on the former than on the latter; though according to some, of an inferior quality. But this useful crop may be grown with success on land of a less rich and fertile nature, by due care and attention in their culture, and the means of preserving them.

The author of the Farmer's Calendar advises for this sort of crop the richest soil on the farm: deep, moist, friable, putrid, and next, if none of that description can be had, any deep, good sandy loam, worth 30s. or 40s. an acre. "Mellow rich clayey loams do well; and nothing better than old meadow land, no matter what the soil, turned down by the skim-coultered plough." About Diss in Norfolk, and the districts in that vicinity, they cultivate this crop on rich mellow loams on a clayey bottom worth 25s. an acre, friable, mixed, working readily.

In Suffolk they mostly grow it on what are termed *mixed land*, that is, sandy loam, moist and putrid, but without being stiff or tenacious; in fact the best land the county affords,

and it does well on old meadow and low bottoms near rivers. In the Northern districts they think hemp requires a free, deep, warm, fat soil, exposed to moderate air, at the same time sheltered from blasts of high wind. Ground lying upon the coast enriched with sea ware, though light, has been often proved to give good hemp.

Preparation of the land. The ground, to be proper for the reception of this sort of crop, should be reduced into a fine mellow state of soil, and be perfectly cleared from weeds, by repeated ploughing. This work after grain crops is mostly accomplished by three ploughings, and as many harrowings; the first being given immediately after the preceding crop is removed, the second early in the spring, and the last or seed earth just before the sowing. Others advise that the land should, from the preceding autumn to the time of sowing, have three or four ploughings; or two and sufficient scuffings, and be well harrowed to a fine surface. In Suffolk the tillage consists in three earths, with harrowing to make the soil perfectly fine; and it is laid flat, with as few furrows as possible. It has been well observed that there are many crops for which tillage should be cautiously given, as the weeds that may be set a-growing will choak and get the better of various plants; but this is not the case with hemp, which is so predominant in its growth, that it kills or destroys all weeds. —In the ploughing before sowing, well rolled manure in the proportion of about twenty, or good rich compost in the quantity of thirty three horse cart loads, should be turned into the land, as without such dressings it is seldom that a good crop can be raised. In Suffolk "they manure for it with great attention, so that it may be taken as a maxim, that hemp is not often sown without this preparation: of dung and moulds twenty-five three horse loads per acre; of dung alone, sixteen loads. This is done directly after wheat sowing is finished. In Scotland the ground for this crop is directed to be well manured with the best dung, and made fine by tillage in winter, ploughed deep immediately before sowing, and the top dressed with ashes, or the dung of horses, sheep, or pigeons.

In the Argyleshire Report it is remarked that hemp is capable of being wrought, not only into these coarser articles, but also into fine linen more lasting than that made of flax. Hemp, though it requires rich and strong land, exhausts the ground so little, that for many years it may be raised on the same spot, if well manured. It is an excellent cleaner of the ground, and is said to have the property of preserving from insects any crop that is within a bett of it. And others say that from being remarkable for feeding or ameliorating

the soil and killing weeds, as well as growing perpetually upon the same ground, it seldom needs manuring or weeding after the first year.

The utility of the surface of the ground being left as perfectly flat as possible in this culture is, that the moisture is more effectually preserved, and the support of the plants more fully secured.

Choice of seed and method of sowing.—In the growth of hemp crops, it is of much consequence to have fresh good seed, which may be known by its having considerable weight, and a high degree of brightness in the colour. In respect to the quantity of seed, the proportion usually made use of is from two to three bushels, according to the nature and quality of the land; but as crops of this sort are much hurt by the plants standing too near together, two bushels or two bushels and a half may be more proper. According to Mr. Young it varies from eleven to fourteen pecks. In Suffolk the quantity of seed is eleven pecks per acre, at the price of one shilling to two shillings a peck, generally from sixteen to eighteen pence. Much is brought from Downham and the fens; the seeded hemp is not so good by eighteen pence or two shillings the stone. In Argyleshire they use from twelve to sixteen pecks to the acre, according to the quality of the soil. If sown in drills much less will do.

In regard to the method of sowing, it is usually performed in broad-cast, being evenly distributed over the surface of the land, and lightly covered in by means of harrowing. Some however have recourse to the drill method, as promoting the early growth of the plants in a more effectual manner, especially in crops intended for seed. Mr. Young cannot however see any motive for drilling a plant which utterly destroys weeds, except one, that of burying the seed at an equal depth. Should any person be inclined to drill, the rows should, he says, be as near to each other as the shares of the drill can be set. In respect to the time of sowing this sort of crop, as the plant is tender in its early growth, the seed should not be put into the ground at so early a period as that it may be injured by the effects of frost, or so late as that the produce may be affected by it. The best period on the drier lands is probably as soon as possible after the frosts in April: but where the soil is of a more moist nature, it may be better to delay it to a later period: in all cases choosing if possible a season in which the land is neither too dry or too moist for the business. Early sowing is, however, to be had recourse to as much as possible, as where this is the case, Mr. Donaldson says the crops by becoming more strong and vigorous in the early part of their growth, the hemp withstands the va-

rious operations that are afterwards performed upon it in a better manner.

This is a sort of crop that may be grown after almost every other kind, and very well on land broken up from sward, where that is properly performed by the skim coulter plough; and it is frequently cultivated on the same piece of ground for a great number of years, without any other kind intervening. This is the case in the Ukraine as well as in Suffolk and other hemp districts. In the Report of Suffolk it is remarked to have been grown in succession for seventy years together, but in such cases manure must be applied with almost every crop, in pretty large proportion, to prevent the exhaustion that must otherwise take place.

In these cases the greatest care should always be taken to keep birds from devouring the seed, when first put into the soil, for they are extremely fond of it.

Little attention is afterwards necessary to the weeding and cleaning of this sort of crop, as from the tall growth and thick foliage of the plants, they soon cover the surface of the land, and prevent the rising of weeds. Where put in by the drill a hoeing or two may however be necessary.

Pulling.—It is remarked in the Argyleshire Report, that it is later than flax in ripening, and grows in *male* and *female* plants, of which the former produces only flowers, and the latter seeds. The male kind ripens four or five weeks before the female. The female is ripe when the flowers fade and the stalk turns yellow, and the male when the stems become pale. Both are less injured by being pulled too soon than too late. When the one is pulled, care must be taken that as little injury as possible may be done to the other. If the ground is formed into drills or narrow ridges, there will be no danger of hurting it.

The author of the Farmer's Calendar, however, says that in Suffolk the male and female hemp are pulled together; indeed, when the crop is thick it is impossible to separate them: but that in the fens the male and female, or femble and seed hemp are frequently separated. This may, he supposes, arise from their hemp being coarser and the stalks larger. It has been remarked, by Mr. Donaldson, that the last is the better practice, as by pulling a large proportion of the crop before it is in a proper state of maturity, the quantity of the produce must not only be considerably lessened, but its quality greatly injured, by being rendered less durable. The operation by which this is effected, is that of taking it from the ground, by pulling it up by the roots in small parcels at a time, by the hand; taking care to shake off the mould well from them, before the handfulls are laid down It is

usually done, about thirteen or fourteen weeks after sowing, and the expense varies considerably in different situations; in some it amounts to eighteen or twenty shillings, while in others, it is equally well performed for eleven or twelve. After being pulled, it is tied up in small parcels, or what are termed *baits*, in some places.

Where crops of this kind are intended for seeding, they are of course, to stand till the seed becomes in a perfect state of maturity, which is easily known by its appearance. The stems or stalks, are then pulled and bound up into bundles, being set up in the same manner as grain, until the seed becomes so dry and firm as to shed freely; it is then either directly threshed out upon large cloths, spread for the purpose in the field, or preserved, to have it done at some future period.

In these cases, care should be taken at pulling, not to shake the stalks rashly, otherwise much of the seed may be lost. It is advised, that after pulling the seed, hemp may stand on shocks of five sheaves to dry the seed; but in order to prevent any delay in watering, the reed-pods may be cut off with a chopping-knife, and dried on canvass exposed to the air, under some shed or cover. This last method of drying the seed, will prove of great advantage to the hemp, as the seed and pods when green, are of such a gummy nature, that the stems might suffer much by sun-burning or rain; which will discolour and injure the hemp before the reed can be sufficiently dried upon the stalks. Besides, the threshing-out the seed would damage the hemp.

Dew-retting and Watering.—In the preparation of hemp, there are two modes in use, which are termed dew-retting and water-retting, the latter affords finer hemp than the former; in some situations, seldom finer than two shillings the yard, while water-retted, are five shillings. They are both best performed in showery weather. In the first, the hemp after being pulled, is directly spread out in an even, regular, and thin manner, on a piece of level old pasture, on which it is to remain from three to six, or more weeks, according to circumstances, being occasionally turned during the time. When the weather is showery, this is mostly done three times in the week, but in other cases, twice is commonly sufficient. When the rind or hempy substance, becomes easily separable from the woody part or stem, it is taken up and tied into bundles, either to be stacked upon the spot, or carried home and placed in some convenient situation, where it may remain until wanted for use. In this business, which is termed *grassing*, great nicety is requisite, to prevent the texture of the hemp from being injured, by its remaining too long on the sward.

In the latter mode, which is more expeditious, when the hemp is all taken up, and bound in small bundles with bands at each end, to such a bigness as can be grasped with both hands, it is conveyed to a pond of standing water, (if a clay-pit the better) where it is laid, bundle upon bundle, direct and across thus, which is termed, a bed of hemp, and after it is piled to such a thickness as to answer the depth of the water, which some think cannot be too deep, though the usual depth does not exceed five or six feet, it is loaded with blocks and logs of wood, until all of it is totally immersed; after remaining in this state four or five days, as the weather shall direct, it is taken out and carried to a mown grass field, or any other grass land that is clean and free from stock: the bundles being untied, it is spread out thin, stalk by stalk; in this state it must be turned every other day, especially in moist weather, lest the worms should injure it. Thus it remains for six weeks or more; then it is gathered together, tied in large bundles, and kept dry in a house or stack, till wanted for use.

In Scotland, after the hemp is pulled, and the leaves, seeds, and branches, taken off with a ripple, it is made into bundles of twelve handfulls each, and steeped as flax from six to eight days. It is known to have enough of the water, by the reed separating easily from the bark. It is better the time should be too long than too short. The slenderest requires the longest time. When the quantity is small, the bark may be separated from the reed, by pulling out the reed from every stalk by the hand; when large, by drying and breaking it like flax. It is not spread on the ground there like flax, but dried immediately, by setting it leaning against ropes tied to trees or poles; or any other way that will give it all the advantage of the air, till it is thoroughly dry and blistered from the boon. After it is reeded, it must be freed from the mucilaginous matter, by pouring water upon it, and squeezing it several times, taking care not to let the threads entangle in each other.

Mr. Rainbeard, of Norfolk, in the watering of hemp, has a contrivance, by means of which it is deposited in the pit, without any necessity of a single person being wet. The pond is an old marl pit, with a regular slope from one side, (where the hemp is prepared,) to the depth of eight feet on the other side: on the slope above the water, the hemp is built into a square stack, upon a frame of timber of such a height, as will float and bear a man without wetting his feet: this is slid down upon the frame into the water, and when floating drawn away; a person on the opposite bank, drawing the floating stack to the spot where it is to be sunk, and on which it is built to the requisite weight. He finds it does soonest at bottom, and would

not object to sixteen feet of water. By means of this very useful contrivance, he can put in a waggon load in an hour. The sheaves are taken out in the common manner, sheaf by sheaf; but here a further improvement is wanted, which may, probably, be effected by some simple contrivance, on the principle of the lever.

In many places, the hemp left for seed, is not water-retted, on account of the additional trouble and expense, though it would be better to have it done. It is mostly stacked and covered during the winter, and spread upon meadow land about January or February, if in the time of snow, the better, it will come to a good colour, and make strong coarse cloths, but it is much inferior to hemp pulled in proper time and water-retted.

Preparation for heckle. This is mostly accomplished, by having recourse first to coarse, and then to a finer break. It may also be done by the rollers of a lint-mill, shaking the handfulls frequently and smartly, either of which methods will answer, when the hemp is properly watered; when that happens not to be the case, indeed, it is often necessary to *peel* off the rind from the boon with the hand.

Other methods have likewise been employed for this purpose.

Produce. In regard to the quantity of this sort of crop, it must be liable to vary, according to the nature of the land and the culture employed. In the county of Suffolk, it often rises to forty-five and fifty, or more stones on an acre, but in other districts, it does not sometimes exceed twenty-five. It is stated, by Mr. Donaldson, that the average of crops of this sort, when made ready for the heckle, are from thirty-eight to forty stones, of fourteen pounds each. The price is generally from about seven shillings and six-pence, to eight or nine shillings the stone, exclusive of the bounty allowed by government, which often amounts to fifteen or twenty shillings the acre more.

In Norfolk, an average crop, is about forty stones, at present, about twelve shillings a stone, water-retted; dew-retted, nine shillings. The common price of seven years, six shillings dew, and water-retted, eight shillings. In Scotland, the produce of an acre of hemp, when it grows well, may be reckoned about forty stone, and the price, from ten to twelve shillings. In hemp standing for seed, the usual proportion is from about eleven to twelve bushels, the acre, the price being mostly from four to six shillings, the bushel.

It is evident, from crops of this nature, requiring the most rich sorts of soil, large supplies of manure, and much labour and trouble in the different processes through which they pass, that the expences must be considerable. There are shewn,

with the amount of produce or profit, in different districts and counties below.

In different districts of the county of Norfolk, they are stated to stand thus.

Account seven miles round Diss, Lopham, &c.

EXPENCES.

	L.	*s.*	*d.*
Rent - - -	2	0	0
Tithe - - -	0	5	0
Rates - - -	0	5	0
Ten pecks of seed, at 1s. 6d. -	0	15	0
Sowing - - -	0	0	6
Three earths - -	0	12	0
Five harrowings - -	0	2	6
Ten loads of farm-yard dung -	2	0	0
	6	0	0

On an average, sells as it stands.

Hemp, selling from the break,	*L.*	*s.*	*d.*
at 6s. 6d. for -	8	8	0
Expences -	6	0	0
Profit - -	2	8	0

Suppose the crop 40 stone, dew-retted:

Pulling and spreading, turning and tying	1	5	0
Breaking, 1s. 3d. a stone -	2	10	0
	9	15	0

	L.	*s.*	*d.*
Forty stone, at 6s. 6d.	12	10	0
Expences -	9	15	0
Profit - -	2	15	0

About Diss, where the culture is effected by the high price of wheat and turnip seed, the cottagers sowing turnips on their hemp grounds, and when the seed is high, letting them stand for seeding, the following is the estimate.

Account of an acre.	*L.*	*s.*	*d.*
Rent, tithe, and rates -	3	0	0
Manuring 20 loads - -	5	0	0
	8	0	0

	L.	s.	d.
Brought forward -	8	0	0
Five earths - - -	1	5	0
Harrowing - - -	0	2	6
Seed, 10 pecks at 2s. -	1	0	0
Pulling - - -	0	15	0
Dew-retting, spreading 2s. 6d. turning 4s. 6d. getting 5s. -	0	12	0
Breaking 40 stone, at 14 lb. 1s. 6d.	3	0	0
	14	14	6

	L.	s.	d.
Value then, 8s. 6d. a stone	17	0	0
Expences -	14	14	0
Profit - -	2	5	0

Bunching and heckling, at 1s. 6d. on 40 stone - - -	3	0	0
	17	14	6

	L.	s.	d.
Value then, 40 stone, at 10s. 6d.	21	0	0
Expences -	17	4	6
Profit - -	3	5	6

Spinning 10 clews, at 8d. per stone, 6s. 8d.	13	6	8
Half bleaching 40 stone, at 2s. 1d. (chiefly labour - - -	4	6	8
Winding on bobbins, 40 stone -	1	0	0
Weaving, 40 stone - -	8	0	0
Bleaching the cloth (nearly all labour)	3	6	8
Total culture and manufacture of every acre	47	14	6

After another crop on a layer, about Fritton, Bessingham, Palgrave, &c. it stands thus.

Expences on an acre.

	L.	s.	d.
Rent, tithes, and rates -	2	0	0
Seed, 13 pecks, at 2s. -	1	6	0
Manure - - -	5	0	0
Three earths - - -	0	15	0
Harrow and sow -	0	5	0
	9	6	0

	L.	s.	d.
Brought forward -	9	6	0
Pulling, retting, spreading, lifting, turning, binding, and housing -	3	0	0
Breaking, 40 stone, at 1s. 6d. -	3	0	0
At 7s. 6d. it only pays - -	15	6	0

In the neighbourhood of Hoxne, in the county of Suffolk, according to the Survey of that district, the account of an acre may be thus extenuated.

EXPENCES.

	L.	s.	d.
Rent, tythes, and rate -	1	10	0
Manure, 25 loads, at 1s. 6d. -	1	17	6
Three earths, at 4d. harrow included	0	12	0
Seed - - -	0	16	6
Sowing - - -	0	0	6
Pulling - - -	0	12	10
Watering - - -	0	12	0
Grassing - - -	0	10	0
Breaking - - -	2	12	6
Carriage and delivery - -	0	5	0
	9	8	10

PRODUCE.

Forty-five stone, at 7s. 6d. -	16	17	6
Expences - - -	9	8	10
Profit -	7	8	8

But about Beccles, where another mode of calculation is had recourse to, and rent *valued*, it stands in the following manner.

EXPENSE.

	L.	s.	d.
Rent, tythe, and rates -	4	0	0
Manure - - -	3	0	0
Tillage - - -	1	4	0
Seed, 12 pecks - - -	1	16	0
Pulling - - -	0	19	0
Watering - - -	0	12	0
Grassing - - -	0	10	0
Breaking - - -	2	10	0
	14	11	0

Produce.

50 Stone at 8s. - -	20	0	0
Expences - -	14	11	0
Profit - -	£5	9	0

The estimate of the Rev. Mr. Mills, as given in same works is this.

Expences on one Acre.

	L.	*s.*	*d.*
Rent of an acre of land -	1	0	0
Ploughing, sowing, &c. -	0	10	6
Three bushels and a half of seed, (sold from 1s. 4d. to 2s. 6d. per peck) at 1s. 6d. per peck -	1	1	0
Boy keeping birds a week or more	0	1	6
Pulling at the rate of 1s. per week, according to the seed sown -	0	14	0
Getting it in and out of water, turning and laying up - -	1	1	0
Tythe and rates, suppose -	0	6	0
The lowest crop is 48 stone per acre, let us suppose only 40, breaking at 1s. 3d.	2	10	0
	7	4	0

Produce.

40 Stone at 7s. - -	14	0	2
Parliamentary bounty, 3d. a stone	0	10	0
	14	10	0
Expences - -	7	4	1
Neat profit per acre -	7	6	0

In Lincolnshire when *plaited* in bundles, the hemp is sold at 5s. to 7s. 6d. per stone, but has been known within ten years at 2s. 6d. and 3s. 6d. In 1795 and 1796 from 5s. to 7s.; 45 stone an average crop, 50 very good.

Account for an Acre.

	L.	*s.*	*d.*
Three ploughings and harrowings	0	15	0
Seed - - -	0	15	0
Sowing - - -	0	0	6
Pulling by the hundred (120) 1100, 1s. 6d. - - -	0	16	6
Knooking and burning, 6d. a hundred	0	5	6

				L.	s.	d.
Brought forward				2	12	6
If tied five in one, it is 2s. per hundred; or 6d. single tying at the root end, as well as at top				0	1	10
Watering, casting				0	5	6
Spreading, two women				0	2	6
Putting in				0	2	0
Taking off sods, and taking out				0	2	6
Carting				0	5	0
Twice turning				0	3	0
Gathering				0	3	0
Carting to barn				0	4	0
Breaking 45 stone				2	5	0
Carrying out 1d. a stone				0	3	9
Rent		1	10 0			
No tithe; poor rates		0	5 0			
Drainage tax		0	2 0			
				1	17	0
				8	9	7

In Scotland the estimate of the expence and profit of an acre of hemp is thus stated:

	L.	s.	d.
Rent, suppose per acre	3	0	0
Manure, the first year more than others, but it is most advantageous to sow after turnip	2	0	0
Crop, say 40s.			
Three times ploughing and harrowing	0	18	0
Seed, suppose 4 or 5 pecks	0	10	0
Pulling the female hemp, and trimming	0	10	6
Cutting the male hemp, and trimming for putting in water	0	7	0
Getting from the reed, and washing the female hemp	0	13	6
Getting the male from the reed, and washing	1	0	0
Soap	0	2	6
Threshing seed	0	2	6
Total supposed expence	9	4	0
Produce.			
Female hemp, suppose 125lb. at 1s. per lb.	6	5	0
Seed suppose 20 pecks at 2s. 3d.	2	5	0

	L.	s.	d.
Brought forward	8	10	0
Male hemp, suppose 375 lb. at 7½ per lb.	11	14	0
Faggots - - -	1	0	0
Total, supposed produce -	21	4	0
Total, supposed expence -	9	4	0
Total profit -	12	0	0

On the cultivation of this crop in Upper and Lower Canada as practised by Frederick Arnold, we have the following estimate in the last volume of Transactions of the Society for the Encouragement of Arts, &c.

Expence of cultivating 11 acres and eight perches of hemp, three feet apart, by Joshua Cornwall.

		L.	s.	d.
1802 June.	7 Days ploughing	5	16	0
	Drilling and harrowing	3	0	0
	Half a bushel of seed	1	4	0
August.	7 Days pulling out the summer hemp -	2	16	0
October.	9½ Days cutting the seed	3	16	0
November.	21 Days gathering, threshing and cleaning the seed	8	8	0
		25	0	0

Expence of cultivating 12 acres, 2 quarters and 30 perches of hemp, 18 inches apart, by Frederick Arnold

	L.	s.	d.
9 Days ploughing with a man and horses - -	7	4	0
3 Days harrowing - -	2	8	0
3 Men and team, for four days drilling	6	0	0
3 Men for 5½ days weeding and pulling out the summer hemp -	6	12	0
1 Man 11 days cutting the seed hemp	4	8	0
A pair of horses and one man hawling the hemp for 4 days -	3	4	0
Threshing and cleaning the seed	7	4	0
	37	0	0

And by Mr. George Ward the estimate was as below:

Account of expence in cultivating two acres and eight square chains of good new land for drilled hemp.

	L.	s.	d.
May 12. Ploughing, a man and team, at 16s. per day -	4	0	6

		L.	s.	d.
	Brought forward	4	0	6
	Harrowing, 16s. per day -	1	2	0
	Harrowing with a man and horse	0	18	0
	Sowing seed in furrows, at 18 inches apart, 2 men at 4s. per day each - -	0	8	0
	Harrowing (same day) -	0	16	0
June 27.	Ploughing between the drills to destroy the weeds -	0	9	0
	Hoeing; men at 4s. per day each	2	0	0
Oct. 16.	Cutting; men at ditto -	1	4	0
	Carrying - -	1	12	0
	Thrashing; men at 6s. per day each	1	4	0
	Cleaning seed; men at 4s. per day each - -	0	8	0
	A man attending to stir and air the seed - -	0	4	0
		14	5	0

It is observed in the Argyleshire Report that this will prove a profitable crop to the farmer who has greatly the advantage over the importer of foreign hemp, which, over and above freight and risk, is liable to a heavy duty.* But the principal advantage of this crop is, that, like flax it is capable of being brought to many times the value of the original raw materials. It is spun into clues of 4,800 yards, and pays about the twentieth part for bleaching. The price of the clue depends upon its fineness. At one clue from the pound it is 7d. one half 8d. two 9d. two 1 half 10d. and three clues 12d. each. A spinner will earn 6d. a day with ease, spinning two thirds of a clue, and a weaver may earn from 10 to 15s. a week. The finer yarn is made into cloth for shirts and sheets, worth from 3s. to 4s. the yard; and lasts twice as long as that which is made of flax.

It is stated in the Norfolk Report that

A good spinner earns 8d. a day
A middling one 6d. a day
A bad one, or child 4d. a day
The weavers 7s. to 14s. a week
Women ditto, 10 or 12s.

And that the price of hemp, from the breadth, was in

* The duty on imported Hemp when dreſſed is 2l. 4s. per cwt. and undreſſed 1l.

1789 Hemp bought at 5s. per stone.
1790 Ditto, 5s. 6d.
1791 Hemp bought at 5s. per stone, per acre

		L.	*s.*	*d.*
1792	Ditto, — —	4	15	0
1793	Ditto, — —	6	0	0
1794	Ditto, 7s. 6d.	6	6	0
1795	Ditto, 7s.	7	7	0
1796	Ditto, 6s. 6d.	7	7	0
1797	Ditto, 7s.	7	7	0
1798	Ditto, 6s.	6	6	0
1799	Ditto, 6s.	7	0	0
1800	Ditto, 8s.	9	9	0

These estimates shew that though the expences of cultivation are very considerable, the value of the produce amply repays them; of course that it is a sort of crop that the farmer might look to with confidence for profit, if a proper stimulus to its introduction was afforded. And that this, under the present circumstances of the country, should be done, cannot be disputed by any one, who has thought seriously upon the subject.

There are however some circumstances which should be particularly regarded by the farmer in undertaking the growth of this crop which are those of having a proper market, being provided with the necessary supply of manure; the diminution of the extent of green crops that must take place in consequence of it, and the consideration of its being a sort of crop that affords nothing for the purpose of increasing the dung heap. These and other local circumstances should constantly be well considered.

There can, however, be no doubt but that in many situations it might be cultivated with great profit, and that it would be of vast national benefit to have its growth extended to a much greater degree than at present; but this cannot take place, while the price of wheat is at its present height, unless due encouragement was given by the legislature. If that was the case, as it affords an excellent preparation for wheat, it would, in all probability, be much had recourse to, especially, if such encouragement was held out for any suitable length of time. In those situations where its culture is the most extensively practised, it is confessedly of great advantage also to the poor, in affording them much employment. And it has been suggested, that it would be of great advantage to encourage the growth in all places where there is much need of sail-cloth, cordage and netting; to keep the money that goes for these articles in the country, and to give employment to the poor.

The making of sail-cloth and cordage is indeed a most important manufacture for places which abound in hands, and which send away large sums for these articles that might be so easily made at home.

The following Answer given by Mr. Arthur Young, to some Queries transmitted to him on the subject of increasing the growth of hemp; shews the necessity of some thing being done in order to promote the cultivation, as well as the importance of it, and at the same time suggests a safe plan by which it may probably be effected.

"The only account to which he can, he says, at present have recourse, to discover what is the import of hemp, is a detail of imports of merchandize from all the world, from the 5th of January, 1792, to the 5th of January, 1793, in which rough hemp is set down at 614,362 cwt. value 522,207*l.*—Whether this includes the import for the Royal Navy, he knows not, but in the following calculations, must presume that it does include the whole. It makes 30,718 tons, at 17*l.* a ton, or 2s. 1½d. a stone of 14lb. from which price he concludes that this hemp is in its very earliest stage of dressing. Hemp sold in England, in 1796, at 61*l.* 10s. a ton.—*Annals*, vol. xxvii. p. 79.

"The hemp lands of the counties of Lincoln, Cambridge, Suffolk, and Dorset, yield nearly the same crops; from 35 to 50 stone per acre; 40 may be considered as an average crop; in which ratio it takes exactly four acres to produce a ton; and 120,000 acres for the quantity imported of 30,000 tons.

"He cannot, he says, conceive that it is impracticable to add 120,000 acres to our hemp grounds, even in England alone; certainly not, in England and Ireland together. But it would be impracticable to add a tenth part of that space, without giving a most decided and effective encouragement.

"The former bounties per stone, had no effect whatever—they did not occasion a single acre extraordinary to be sown; and he personally knows that many persons who cultivated hemp, did not even think them worth applying for; the forms were so difficult and tedious.

"He has not the act to recur to, to know exactly their amount, but it was either 3d. or 4d. a stone; at the latter, 40 stone gave only 13s. 4d. an acre bounty; totally insufficient as an encouragement for an article which we know is not extended under a bounty of from eight to ten times that encouragement in the price of the commodity. The rise cannot be estimated at less, on an average, than 2s. a stone from the breaker. Yet this great advance does not extend the cultivation. In all these articles there is an apprehension of the price falling, if generally gone into. Two shillings a stone is

a bounty of four pounds per acre—but being liable to a fall in price, it has little or no effect.

"There are other circumstances which unite, he says, to prove, that a bounty, to be effective, must be very large. It would not be easy *very greatly* to extend the culture without ploughing up grass-lands for the purpose; nothing prepares for hemp so well as the land lying under grass; but landlords do not admit grass to be ploughed by tenants; and as the latter would reap all the profit, of course they would give no indulgence where they would reap no advantage. This reduces the object to the grass-lands in the hands of the proprietors, unless the parties were enabled to divide the bounty.

"The land which will produce profitable crops of hemp, is applicable to various other beneficial purposes; and to induce men who possess such land to vary from their common objects, would demand a very powerful impulse.

"There seems to be, he thinks, but two ways to give this impulse; one by a general bounty per acre (per stone would be more liable to fraud) on all hemp that produced 35 stones and upwards per acre; the other, to dispatch intelligent persons through all the hemp districts, and others where the soil is rich enough, to form contracts with all persons willing and able to raise the commodity largely; engaging to take all they produced, not less than —— tons, at a given price, for five years.

"To engage for such a period would be absolutely necessary, for undoubtedly a man would not plough up good grass for any inducement of a shorter duration.

"He does not conceive that a less bounty than 5l. per acre would have the desired effect; and the only limitation that would be admissible, would be to limit it to a certain sum, for instance, 600,000l.; and if the claimants exceeded it, then to be divided among them proportionably.

"If the other method of contracting were adopted, the price must, in negotiation, be raised, till it satisfied them of the profits of the undertaking: 10s. or 10s. 6d. a stone might prove sufficient: and for five years also."

"He is inclined to think that by either of these measures the requisite quantity of land might be brought into this cultivation; and it would have another beneficial effect, of adding to the culture of wheat—hemp prepares well for that grain, which is commonly sown after it.

"The parts of the kingdom most fitted for the culture of hemp are, the rich lands of Lincolnshire; the skirts of the fens of Cambridgeshire, great part of the fens themselves; all the upland-lands enclosed in the fens; the coast lands of Essex and Sussex; the coast, and various other tracts in Dorset,

Somerset, and Devon; and much of the convertible soil laid to grass in all the central counties. In Ireland, large districts in Limerick, Tipperary, Roscommon, Meath, &c.

" Ireland producing much flax, is not a proof that it would do for hemp; as much flax is sown in the north of that kingdom on soils not adapted to hemp.

" The private advantages which would result in Ireland, from applying public money to the encouragement of the growth of hemp, would depend on its being a measure not of the moment. To induce them to break up their grass-land for this object, and then by withdrawing the bounty leave them to common husbandry, would be injurious, supposing them unwary enough so to be led astray.

" In regard to pointing out individuals able to contract for the delivery of hemp, to the amount of fifty or one hundred thousand acres; he could not name them. The proper way would be to take a journey into the right districts, and apply to great numbers, with powers to make such a contract; a person well skilled in husbandry, to explain the benefits, and answer objections and doubts; could by posting, traverse a great extent of country in a month, if he knew the right roads to take, and a good scattering of individuals to apply to immediately. Such an experiment would enable Government to ascertain pretty nearly what may be expected. He is of opinion that many thousand acres might thus be secured for sowing next spring.

" As to giving any assistance by advancing capital, he does not conceive it to be in the least degree necessary. The culture is not expensive; and those men who possess or occupy the proper land, are generally in sufficient circumstances for the undertaking. They want only a sure price for a proper number of years. Men who are in want of so small a capital are not likely to effect the business. But attention should be paid to procuring large quantities of seed, which individuals, in case of a great extension of the culture, might not be able to procure. From ten pecks to three bushels are sown per acre.

" The plans above suggested would take effect upon a very large scale next year.

" As there are many allusions to the old bounty in the queries, it is necessary to observe, he says, that they require so many forms, and such delay in payment, that no extension would make them answer. And if a bounty should be given per acre, though certain forms would be necessary, yet these should be as simple as possible.

" One objection to a bounty is, that it would equally encourage and reward, at the expense of five pounds per acre,

all the hemp which would be cultivated though no such measure was adopted, as well as new undertakings, alone in contemplation. Contracting avoids, he says, this: it also admits a progressive experiment in which to feel your way; but a bounty plunges at once to the full extent of the measure."

HORSES AND OXEN COMPARED IN HUSBANDRY.

To the Editor of the Agricultural Magazine.

SIR,

IN your last, (Number 7, page 52,) the question of the Horse and Ox, for labour, is again revived, by a Hertfordshire Farmer's opinion, given by your correspondent X. Z. This question, I thought, was set at rest, by your highly valuable correspondent, Agricola Northumbriensis. I do not presume to offer any additional arguments after him, but to notice some circumstances which occurred to me, after reading the Hertfordshire Farmer's statement. I shall, therefore, first trouble you with the practice of the county of Durham, which may be compared with the county of Hereford; and I believe, if a correspondent from each county would give you a true account of their respective ploughs, and the force of draught employed, and you were to publish the whole when collected, in one paragraph, every unprejudiced farmer, would soon perceive which to adopt for his own interest. The ploughs in general use in this county, are the swing-plough, called Small's, or Rotheram plough; which is worked on all kinds of soils, by two horses and one man only. And a farm of two hundred acres will require three of these teams, or provincially called here *drowls*; but of these six horses, two or more will be mares, and from one of these mares, a farmer will have a foal every year, sometimes two. The colts at two years old are broke in to the plough, and at three and four years old, will sell rough from the plough for from twenty to forty pounds, according to figure and action. The mares are put to light ploughing and carting when with foal, and during the next summer also, with the foal running by her side. And a farmer having a succession of colts, is never at a loss to make good the temporary absence of the mares to supply his teams, which are a fother cart, for manure and lime, and a gehoe, or long cart, for hay and corn, both drawn by two, and sometimes three horses. Waggons are very seldom used. In the calculation upon horses and oxen, a deduction has always been made for the annual decrease in

value of the horse, but intelligent farmers here avoid that loss, as may be seen by the following statement, and no farmer ought to suppose loss by horses—the decrease of value is with the consumers of horses.

DEBTOR.	£.	CREDITOR.	£.
To cost of six horses and mares, four years old	150	By after 3 years, a colt horse, or mare, sold every year for 8 years, at 25l. .	200
To expence of keep of colts before they are put to the plough, 8 years, at 10l. .	80	By 6 on hand, being bred from the first stock, at 25l. .	150
To balance gained .	120		
	350		350

The balance may be more or less, according to the qualities of the mares, and the choice of suitable stallions for getting handsome stock. The use of mares and breeding of horses, is one of the circumstances I have not seen published in the question of animal labour, but it must strike every one's observation, that if Agriculture was wholly or generally performed by oxen, our manufactures, commerce, and the thousands and tens of thousands, of all kinds of vehicles for trade and pleasure, must also be drawn by oxen, or we must become importers of horses, at an expence equal to any thing that has ever yet been paid for corn.

And there is another circumstance, not yet noticed in any account I have seen, which is decisive in my mind in favour of horses. The service of the ox is limited to four years, that is, from three to seven years old. The horse twelve years, that is, from three to fifteen years old. A farm of two hundred acres requiring six horses, at five acres each, or twelve oxen, at four acres each, to be allotted for their keep—then thirty acres would be required for the horses, and forty-eight acres for the oxen. But from the long duration of the service of the horse, there can only be added ten acres to the thirty for the keep of two succession colts; whereas, from the short duration of the service of the ox, the young stock to supply the yoke cannot be less than—

4 three years old to succeed the oldest.
4 two ditto ditto the three years old.
4 one ditto ditto the two ditto.

	Acres.	
12 at 3 acres each, is -	36	
12 at 4 ditto working oxen -	48	
		£.
	84 at 3l. per acre	252

		£.
Brought forward	84 at 3l. per acre	252
6 Horses and mares, and 2 colts	40 at 3l. ditto	120
	44	
Balance in favour of horses . .		132

On a middling farm of 200 acres, taking for granted that a Farmer breeds and sells his horses or buys colts, working them and selling them for profit; then *vice versa* on the same farm with oxen, allow the farmer to sell off four oxen every year at 25l. each, there is 32l. left, which added to 2l. more per acre, on 44 acres if in tillage, &c. as the produce above, 3l. as taken at. The balance in favour of horses on such a farm will then be 120l.

The Herefordshire Farmer has stated in his Dr. and Cr. Account of Horses and Oxen, with a balance of 44l. against *one* horse team only. After what I have stated as the practice of the county of Durham, such an account needs no further comment, as every farmer must perceive it his interest to employ horses; and, as to the public benefit, notwithsanding the laudable exertions of Lord Somerville and others in recommending oxen for the public interest. I am of a different opinion from the circumstance of 44† acres being gained from a farm of two hundred acres, when worked by horses, and the certainty of our being importers of horses, if oxen were to come into general use for agricultural labour. The very great advance on horses within these few years, has induced several dealers in the North to import from Ireland, numbers which are now to be met with in all our great fairs; a proof that the consumption exceeds the supply at home, which is an evil: and if oxen are to be substituted for horses, it will prove an evil of the greatest magnitude.—The horse is the *primum mobile* of all our wealth and consequence.

I am, Sir,

Your humble servant,

A DURHAM FARMER.

† The Value of this for the Public Benefit, see page 242, vol. 9th, by Agricola Northumbriensis.

SOME STATEMENTS ON THE APPLICATION OF MARLE, AS PRACTISED IN NORFOLK.

To the Editor of the Agricultural Magazine.

SIR,

THE advantages that have resulted from the application of this substance have been very considerable in this district, and constituted one of the principal means by which it has become of so much consequence in an arable point of view. It is applied in different proportions, in different situations, as will be seen below.

The usual mode of conducting the business is by a heavy sort of cart, termed a tumbril, which on being measured, was found to have these dimensions; length, six feet; width, four feet; depth before, two feet; ditto behind, one foot; contents, 36 cubical feet; price of filling, 28s. per 120 loads, filling, spreading, and pumping out water from the pit, if necessary; six horses, two tumbrils; four men fill thirty loads a day. They, however, vary a little in some places.

Expence per Acre for sixty loads.

	L.	*s.*	*d.*
Filling and spreading - -	0	14	0
Two days work of six horses, allowance of oats, two coombs a week, at 10s. which for two days is - - -	0	5	8
Hay - - -	0	9	0
Decline of value 5l. 12s. 6d. per horse per ann. at such hard work, or 4½d. a day, for 300 days, and for 6 horses 2s. 3d. a day	0	4	6
Interest of his purchase, 30l. or 30s a year 1¼d. a day, and for six, 7½d. -	0	1	3
Driver, at 1s. 6d. - -	0	3	0
Wear and tear of carts, and interest of first cost, 25l. say 15l. per cent. 3d. a day	0	0	6
	1	17	11
Sundries, shoeing, harness, &c. -	0	1	3
Per acre, for sixty loads -	1	19	2

It seems that these expences might be considerably diminished by the use of single horse carts, and at the same time be rendered much more expeditious. It is probable that the result of a trial of this kind, would shew that treble the work

would be done by each horse, and of course a great gain in the team, without any disadvantage in other respects, except that of the parade of the team. Besides, it has been remarked, that the driving may be performed by children, which is a measure of parochial and national benefit, which wants no explanation, and that with one horse machines of whatever kind, it is not necessary to allow a horse in the standing cart; the horse in an Irish car, or any other, if prepared with that view, is attached in an instant, as quickly as that of the hooking a traise horse to a thiller. And in this point, an improvement, which was introduced by Mr. Colhoun, of Norfolk, is deserving of attention, which is to draw the carts of any size out of the pits, by means of a capstan, in whose practice, three wheelled tumbrels are employed; and to save the extra number of horses, which are used in common to get the load out of the pit, he applies a boy and a horse to the lever of it, and draws up the load with so little loss of time, that the whole operation takes but three minutes and a half, and with horses in the common way, three: if it demanded more, the objection would go no further than letting there be an extra cart in the pit, which would prevent any waiting. By this machinery, the pit may be dug of any depth, without impeding the raising the load; a great advantage, not only to the men in filling, but also in the quality of the clay or marle, which is usually better at the bottom of a pit, than in any other part of it. The pits are often twenty feet deep or more.

The proportion of this material that is made use of, is very different by different farmers in different parts of the district, but it is usually from eighteen or twenty, to sixty or seventy loads the acre; and a few, so much as a hundred, or a hundred and thirty or forty, on gravels or black sandy soils; some performing the whole at once, while others prefer the method of applying it at two or three different times, and the process is mostly by a strange contradiction in terms, called *claying*, probably from the marle being most commonly of the clayey kind.

There are principally two modes of using it; one is upon the layers or sward lands; the other upon the fallows in preparation for turnips. About Thelton, &c. no old pasture is ever broken up without marling. Much done in the vicinity, especially in all the new enclosures; and the best practice, that of applying it one year before breaking up. Without marle, it is supposed, the straw on new lands runs up weakly and *faint:* this manure stiffens it, and much increases the produce. The practice of Mr. Repton is to spread it on the layers, and he thinks the longer it is kept on the surface, the

better. Mr. Johnson also finds it best on a layer, but says it is highly injurious to the grasses. At Hackford, in a second application, it is found best in compost, with dung on layers for wheat. At Waterden, it is spread by choice on a one year's layer, and in winter rather than in summer; leaving it a year, and ploughing, for the first time, very shallow: other farmers are also favourable to applying it on layers of one year.

But near Yarmouth Mr. Thurtell is decidedly against claying on a layer: he has found, that in this way, it is four or five years before it works well. He spreads it to chuse, in the winter before a turnip fallow, by which means it is thoroughly mixed with the soil, and he knows several practical farmers of the same opinion. Mr. Ferrier agrees with him that it is best spread on a fallow; it works quicker and mixes better, than when on a layer. Mr. Francis spreads it to chuse also on a fallow, for turnips does not approve of marling on layers, because it hurts them, otherwise it is a good method, and not apt to sink so soon. About North Walsham, with white marle it is common to make layers of mould, the marle on to that, and then the yard muck, and turn the whole over together, chiefly for turnips, but some for wheat.

The indications of the want of this sort of manure in this district, are the appearance of the vegetable disease, termed *ambury* in the turnip crops, and that of buddle *(crysanthenum segetum)* and sorrels in the gap lands.

These statements shew that though the practice of marling has prevailed for a great length of time in this district, the ideas of farmers are by no means settled in regard to the most proper quantity, or the manner in which it may be best applied, while they are uniform and decided in regard to its great utility and importance.

I am, Sir,

Yours, X. Z.

HINTS ON THE RAISING OF APPLE ORCHARDS IN DIFFERENT NORTHERN DISTRICTS.

To the Editor of the Agricultural Magazine.

SIR,

THE use of this fruit is so beneficial, that the raising of it should never be omitted, where the soil and situation are favourable for the purpose. In this view, the hints and

directions given in the Surveys of two Northern Counties, lately laid before the public, are of so practical a nature, that I cannot but think they may be useful to your numerous readers.—Wishing you success,

I am,

Your most obedient,

R. R.

Glasgow.

THE writer of the Argyleshire Report observes, that as the raising of orchards is a profitable business, and an improvement for which that country is peculiarly adapted, the matter deserves much the attention of landlords. Orchards are generally reckoned to be worth from 5 to 10l. a year per acre, according to the soil and situation. Now this produce, except the trifling expence of the trees, is so much clear gain, as the undergrowth or pasture is hardly injured by the trees, if they are planted as they ought, from thirty to forty feet distant, or even more.

Orchards, too, may be planted on ground not capable of cultivation.† Hundreds of acres of such ground may be found in every parish. The produce from the conveniency of our situation might be sent to market with ease, and a large revenue brought yearly into the country. Thus might be kept in the kingdom, the money that goes yearly for fruit to America, and the improvement be not only a local but a national advantage.

In recommending this improvement, it may be observed, he says, that the common and general exposure of this county is to the south and south-west, the most favourable of any for orchards. The surface of the county too is so uneven as to afford every where sheltered spots and hollows fit for this purpose: the soil of such places is also deep and loamy in general, and the climate is warm and moist. To this we may add, that the strong reflection of the sun from hills and rocks makes the valleys warmer in summer than most other parts of Britain.

And it has been contended, that where there is a vigorous growth, shining bark and healthy state of forest trees, that

† In the parish of Dalziel, the fruit of twenty acres planted on the slopes of brooks yields from 100l. to 167l. per annum, and of these twenty acres, not six were worth sixpence an acre, except for planting. Stat. Acc. III. 460.—This parish is but five miles by three, and produces yearly 400l. worth of fruit. Our parishes in Argyleshire compared to it are large provinces, and might produce a revenue of this kind, large in proportion.—The county of Worcester, which is but 30 by 20 miles, has 2000 acres of ground under orchards; and expects yearly 11,625l. worth of fruit, 30,000l. of cyder, and 5,500l. of perry, in all 47,125l. which is above 20l. per acre. A. C. R.

fruit trees will thrive well; and experience, so far as it goes, fully justifies the opinion. The few old trees which have been planted in suitable soils and situations, are healthy and fruitful as any in the kingdom; and some gentlemen who have within these few years stocked their gardens with fruit trees, have found them to thrive beyond their expectation.—It is but three years since the gardens at Inverneil and Oakfield were planted, and the quantity of fruit in them last year was so great, as to give a reasonable expectation, that in two years hence, they will yield more than the families of the owners can consume: so that other landlords have the greatest encouragement to undertake the like improvements.—Even farmers, on ordinary leases would find it their interest to plant fruit trees in gardens properly exposed and sheltered: or the landlords might furnish the trees (which would be well attended to) and lay their account with being well refunded for the expence, when the trees should become productive. In Devonshire it is customary with gentlemen to plant nurseries for apple trees, which they give to any of their tenants who will engage to enclose a piece of ground for an orchard. A fruit garden would add much to the value of a farm; as the produce of it, without risk or labour, would always find a ready market. But fruit trees should not be confined to small gardens, where nature promises so fair for making orchards.

In designing an orchard, the first regard should be had to a proper situation, which should be moderately low; but in a very low and moist situation they are apt to canker, being well sheltered, especially from easterly winds which blow generally in the spring, and often prove fatal to the blossoms. A gentle declivity, facing the south or south-west, and screened from other quarters, is the most eligible. In the bosoms of woods, and along the windings of shores and valleys, such situations are to be found in abundance in every part of the county. If they can be got so as to admit of being occasionally watered, they will be so much the better; as orchards no less than meadows, may be greatly benefited by irrigation. In Clydesdale "orchards are mostly planted on steep hanging banks; and on such they have been found to succeed better than on plains, as subterraneous water flows most quickly away."

The former writer advises, that in the next place, the nature of the soil should be attended to. A cold spouty soil is to be avoided. A dry clay loam is reckoned the best; and if we may not always have this, we have abundance of dry kindly loam, in which fruit trees like forest trees, will be found to thrive well. If any particular spot in the soil is faulty, suitable manure may help to correct it. A cold heavy clay may be

brought to a proper temperament by the application of horse dung and ashes and a light sandy soil, may be mended by cow dung and mud. The ground if not trenched, should at least be prepared, as in the common course of husbandry, if it is of such a nature as to admit it. And in Clydesdale most of them stand on soils pretty cohesive, and on such the trees have been supposed to be surer bearers, than on open sandy soils; yet there are instances of orchards on friable and gravelly soils uncommonly productive. The apple tree in general succeeds on a pretty hard soil, provided the bottom be dry; but when the roots penetrate a subsoil, holding stagnant water, or greatly charged with the orange oxid of iron, commonly called ochre, the tree fails. The pear tree requires a soil of greater depth, and more soft and moist, and will thrive in an ochery subsoil, where the apple fails. It lives to a greater age, and arrives at a greater size and more towering height than the apple tree.

The choice of trees or kinds of fruit should likewise be regarded, for though almost any fruit is good where there is a little, yet this may not long be the case, and as the best are as easily raised as the worst, they ought to be preferred.* But what these are, must depend on taste and opinion, and each will naturally consult his own. As a general characteristic, however, it may be observed, that apples of red or yellow colour are commonly preferred, and that a large proportion should be of such as have the property of keeping well.

The trees should be planted very young, and if they have top roots they should be cut off, in order to make the roots spread laterally and near the surface. They will also thrive the better, if they are raised in poorer soil than that into which they are to be planted.

The nursery-man, who has no further interest in the trees, than to dispose of them, often raises his plants on rich soil, in order to make them look vigorous and healthy; but it agrees ill with them to be planted again in coarse. For this reason, gentlemen, should not altogether trust to them, but should be at pains to raise trees for themselves. Stock may be raised in abundance, from the seeds of apples of young vigorous trees of good kinds, and the best of them chosen, when three years old, for being grafted." The plants which have a large thick leaf, of a dark green colour and rather round, are the best. Those which have the leaf long, hairy, or brisley, and deeply indented on the edges, are to be rejected.

* Some kinds will thrive where others will not, and the planter will deal moſt in thoſe which he obſerves to thrive the beſt.

The stock should be grafted with the same kind of apple from which the seed was taken,* or with a kind as similar as possible, so as, at least, to have the general character of sour or mellow. When the stock and graft are of the same parent tree, they not only unite more readily, but give a better fruit, and come sooner to bear. When they are of different kinds, the chief care is to suit the graft to the stock in point of luxuriancy, for it is found that a luxuriant fast growing graft, does not succeed on a slow-growing stock, and *vice versa*. They should, therefore, be as similar in their growth as may be. A large growing kind of tree, will agree ill with a puny crab stock. Crab stocks will, indeed, last longer, but they are longer of coming to perfection. The choice of stocks are important. Native crabs are the hardiest, and prove the most durable trees. Codling stocks, and those raised from the seeds of good fruit, generally produce also finer fruit, but the trees seem to be more subject to disease.

Grafting is so simple an operation, that any one who has once seen it performed, or is shewn how it is done, may, with only a sharp knife, practise it successfully. The operation should be performed as expeditiously as possible, that the wound may be no time exposed to the air. The proper time is in February or March. All the art is to make the two barks (of the stock and graft) tally, to secure them by a ligature of new bass or matting well wetted with water, and to cover the bandage with the size of a goose egg of clay with moss over it, so as to exclude the sun and air, till the union of the parts is effected. Towards the end of May or beginning of June, the clay and bandage should be taken off. Or, instead of clay, a compost of sand and new cow dung may be used, as it is not so ready to crack. Some think it best to graft the trees, after they have been a year transplanted to the place where they are to continue, that they may meet with no check after they have been grafted.

In planting the trees, the holes should be made deeper and wider than barely to receive the roots, and should be dug a considerable time before they are needed, that the soil may be loosened and mellowed, so as to allow the fibres to extend easily.

The growth will be quicker, if a little good mould and lime or rotten dung, be mixed with the earth about the roots. The roots should be carefully spread in every direction, and none of them allowed to cross another. If the ground is very dry

* Some recommend the grafting of the plant into itſelf, by cutting away the leading ſhoot, and grafting a lateral one in place of it, to become the ſtem of the tree.

and loose, the trees may be planted in October and November, rather than in the spring. Care must be taken not to put them deep in the earth, to set them upright, and to preserve them from being hurt by cattle, while they are young. Any of them that may be exposed to cattle, should have triangular frames to defend them.

Care should also be taken to train them to a proper form, keeping the branches at a due distance from each other, and the middle of the tree open when it can be done, in order to let every part have its share of air and sunshine. Decayed and useless wood should be pruned off in winter or early in spring, with any low hanging branches that may be within the reach of cattle. When the branches are pruned, they should be cut close to the point of separation, which will make the bark close the sooner, and more quickly heal the wound. Any young shoots growing where a branch was cut should be rubbed off (not cut) as soon as observed in the spring. If any branch will be in the way of others in two or three years hence, it is better to cut it now; for the sooner that this is done the better. The wound will be less, and will soon heal. In five or six years from their being grafted, trees commonly bear; at thirty, they are in their prime, but continue vigorous till sixty, or if pear trees, to a hundred. It is said that all fruit trees which have been engrafted, are more delicate than those in a natural state, and require a more attentive culture. But cultivators differ in opinion, respecting the degree of attention. Some are for digging over the ground every year, at least, around the roots of the trees as far as the branches extend, dunging at intervals, and keeping down all weeds and herbage during the summer with the hoe; others think the trees are injured in their health, by the soil being kept too loose and open by perpetual stirring and dunging, and digging and dunging at intervals, and then letting the ground rest in grass for a few years. Some again prune the trees, taking many branches out of the centre to give free admission to the light and air.; some approve not of pruning, except cutting out those branches which bear upon and offend others, and others would not deprive a fruit tree of a single branch. Plumb-trees may be planted round the verge of the orchard, and are profitable, not only for the fruit they bear, but for sheltering the other trees. All fruit trees require shelter, and do but when they are embosomed in woods. The latest kinds do not arrive at perfection in backward seasons, and therefore, it is always proper to have a good mixture of summer and autumnal fruit along with winter's. A just proportion of apples, pears, and plumbs, is also proper, as one kind sometimes succeeds when another fails. Good bearing

trees, will often yield a hogshead of liquor worth a guinea, and pear trees sometimes two. When they do not bear, cutting a circle through the bark round the principal branches, which will stop the growth of the wood, and give a tendency to bear fruit instead of wood; and lime dissolved in water and applied with a brush will destroy moss, which is hurtful if allowed to grow on them. Blotches (occasioned by the stem growing too fast for the bark) are cured, by scoring the bark with a sharp knife, but not so deep as to cut the inner rind.

It is observed, that diseases are perhaps, as often communicated from the scion as from the stock. But the causes which produce the phenomena occurring in the orchard, are so intricate and incomprehensible, that the most effective and acute cultivators, can neither avert the injuries and maladies to which the trees are liable, nor cure those that are diseased. There is one disease to which fruit trees are subject here, called the canker. It begins with a blotch in the bark, which gradually spreads and produces a mortification in all the infected members, and finally kills the tree. In some soils and situations, apple trees are most infected with it; in some pear ones; in others, it indiscriminately attacks both. Again, there are soils on which the trees grow with vigour for some time, till a decay beginning at the extremity of the branches, gradually proceeds towards the trunk. When the diseased branches are lopt off, the tree sometimes recovers, and puts forth new shoots. The pith of those branches becomes black and corrupt, before vegetable life ceases in the exterior parts. When any part of the infected pith is left in lopping, the disease proceeds. But frequently all lopping is ineffectual and the tree dies, sometimes suddenly, and sometimes pines away by slow degrees.

In digging occasionally about fruit trees, care must be taken not to wound any of the roots. The fruit should also be taken away gently, without beating the trees and hurting their buds, which might prevent their bearing fruit the following year. The mark of apples being ripe, is their falling spontaneously from the tree. They are preserved from frost by laying straw under and over them, taking care to pick out any that may be damaged, before they spoil others.

ENUMERATION OF PATENTS LATELY GRANTED FOR NEW INVENTIONS.

Oct. 30, 1806. JOSEPH MOSELEY ELLIOT, of the parish of St. James, Clerkenwell, in the county of Middlesex, Watchmaker; for a new or improved method of making and constructing repeaters, or repeating watches, and time-pieces.

Dec. 4, James Frederick Matthey, of Suffolk-street, Charing-cross, in the city of Westminster, Lieutenant in De Menron's regiment; for various improvements upon fire-arms and guns of all descriptions.

..... 4, Samuel Williamson, of Knutsford, in the county of Chester, Weaver; for an improvement in weaving cotton, silk, woollen, worsted, and mohair, and each of them, and every two or more of them, by looms.

..... 4, William Hyde Wollaston, of the parish of St. Mary-le-bonne, in the county of Middlesex, Gentleman; for an instrument whereby any person may draw in perspective, or may copy or reduce any print or drawing.

..... 13, William Speer, of the city of Dublin, Esquire, now residing in the city of Westminster; for a new art, method, or process of purifying, refining, and otherwise improving fish oils and other oils, and converting and applying to use the unrefined parts thereof.

..... 13, Thomas Scott, of Clerkenwell-close, in the county of Middlesex, musical-instrument-maker; for an improved musical instrument called a flageolette English flute, or an instrument on the flageolette principle, so constructed as a single instrument, that two parts of a musical composition can be played thereon at the same time by one person.

..... 23, Ambrose Bowden Johns, of Plymouth, in the county of Devon, Bookseller; for certain compositions, and a mode of manufacturing the same, for covering and facing houses, and various other useful purposes.

..... 22, William Bell, of the town of Derby, engineer; for an improvement upon, and an addition to smoothing-irons, planeing-irons, and various edge tools, applicable to many useful purposes.

..... 22, Anthony George Eckhardt, of Berwick-street, Golden-square, in the county of Middlesex, Gentleman, Fellow of the Royal Society, and Member of the Society of Haerlam in Holland; for certain improvements in the mode of covering or inclosing books, whereby their contents will be secured from the observation of any person but the owner, and will also be preserved from injury.

CRITICAL CATALOGUE.

Transactions of the Society, instituted at London, for the Encouragement of Arts, Manufactures, and Commerce; with the Premiums offered in the Year 1806, Vol. xxiv.

WE have often noticed the transactions of this useful and patriotic institution with pleasure and satisfaction, but seldom with more than in the present instance. The papers are in general of the more useful and practical kind, of course, though the Volume is somewhat diminished in bulk, from a judicious regulation of the Society, there is no deficiency of *really* valuable matter.

The alterations which have been introduced, are thus stated in the preface.

"The Committee of Correspondence and Papers, being of opinion that a smaller type and closer form would answer every desirable purpose, and at a less expense, have adopted the present plan, by which a greater sum may be allotted for rewarding merit in different branches of Arts, Manufactures, and Commerce. Upon a similar principle, the Frontispiece to the Volume is omitted, and may perhaps, in future, be wholly relinquished, unless it is found necessary, from instances of great merit, to record the memory of such persons as may demand the particular attention of the Society, from having exerted themselves earnestly for its advantage; or to insert some exquisite work of art connected with its interest.

"In several instances, where the objects of the premiums offered during the last Session have been obtained, the offers for them are discontinued, and others introduced. Premiums are now offered, for the first time, for the preparation of Hogs' Bristles, equal to those imported from the Continent, and for the result of experiments to ascertain the proper thickness of Wicks for Candles. Considerable alterations have taken place in the class of Polite Arts, and additional Premiums offered."

Under the head Agriculture, we meet with information on a variety of objects of cultivation. The papers of J. C. Curwen, Esq. M. P. have shewn the practicability and importance of carrot husbandry, in stiff adhesive soils; the profit and advantage of winter dairies, and the application of a drill horse-hoe or weed-harrow, in cleaning drilled wheat crops. On its use he makes the following observations.

"The simplicity and ease with which it is worked has enabled me, this season, to give my wheat crop, which exceeds one hundred acres, two cleanings, and at an expense of somewhat less than a shilling per acre each operation; a man and boy, with one horse, being able to clean above seven acres per day. The direction of the harrow to prevent its injuring the grain, is effected by an alteration of the chain by which it is attached to the wheels. The distance of the teeth from the centre tooth must be regulated by the width of the drills. In case they exceed a foot, the harrow should be broader

to admit of another row of teeth. To clean at nine inches, two inches and a half is allowed on each ſide of the centre tooth, by which means every part of the earth is cut between the rows of grain. The ſize and ſtrength of the teeth muſt be regulated by the nature of the ſoil. The thing is ſo ſimple that I heſitated laying it before the Society, till I was encouraged by perſons whoſe experience and knowledge is infinitely greater than my own."

Mr. Charles Waiſtell, by combining the powers of the hoe and harrow, has likewiſe produced a promiſing tool of the ſame kind, for deſtroying weeds, and rendering the mould fine in the intervals of drilled turnip and other crops, drilled wide enough for the horſe-hoe. The following is the account which he gives of the implement.

"It enables the farmer to cultivate thoſe intervals as completely as a well wrought fallow, ſo long as the horſe can travel therein, without injury to the growing crop. I know not who the meritorious inventor is. The firſt I ſaw was a few years ago at Weſt Park, near Barnard Caſtle. This was brought from Carliſle by my brother, and many have been made from that pattern, and are now in uſe, and are highly approved of by farmers in the neighbourhood of Barnard Caſtle, where the turnip crops are now generally raiſed in drills about twenty-ſeven inches apart. This mode was firſt introduced there about twenty-three years ago, before which time they were all ſown broad-caſt."

The exertions of Mr. R. Phillips, and Mr. Cheetham, have been very conſiderable, in bringing the moſt unpromiſing waſte lands into a ſtate of cultivation and improvement. The intelligence and perſevering induſtry of the former, have eſtabliſhed corn and herbage on almoſt inacceſſible ſteeps, before covered only with ſtones, furz, and heath; and this with an advantage that ſtrongly points out what may be done in other ſituations. The latter, with a leſs enlightened practice, appears to have turned a poor, barren, moſſy ſoil, to conſiderable profit. The modes of cropping, that were in this caſe adopted, are diſgraceful to improved huſbandry, and ſhew, in the moſt ſtriking manner, the tardy diffuſion of agricultural knowledge. The application of lime, and the uſe of the paring ſpade, was here, as in all other ſimilar caſes, found the moſt effectual in deſtroying the heathy material.

Mr. Calthorpe's Paper, on the "Cultivation of Spring Wheat," is only intereſting, as ſhewing the expence and produce of ſuch crops on fen land, upon an extenſive ſcale, having grown it on eighty acres.

The ſtatements are theſe.

"The wheat was ſown between the 25th of March and 6th of April, 1805: but I have known wheat ſown with great ſucceſs as late as the 20th of May. It was reaped between the 1ſt and 14th of September.

"The kind was the horned or rough eared ſpring wheat.

"The land was ploughed once in broad ridges with the common Dutch plough; the ſeed was ſown broad-caſt; and the land was then harrowed twice with the ſingle horſe harrow.

EXPENCES.	L.	s.	d.		L.	s.	d.
Seed, 8 pecks per acre, 20 qrs.	5	0	0	per qr.	100	0	0
Ploughing . . .	0	4	6	per acre	18	9	0
Sowing	0	0	6	per ditto	2	1	0
Harrowing . . .	0	1	6	per ditto	6	3	0
Weeding . . .	0	1	0	per ditto	4	2	0
Leading . . .	0	1	0	per qr.	22	0	0
Stacking, thatching, and housing	0	1	0	per ditto	22	0	0
Thrashing by machine .	0	3	0	per ditto	66	0	0
Boating to market . .	0	1	0	per ditto	22	0	0
					262	15	0

A. P.

42 14 Of the land is moor upon clay, and
40 0 moor upon sand.

"The land was in a high state of cultivation: 51 acres 2 roods and 38 perches had borne turnips, and 30 acres 1 rood and 16 perches cole, the preceding year.

ACCOUNT OF THE PRODUCE.

Qrs.	ct.	st.		L.	s.	d.
413	1	3	Good wheat sold at 50s. per qr. .	1034	13	9
26	1	2	Refuse or hinder ends 25s. per ditto .	33	8	9
440	1	1		1068	2	6

"Weight was 16 st. 4 lb. neat per comb, or 57 lb. per Winchester bushel."

Mr. Wade's culture of the Ozier, affords little encouragement to the farmer to undertake such plantations, where his lands will produce other sorts of crops. The brown bug and black caterpillar, are to be carefully guarded against in this sort of plant.

Mr. Layton's, is a well conducted experiment, and probably decisive, of the advantage of the drill over the broadcast method of cultivating turnips. The result was what was to be expected in so fair a trial.

Mr. Dean's motives are, no doubt good, in communicating the Devonshire method of preserving turnips in the winter season, but it is not new or peculiar to that district. The mode is this, in the words of the farmer from whom he derived his information.

"He got, he said, his turnip seed into the ground early in June; and in October, by which time the turnips would have grown to a large size, he had the largest of them drawn without injuring the leaves, and then placed close to each other on the grass in the orchard, in the same position in which they grew. Their leaves preserved them from external injury; and their tap roots put out, in a short time, other fibrous roots into the grass; which, in orchards, is generally long in the autumn; and thus the turnips were preserved good for use."

Mr. Salmon's remarks on pruning fir trees, are of the useful practical kind, and shew him to be well acquainted with the business of the pruner, but they cannot be well understood without the plate.

Chemiſtry and the Fine Arts, have each furniſhed a paper which has merit, eſpecially the latter.

In Manufactures, the moſt intereſting paper, is probably, that of Mr. J. Auſtin, on a "loom to be worked by steam or water." This is an uſeful invention, as obviating the increaſing expenſe of hand labour.

On Mechanics, we meet with a variety of valuable papers, but we can only particularly notice that of Mr. Snodgraſs, on a "mode of heating rooms by ſteam," which ſeems capable of being applied with advantage in moſt large manufactories, where a cheap mode of communicating heat is an object. He was led to the invention, while remaining at Glaſgow, to ſuperintend the conſtruction of machinery for a cotton mill.

"During this period he was led to conſider of a cheap method of heating the mill, as he had learnt that fuel was extremely ſcarce and dear in the country in which the mill was ſituated. It was evident that none of the methods which he had ſeen practiſed could be applied, but at an enormous expenſe; and his experience had pointed out to him important defects and inconveniences in them all. Having observed a mode of drying muſlins by wrapping them round hollow metal cylinders, filled with ſteam, practiſed at the bleachfields near Glaſgow, it occurred to him, that by means of a proper apparatus, ſteam might be applied to heat a cotton mill, or any other large manufactory. It was evident that this not only would be an economical mode of producing heat in large works, ſo far as fuel was concerned, but that it would prevent the danger of fire, to which ſuch works, when heated in the uſual manner, are much expoſed."

On the whole, we can ſafely recommend this Volume of the Society's Tranſactions, as containing a conſiderable portion of valuable information.

HISTORY

OF

Agriculture.

PROCEEDINGS OF AGRICULTURAL SOCIETIES.

The President's Report; and the Rules of the Workington Agricultural Society, for the Year 1806.

THE ſociety to be governed by a preſident, ſixteen vice-preſidents, a committee of twenty four, and a ſecretary.

The general meeting of the ſociety to be held annually at the Schooſe Farm, in October, upon a Friday.

That there be four diſtricts, viz. Keſwick, Wigton, Cokermouth, and Egremont; and that the diſtrict or ſub-meetings of the ſociety be held annually at thoſe places, and alſo at Calderbridge and Ireby.

The vice-preſidents of each diſtrict to regulate and appoint the times of the diſtrict meetings, preſide at the ſame, and tranſmit any information which may occur to the preſident, to be laid before the committee.

The committee to manage the intereſts of the ſociety, report upon all propoſitions from the ſub-meetings, and to ſuggeſt alterations and amendments of the exiſting premiums, or to propoſe new ones.

The committee and preſidents are to meet, previous to the publication of the premiums for the enſuing year, to examine and reviſe the premiums of the former year, and determine upon any new premiums to be offered; and alſo to fix upon proper perſons to view and judge of the farms and ſtock of the claimants, for the premiums No. 1, for the beſt managed farm, and No. 2, for the beſt general ſtock of cattle.

The certificates for ſervants, cottagers, draining, and other claims for premiums, where certificates are required, muſt be ſent to the ſecretary on or before the 1ſt day of September. The committee and vice-preſidents to meet the firſt week in September, to determine upon the reſpective claims, and to appoint who are to be the judges of cattle, &c. &c. at the anniverſary. The cattle to be viewed on the Thurſday, the day previous to the anniverſary, at the Schooſe Farm; the judges to give in their determination on Friday morning; after which, the cattle, &c. with the conſent of the owner, to be put up to auction, each owner being at liberty to purchaſe in his own.

No premium ought to be refuſed after adjudication; but ſhould it be ſo, the premium awarded to revert to the ſociety.

Vacancies in the preſidencies and committee, to be filled up at the general meeting; and all queſtions at the general meeting are to be ſubmitted to the vote, by the preſident without diſcuſſion.

That the Iſle of Mann be united with the ſociety, and that Lieut. Colonel Taubman be appointed vice-preſident, and a committee be there formed to manage the concerns of the Iſland, upon the principles of this ſociety.

The funds to be there raiſed, and to be diſtributed among themſelves, in premiums beſt adapted for their benefit. One premium, (a donation of the preſident,) to be a cup of ten pounds value, for the beſt managed farm in the Iſle of Mann, upon the ſame principles as No. 1, and to be given at the Workington annual meeting.

The other premiums for the Iſle of Mann, to be diſpoſed of ſolely by that diſtrict within itſelf.

That the committee be empowered and requeſted to ſettle the ſecretary and treaſurer's accounts, and to attend to all the concerns of the ſociety.

That a report of the tranſactions of the ſociety, be publiſhed annually, and copies ſent to each member.

The ſociety reſerves to itſelf the power of withholding any premium, if thought fit ſo to do.

That the premiums be extended to the whole of the county of Cumberland, and (unleſs where otherwiſe expreſſed) to all ſubſcribers in any county.

The perſon entitled to any of the five guineas premiums, may receive a cup of that value, from the ſociety, if preferred.

An Account of the Premiums adjudged and delivered, for 1806.

No. 1. Beſt managed farm, John Swinburn, ten pounds.
2. Beſt ſtock of cattle, Robert Pickthall, five guineas.
3. Beſt ſtallion, Wigton, John Kirkop, five guineas.
Beſt ditto, Cockermouth, John Shepherd, five guineas.
4. Beſt Tup, Keſwick, William Calvert, eſq. five guineas.
Ireby, Joſeph Martindale, five guineas.
Calderbridge, Miles Ponſonby, eſq. five guineas.
5. Planting, no claimant within the rule.
6. Draining, John Dalzell, five guineas.
for farmers, Matthew Atkinſon eſq. five guineas.
for not leſs than 80 acres, no claimant.
7. Cottager, George Mattiſon, five guineas.
8. Male ſervant, John Cockton, two guineas.
9. Female ditto, Mary Boadle, two guineas.
10. Beſt heifer, declined.
Second beſt, Joſeph Benn, eſq. four guineas.
Third ditto, Cragg, three guineas.
Fourth ditto, Jackſon, two guineas.
Fifth ditto, Joſeph Benn, one guinea.
11. Beſt horſe, Mr. John Harris, five guineas.
Second beſt, Thomas Miller, two guineas.
12. Beſt bull, Dawſon, five guineas.
Second beſt, declined.
13. Beſt boar, Matthew Atkinſon, eſq. two guineas.
14. Beſt Ploughman, John Johnſtone, two guineas.
Second beſt, J. Tinian, one guinea.
Third ditto, J. Dixon, half a guinea.
15. Improved implements, John Peart, three guineas.
Ditto ditto, John Swinburn, two guineas.
16. Drill Machines, J. Barcroft, two guineas and a half.
Ditto ditto, John Hetherington, two guineas and a half.

The Society offers to the Public the following Premiums, for the year 1807.

No. 1. For the beſt managed farm, in the hands of a farmer, in the county of Cumberland, ten pounds—The committee or judges appointed to have reſpect to the ſoil, huſbandry, cultivation, produce, and locality of the ſame; the farm to be not leſs than 80 acres.

No. 2. For the beſt general ſtock of cattle, uſually kept upon a farm, (in the hands of a farmer,) of not leſs than 80 acres, five guineas.—The competitors for either of theſe premiums, muſt ſignify the ſame to the ſecretary, on or before the 10th of June.

No. 3. For the beſt ſtallion, ſhewn at Wigton lady-fair, in April, and the like at Cockermouth, on Eaſter-monday, for agricultural purpoſes, five guineas each.—Theſe muſt be diſtinct horſes, and each be ſhewn at the town where he gains the prize, each market day, during the ſeaſon.

No. 4. For the beſt tup of an improved breed, ſhewn at Keſwick, on the tup-fair, in November next, five guineas; the like at Ireby fair, five guineas: alſo, five guineas to be given for the like, ſhewn at Calderbridge, on a day to be fixed.

No. 5. For the greateſt number of acres, planted within the county, being of two years growth and in a thriving condition, ſecured by a good and ſufficient fence, (to be viewed by the committee, or judges appointed by them,) five guineas.

No. 6. To the perſon who ſhall have cut the greateſt number of roods of drains, in the beſt, moſt effectual, and permanent manner, between October, 1806, and October, 1807, five guineas.—Alſo, to the farmer who ſhall, at his own expence, voluntarily have cut the greateſt number of roods of drains, in like manner, five guineas.—Alſo, to the farmer who ſhall perform the ſame upon a farm, of not leſs than forty acres, and not exceeding eighty acres, three guineas. All premiums for improvement of farms by the farmer, or which tend to encourage or ſolely relate to the farmer ſhall be underſtood to be voluntarily done by him, and not ſtipulated for by any contract or leaſe between the landlord and tenant.

No. 7. To the cottager in huſbandry, who, without any parochial aſſiſtance, has brought up the largeſt family with reſpectability, five guineas. The competitors for this premium, muſt produce certificates from the miniſter and overſeers of the pariſh, and put in their claims on or before the 1ſt of September.

No. 8 and 9. To the male ſervant in huſbandry, or to the female ſervant in the like occupation, who have continued the longeſt time in their reſpective ſervices, and who ſhall have conducted themſelves in the moſt exemplary manner, two guineas each. The competitors for theſe premiums, muſt propuce certificates of ſervice and character, and put in their claims on or before the 1ſt of September.

No. 10. For the beſt two-years old heifer of the long horn, in the hands of the breeder, five guineas; ſecond beſt, three guineas; third beſt, one guinea.—For the like of the ſhort horn, five guineas; ſecond beſt, three guineas; third beſt, one guinea.—For the like of any other breed, thought deſerving of encouragement, five guineas; ſecond beſt, three guineas; third beſt, one guinea.—Certificates of age are required, but to take date from the 2d of February.

No. 11. For the beſt horſe for agricultural purpoſes, four or five years old, in the hands of the breeder, five guineas; and for the ſecond beſt, two guineas.

No. 12. For the beſt bull of the long horn, in the hands of the breeder, or warranted to be for the public uſe, (within the county,) for the next twelve months, five guineas; the ſecond beſt, two guineas.—The like of the ſhort horn, five guineas, and two guineas; and the like of any other breed, thought deſerving of encouragement, five guineas, and two guineas.

No. 13. For the beſt boar, two guineas.

No. 14. To the ploughman of any farmer, who ſhall, in the ſhorteſt ſpace of time, plough a certain quantity of ground in the moſt workmanlike manner, (to be fixed upon in Mr. Curwen's farm,) two guineas; if more than

three ſtart, the ſecond beſt to have one guinea; if more than four, ten ſhillings and ſix-pence for the third. The parties who propoſe to contend in ploughing, muſt make known their intentions to the ſecretary, one week before the day of the general meeting; and be ready to ſtart at the place and day appointed, by half paſt ten o'clock.

No. 15. Five guineas will be diſtributed by the ſociety, in rewards, to ſuch perſons as ſhall produce, at the general meeting, any improved implements of huſbandry, whether new inventions, or improvements of the implements now in uſe.

No. 16. Five guineas will be diſtributed by the ſociety, in rewards, to ſuch farmere as may have purchaſed drill machines.

No. 17. To the perſon who ſhall encloſe and cultivate, (between October, 1806, and October, 1807,) the largeſt portion of common or waſte land, within the county of Cumberland, five guineas.

No. 18. To the perſon who ſhall do the ſame, where the common is appurtenant to an eſtate of not leſs than 100l. in annual value, five guineas.

Report of the Agricultural Society in the Isle of Mann.

THE firſt meeting of ſubſcribers to the MANX AGRICULTURAL INSTITUTION, was held at St. John's, in the ſaid iſland, on Thurſday, November 27th, 1806.

A letter from J. C. Curwen, Eſq. Preſident of the Workington Agricultural Society, was read, conveying the unanimous vote of approbation of the ſaid ſociety at its anniverſary meeting, for the union of the Manx ſociety with them, agreeable to their requeſt.

The following reſolutions and regulations were unanimouſly approved and agreed to.

That this ſociety be a part of the Workington Agricultural Society, to be governed by the Preſident of the ſaid ſociety, and ſix inſular Vice-preſidents, together with a committee of twelve, and a Secretary.

That a general meeting of this branch of the ſociety be held annually at St. John's, upon the firſt Wednesday in October.

That the vice-preſidents ſhall preſide at the meetings, ſhall regulate and appoint the times of meeting, and tranſmit any information which may occur to the preſident, to be laid before the general and inſular committee.

That the committee do manage the intereſts of the ſociety, report upon all propoſitions, and ſuggeſt alterations and amendments in the premiums, and to propoſe new ones, from time to time, which ſhall be ſubmitted to the votes of the members by the vice-preſidents, at the general meetings, and decided without diſcuſſion.

Vacancies in the preſidencies and committee to be filled up at the general meetings.

That the committee be empowered and requeſted to ſettle the ſecretary and treaſurer's accounts.

That a report of the tranſactions of the ſociety be tranſmitted to the preſident, to be included in the Workington annual report, and copies ſent to each member.

The ſociety reſerves to itſelf the power of withholding any premium if thought fit, and their deciſion to be final.

That the premiums, No. 2. 7. 8. 9. 10. and 11. for the enſuing year, be confined to the ſubſcribers.

The perſons entitled to any of the five guineas premiums, may receive a cup of that value from the ſociety, if preferred.

That the following gentlemen be appointed vice-preſidents.

The Hon. Lt. Gov. Smelt.—Hon. Deemſter Lace.
John Taubman, Eſq.—Rt. Rev. Ld. Biſhop of Sodor and Man.
Hon. Deemſter Crellin.—Col. Taubman.

That the committee be as follows.

Rev. Vicar Gen. Chriſtian,	Rev. Archdeacon Mylred.
Norris Moore,	Robert Farrant,
James Quirk,	Thomas Gawne,
Robert Heywood,	William Cuningham,
Thomas Harriſon,	Thomas Kirwan, Eſqs.
William Kelly, Eſqs.	

The Society proposes to give Premiums for the Year 1807, *as follows.*

Firſt, The preſident, J. C. Curwen, eſq. offers for the beſt Management of not less than 80 acres of Land, in the hands of a farmer, in the Isle of Man, Ten Pounds, or a cup of that value. The committee or judges appointed to have reſpect to the ſoil, huſbandry, cultivation, produce, and locality of the ſame. This premium to be given at the general meeting at Workington. The names of the claimants for this cup, to be ſent to the ſecretary, on or before the 10th of June, to be tranſmitted to the preſident. Perſons to inſpect the farms of the claimants to be appointed by the vice-preſidents.

The vice-preſidents propoſe out of the ſums ſubſcribed by the members.

Second. For the beſt general ſtock of Cattle, uſually kept on a farm of not leſs than 50 acres, Three Guineas. The competitors for this premium, muſt ſignify the ſame on or before the 10th of June.

3d. For the beſt Stallion, for agricultural purpoſes, ſhewn at the ſeveral market towns, within this Isle, before the 12th of May next, Five Guineas.

4th. For the beſt Stallion, for ſaddle horſes, to be ſhewn as above, Three Guineas. The claimants for theſe premiums are alſo to produce their ſtallions at St. John's fair, on the 5th of July next, for examination.

5th. To the Male Servant, in huſbandry, or to the Female Servant, in the like occupation, who have continued the longeſt time in their reſpective ſervices, and who ſhall have conducted themſelves in the moſt exemplary manner, the ſum of Two Guineas each. The competitors for theſe premiums muſt produce proper certificates of ſervice and character and put in their claims at the general meeting of this ſociety.

6th. To the ploughman who ſhall, in the ſhorteſt ſpace of time, plough a certain quantity of ground, in the moſt workmanlike manner, the ſum of Two Guineas; if more than three ſtart, the ſecond beſt to have One Guinea; if more than four, Ten Shillings and Sixpence for the third. The parties who propoſe to contend in ploughing, muſt make known their intentions to the ſecretary one week before the day of the general meeting, and be ready to ſtart at the place and day appointed, by half paſt ten of the clock.

7. For the beſt crop and greateſt number of acres, in proportion to the farm, of Clover or Vetches for ſpring and ſummer ſoiling, Five Guineas.

8th. For the greateſt quantity of Land ſufficiently Marled, Five Guineas.

9th. For the greateſt quantity of Land ſufficiently Limed, Five Guineas.

10th. For the greateſt quantity of Land properly Irrigated, Five Guineas.

11th. For the largeſt and beſt crop of Flax, Five Guineas.

The competitors for any of the Premiums, muſt all appear at the general meeting, of which due notice will be given.

The President's Report.

IN ſubmitting to the Society the proceedings of the annual meeting, with abſtracts of expenditure, &c. I feel it a duty incumbent upon me, in

diſcharge of the honourable ſituation I hold, to offer ſuch remarks as appear to be of moment, ariſing either from the reports, or ſuggeſtions of the perſons appointed to view the ſtate of management and cultivation of the reſpective candidates, for the premium for the beſt managed farm; with ſuch further obſervations as I have been enabled to make. I ſhall likewiſe detail the experiments ſhewn at the Schoole, and point out the intent and object of them. I wiſh it to be underſtood that the report applies generally to the ſtate of Agriculture, in the diſtricts of the ſeveral claimants. I confide in the indulgence of the ſociety, whilſt, with the ſtricteſt regard to impartiality, I endeavour in the beſt manner I am able, to acquit myſelf of this duty.

I muſt premiſe, that my obſervations are applicable to what is in general practice; many exceptions, I have no doubt, may be found. The purport and intention of Agricultural Societies are to correct bad ſyſtems:—in the proſecution of this deſign, they are led more particularly to notice what is generally defective, than to panegyrize every inſtance of merit. It is very diſtant from my intention, to give pain to any individual; to have a fair chance of effecting any ſalutary improvement, I muſt be allowed to ſpeak freely. I hope with this explanation, I ſhall experience the candour and liberality of thoſe, whoſe farms I may notice, and on which, with truth, I cannot beſtow praiſe, nor juſtly withhold criticiſm. As the plan and intention of this ſociety become more generally underſtood and developed, I truſt I ſhall have the aſſiſtance, and the public the benefit, of the co-operation of members more capable than myſelf, in rendering the annual report conducive to the improvement of the Agriculture of this and our ſiſter county. Whatever experiments the ſociety may be pleaſed to ſuggeſt, ſhall be proſecuted with the utmoſt correctneſs and attention.

Before I proceed, I muſt beg the ſociety to permit me to offer them my warmeſt congratulations, on the ſpirit and zeal manifeſted in this and a neighbouring county, in ſupport of this Inſtitution: ſo numerous and thoroughly reſpectable a body of practical Agriculturiſts is not to be found aſſociated, in any local ſociety in the kingdom. With the utmoſt confidence I look to great and rapid improvements reſulting to the Agriculture of theſe two counties, from the united efforts of ſuch a body. I do not conceive the advantages likely to ariſe from this aſſociation, can be eſtimated too highly.

I notice with particular pleaſure the union of the Iſle of Man with the ſociety—that Iſland, as well as this and the neighbouring county, preſents an ample field for improvement. From the ſpirit and exertion I now witneſs, with ſo much ſatisfaction, I confide there will be no relaxation, till the land yields to us and the public its utmoſt riches.

The cup for the beſt managed farm was adjudged to Mr John Swinburn, of Chapel Bank, in the pariſh of Workington, upon the report of Mr. Penny, of Warthol, and Mr. Pearſon, of the Grange, who were ſelected, as perſons well qualified to decide on the merits of the farms of the reſpective claimants, from their knowledge and reſpectability of character. Mr. Swinburn has, with ſpirit and judgment, availed himſelf of the advantages of his ſituation, both in collecting and importing manure, by which he has quadrupled the produce of his farm, and produced the moſt abundant crops in the neighbourhood—ſo far he has merit. I wiſh I could proceed in offering the management and cultivation of his farm, as an example worthy of imitation.

The great object of this and every other Agricultural Society, in beſtowing premiums, is for the encouragement of good Huſbandry—he who cultivates well a few acres, has better founded claims to the favour of the ſociety; than he who, by the means of expenſe alone, produces the moſt

luxuriant and abundant crops. By manure, the ground will be made to yield heavy crops; but, by manure alone, it cannot be put into a permanent ſtate of improvement—the number and ſtrength of every weed will be proportionably encreaſed, and theſe, in a ſhort period, will bring it back to the ſame ſituation, or worſe, from whence it ſtarted—this will not be the caſe with ground which has been once perfectly cleaned: for years the effects will remain viſible.

The expenſe attending cleaning and properly pulverizing land, affrights many farmers—the queſtion I have to propoſe on the means purſued in Mr. Swinburn's farm, is this; might not Mr. Swinburn have obtained equal crops, and had his farm in a more permanent ſtate of improvement, by working, pulverizing, and freeing his land from all unprofitable plants? I conceive ſuch a ſaving of manure might have been made, as would nearly have defrayed the additional expenſe of labour—I am ſatisfied the profits of ſix years would bear no compariſon, between what is effected by labour and procured by manure. I muſt here point out (which I am called upon to do, from the view I took of ſeveral of the claimant's farms) a moſt general and nearly univerſal neglect, and a more pernicious one to the intereſts of Agriculture there cannot exiſt—I mean the general inattention to weeds in hedges and hedge-rows, &c. Theſe almoſt every where preſent a ſecure aſylum to every ſpecies of noxious plants—without moleſtation, nay, in perfect ſecurity, they are ſuffered to entail an abundant claim upon the labour and patience of after-times. Compelled as I have found myſelf to make theſe obſervations on a farm admitted to have merit, and honoured with ſo ſignal a mark of your approbation, I muſt remark the ſame ſtrictures with equal, if not greater, force; apply to the farms and diſtricts of other candidates.

The general ſtate of Cropping is reported to be three white crops—firſt, oats; then a dead fallow for wheat, giving the ground about eight tons of manure, per acre, with from ſeventy-five to ninety winchester buſhels of lime; thirdly, laying it down in oats or barley, with ſeeds—an intermediate green crop is by no means general—the clover and ſeeds are cut, frequently, both the firſt and ſecond year for hay, which ſo exhauſts the ground as to leave it in a moſt miſerable ſtate.

Potatoes are, in ſome inſtances, taken inſtead of a fallow for wheat;—when this mode of cultivation is properly attended to, and the potatoes planted at ſufficient diſtance between the ſtitches, to admit of their being completely cleaned during the whole ſummer, it anſwers extremely well; but in the common and too general mode of management, the ſucceeding crops are worſe, and the ground filled full of weeds. From hence has ariſen a very general opinion, that potatoes are a very exhauſting crop—I am diſpoſed to believe the contrary, from my own experience, and much ſtrengthened in that opinion by an experiment of Mr. Shepherd, of Greyſouthen, a very intelligent farmer, and member of this ſociety, who ſtates that he obtained as much weight of potatoes upon a five feet ſtitch, as he had in the ſame field upon one of three feet, with the beſt management both were capable of—I ſhall adopt Mr. Shepherd's plan, and conſide, the reſult will be amongſt the moſt intereſting objects of a future year.

The neglect and inattention of not laying the ſtubbles and fallows dry, during winter, is a moſt material injury, and one great cauſe of the deterioration of wet grounds—I would wiſh moſt earneſtly to call the attention of the ſociety to this object, ſatisfied no expenſe will anſwer a better purpoſe to the farmer, or yield a more profitable return.

Winter Ploughing has made conſiderable progreſs, it not only forwards the getting in of the crops in ſpring, but it is univerſally allowed that wet, heavy lands, when ploughed in ſpring, are more apt to cake and clap down. The advantages reſulting from Deep Ploughing, are not as yet much known

or practiſed in this county—my own partial experience will not enable me to ſpeak upon it; but from what I have heard of its effects, I am inclined to believe, it will be found of the utmoſt benefit and importance.

Draining, the baſis of all improvement, and without which nothing is permanent or effectual, is advancing rapidly. It will be ſatisfactory to the ſociety to have the ſtatement of the claims of the different candidates, laid before them; they will obſerve, with pleaſure, what very creditable exertions have been made, by the claimants for the farmer's premium for draining. This is one of the many advantages of Leaſes, without the ſecurity of a leaſe, no wiſe or prudent man will embark any conſiderable capital, and, without ſo doing, no important improvements can be made—it is the firſt ſtep towards an improved ſyſtem of agriculture. Much merit is due to the intelligent and ſpirited farmers, who have ſhewn their good ſenſe and judgment in expending ſuch conſiderable ſums in draining. Though this is a permanent improvement which laſts long after the moſt extended leaſe is expired; yet its benefits are ſo great, that it will repay the tenant on a moderate leaſe—Draining is ſo much for the benefit of the proprietor, that I cannot withhold my ſurpriſe that the exertions in this firſt of all improvements, are not more extenſive.

Claims for Draining, by proprietors, were: Miles Ponſonby, Eſq. of Hail Hall, 645 roods.—J. C. Curwen, Eſq. of Workington Hall, 1809 roods.—John Hodgſon, of Blennerhaſſet, 333 roods.——Claims for Draining, by farmers, were: Matthew Atkinſon, Eſq. of Temple Sowerby, 797 roods drained, and 613 in forwardneſs.—John Dalzell, of Stocka Hall, 666 roods.—John Hetherington, of Branthwaite Hall, 609 roods.—Robt. Dixon, 147 roods.

I notice, with pleaſure, the ſatisfaction I experienced in viewing Mr. Atkinſon's farm, near Temple Sowerby, which he holds under leaſe, from the Earl of Thanet, conſiſting of 600 acres; he has, within the laſt ſix years, reclaimed from waſte, 480 acres, and cut 3400 roods of drains; the gratification reſulting from ſo noble an exertion of time and capital, merits the warmeſt commendations. It has been well ſaid, "He, who makes two blades of graſs to grow where one grew before, is a real patriot:"—no one has a fairer claim to this honourable appellation than Mr. Atkinſon.

The premium, for the beſt ſtock of Cattle, was adjudged (by Meſſrs. Penny and Pearſon) to Mr. Pickthall, of Swallow Hurſt, whoſe exertions are highly creditable, and he will not conceive it detracting from his merit, in remarking, that the ſuperiority of the long horned ſtock, in that neighbourhood, is owing to the exertions and example of Mr. Benn.

The extreme unfavourableneſs of the day, prevented the ſhew of cattle being as generally ſeen by the ſociety, as was wiſhed. Many very admirable ſpecimens of the long horned breed, were exhibited; as likewiſe a bull of the ſhort horned.

The premiums for Cattle, were adjudged as follows:—the beſt bull, the property of Mr. Dawſon. The beſt heifer to the Rev. John Fleming, of Rayrigg, whoſe ſpirited exertions for the improvement of the long horned ſtock, have been eminently ſucceſsful. Joſeph Benn, Eſq. of Middleton-place, Mr. Cragg, and Mr. Jackſon, obtained the other premiums; Mr. Benn has contributed more than any other perſon in Cumberland, to the improvement of the long horned cattle. I truſt he will permit me to expreſs a wiſh, that he would turn ſome of his attention to agriculture; with his ſpirit and intelligence he could not fail of ſetting an example, which would prove highly advantageous to his neighbourhood.

The ſociety has, with that liberality and diſcernment which directs its views, offered premiums for various breeds of cattle, in order to encourage experiments for aſcertaining which may be the moſt profitable ſtock. Moſt diſtricts have their favourite breed, and the natural prejudice in favour of it

has, in many inſtances, for a length of time, prevented the introduction of other breeds, which have ultimately been found more profitable.

From the nature and quality of a great proportion of the lands in Cumberland and Weſtmoreland, they are almoſt excluſively adapted for feeding and breeding of ſheep. It becomes, therefore, an object of the firſt importance to attempt an improvement in the breed of ſheep; it moſt commonly happens, the greater the neceſſity for improvement, the ſtronger are the prejudices to be contended with; unfortunately this is powerfully exemplified in the preſent inſtance, by the oppoſition given to every attempt to improve the preſent breed of mountain ſheep.

The general ſtaple of Wool in theſe counties is ſo coarſe as to be applicable ſolely to the manufactory of the moſt inferior goods. The demand for coarſe wool is confined to few hands, conſequently, there is no competition, and the manufacturers make their own price: the queſtion I propoſe for the conſideration of the parties intereſted, is, May not the fleece be improved, and the ſheep equally capable of ſuſtaining the hardſhips of our climate? I would wiſh to aſk whether it is not generally allowed that the fineſt coated of the mountain ſheep are the beſt thrivers: if this be the fact, for which I muſt appeal to thoſe who are better able to judge than I pretend to be, can there be a ſtronger argument produced againſt the generality of the preſent mountain ſtock. The fineſt furs are the produce of the coldeſt climates. Shetland ſheep produce ſome of the fineſt wool grown in the kingdom. I profeſs to have my own predilection in favour of the ſouthdown, and its croſs; but it is perfectly immaterial to me whether the improvement is made by them, the cheviot, long ſcott, or any other breed; I have witneſſed the one croſs; I am unacquainted with the others. At Calder Bridge meeting, a two years ſheerling was ſhewn; a croſs of the ſouth-down with a Hardwicke ewe, bred by G. Edward Stanley, Eſq. of Ponſonby, and depaſtured in his park-grounds, which was live weight, 203 lb. before Chriſtmas, I ſhould expect it would be between 230 and 240 lb. The wool of this ſheep was much improved. This ſheep would have done well on any of our mountains, though it could not have reached its preſent ſize or weight: it is not an encreaſe of ſize, I recommend; but an improvement in the fleece. A native ſtock is as large as the ground, without improvement, will ſupport.

At the Keſwick meeting, 1805, the cup was adjudged to a ſouth-down croſs, bred by me at Harrow Slack; at the Keſwick meeting, this year, a lamb, got by that tup, was ſhewn by Mr. Ireland, the proprietor of it, the live weight of which was 112lb William Calvert, Eſq. of Greta Bank, obtained the cup for a ſouth-down tup, bred by H. Howard, Eſq. of Corby Caſtle.

At Ireby, the cup was adjudged to a croſs of the ſouth-down, (from the ſtock ſo liberally diſtributed ſome years ago, by the Earl of Egremont), belonging to Mr. Joſeph Martindale, of Whelpa Head, in Caldbeck. I have to lament I was prevented the pleaſure of attending that meeting, and viewing the improvements in the ſheep of this quarter, the reports of which I have received with ſo much ſatisfaction. The wool from the ſouth-down croſs, ſold at 12d. per lb. full ſouth-down at 22d. whilſt the fell-wool did not average 8d. Mr. King of Graſſmere, exhibited at the Schooſe, two Leiceſters, which were very complete, and bred by him at Graſſmere. Mr. King has given an admirable ſpecimen of the effects of cultivation, in his farm, at Graſſmere. Mr. Ireland's tup which he exhibited and which obtained the cup at Keſwick, the year before, was bred at Windermere, had never had either hay or corn; for ſize, ſhape, and fleece (which weighed 7 lb.) a finer ſpecimen of ſheep cannot be produced; his horns are the only objection which can poſſibly be made to him. Mr. Ireland received a cup from me, as a reward for his ſpirit and good ſenſe in daring

to have an opinion, and to act up to it: I truſt and believe he will find it to anſwer his moſt ſanguine expectations. This was written before he obtained the cup, given by me, for the beſt lamb of the ſouth-down croſs.

The premiums given to the beſt ſtallion, at Wigton and Cockermouth, for the encouragement of farm horſes and roadſters, produced a very good ſhew at both places, and were adjudged to Mr. Kirkop and Mr. Shepherd.

The farming ſtock of horſes, exhibited at the Schooſe, were very creditable ſpecimens. If, with equal action, a little more ſtrength and bone can be united, they would be ſtill more valuable for the general purpoſes of agriculture. The cup was adjudged to Mr. Harris, of Greyſouthen, who has made many very laudable improvements, and whoſe threſhing machine is the moſt complete I ever ſaw, and worthy the attention of those who wiſh to erect this uſeful machine.

Mr. Hetherington, of Branthwaite Hall, and Mr. Barcroft, of Newlands, ſhared the premium for the purchaſers of drill machines; great credit is due to both of theſe gentlemen, and I truſt their example will ſpread the drill huſbandry in this county, which is the moſt valuable of all modern improvements: firſt, as it contributes ſo largely to the ſaving of ſeed, a-third of what is commonly uſed, being ſufficient; as it enables the farmer to clean both wheat and barley—the ſowing of barley is frequently delayed for fear of looſing the clover; a month or ſix weeks after the barley is up, by the drill huſbandry, it may be cleaned and the ſeed ſown; early ſowing affords the beſt crops as well as the beſt ſeaſon for harrowing. The advantages attending the uſe of the drill, are too well eſtabliſhed to be combatted by ignorance and prejudice; where ever it has been fairly tried, it has ſucceeded. Praiſe is due, notwithſtanding, to thoſe who have the courage to innovate upon eſtabliſhed practices.

The premium for the beſt boar, was adjudged to Mr. Matthew Atkinſon.

Two machines were ſhewn for the premium, No. 16; the firſt a harrow for making furrows for receiving the grain, to anſwer the purpoſe of a drill; but it does not accompliſh the firſt great object of the drill, ſowing and ſaving of ſeed, and it requires, alſo, two operations; I do not think it likely to be of uſe, or by any means equal to the drills, now in general uſe. The ſecond was a roller for cutting and pulverizing ſtrong clays; there being no opportunity of ſeeing it work, I cannot give an opinion; it was broke in bringing to the Schooſe, and I ſuſpect it would be liable to ſuch accidents. A third machine was tried, but at preſent it is very incomplete; the object is to ſow aſhes, ſoaper's waſte, ground bones, &c. Suppoſing the root of each grain, to draw its nouriſhment from the ſpace of three inches, it will follow, that where the drills are nine inches a part, and the manure ſpread over the whole ſurface, that two-thirds of it contributes nothing to the ſupport of the crop; ſuppoſing twelve tons to be ſpread over an acre, four tons alone ſupply nouriſhment to the preſent crop. A ſufficient experiment has been made to prove its effects; before another year I hope to have the machine ſo improved, as to perform the operation with eaſe: if it anſwer, the ſaving will be very conſiderable, and allow three acres to be cropped with the ſame manure now beſtowed upon one.

The premium for huſbandry ſervants, was given to John Cockton, who had ſerved, in the ſame place, fifty-one years; for the credit of this county, there were among the unſucceſsful candidates, one who had been forty-nine years in the ſame place: the female ſervant was Mary Boadle, who had ſerved upwards of thirty-nine years in the ſame place. The cottager's premium was adjudged to George Mattiſon, who had had twelve children, and brought up nine without parochial releif. Such examples of induſtry, ſobriety, and exertion, are not uncommon in this and the neighbouring county; and may very properly be attributed to the benefits reſulting from

education, and the early leſſons of morality and religion, which are beſtowed upon almoſt every individual of the northern counties. To better the condition of the labouring poor, is an object of the firſt national importance; no plan appears better calculated to effect this, than an early attention to the education and morals of their children.

I ſhall now proceed to a ſtatement of the experiments which were made at the Schooſe, and endeavour to explain the principles they were intended to elucidate: the firſt object is to free the ground from every unproductive plant; the ſecond, to bring the ground into garden culture, and, in order to obtain the whole nouriſhment it is capable of yielding, by repeated ploughings, during the whole ſummer, to admit the air and moiſture to penetrate freely to the roots of the plants; conceiving, that by this means nearly all the advantages that manure can produce, may be obtained. Undoubtedly a ſmall proportion of manure with conſtant workings, will yield better crops than can be had by any quantity of manure without it. If I am accurate, five feet ſtitches with the ſuperior advantages of tillage, will yield, per acre, as much as thoſe on three feet ſtitches. The firſt experiment was to aſcertain the weight, upon ten yards ſquare, or the forty-eighth part of an acre, of potatoes, on four feet ſtitches; it produced 2160 ſtones, or thirteen tons and a half, per acre: from being obliged to deſiſt from cleaning by the end of July, they were found very dirty when the tops decayed—an additional foot in the ſtitches will prevent this. The next experiment was to determine the weight of a third cutting of clover; the firſt cutting was nine tons, the ſecond ſix tons, and the third, eight tons and 123 ſtones; total, 23 tons 123 ſtones per acre, which, at 1½d. per ſtone, gives a value of 23l. 15s. 4½d. Horſes were, on repeated trials, found, for the two firſt weeks, to require four ſtones per day, afterwards three ſtones and a half were, upon an average, ſufficient: milch cows conſumed four ſtones. The ſaving made by ſoiling and ſtall feeding, is not difficult to calculate. I would wiſh to aſk, whether one acre, thus employed, is not equal to ſeven, grazed: the expenſe of cutting and leading, is more than repaid by the manure that is gained. Clover, under this management, is productive above all other crops.—The ſoil on which the clover grew, is a clay with a cinder under it, and of a very indifferent nature: the cropping of it was firſt by oats, then cabbages, afterwards turnips, without any additional manure, and theſe were drawn: a ſlight dreſſing of aſhes was given for barley, which yielded upwards of ſeventeen Cumberland buſhels or fifty-one Wincheſter, per acre; the clover was top dreſſed, after the Eſſex method, with ſand and ſea ſhells; it has been again top dreſſed, and was rolled twice each year at leaſt; it will be cut twice next year, and the third crop ploughed in for wheat.

The third experiment was on carrots, which weighed with the tops, thirteen tons and a half, per acre; five weeks afterwards they were fifteen tons, 140 ſtones: thus, the value would be twelve tons of carrots, at 6d. per ſtone, ... £48 0 0

Three tons, 140 ſtones of tops, at 1½d. per ſtone, . . 3 17 6

£51 17 6

Carrots are very little, if at all, inferior to oats in the feeding of horſes; by experience, I can pronounce them to anſwer admirably as a part ſubſtitute for oats; each horſe has five pounds of carrots per day, in lieu of four pounds of oats: ſince they have been ſo fed, they have improved in condition. The laſt experiment was on cabbages; forty nine cabbages were on ten yards ſquare, or 2352 per acre—their weight, 116 ſt. 12 lb. or 35 tons and a half per acre: which, at 1½d. per ſtone, is 35l. 10s. value per acre. As this crop has excited conſiderable attention, I ſhall ſtate the method I purſued: the trenches were firſt drawn by a ſingle plough, then followed by a double

mould-board plough with four horſes, in order to bury the manure as deep as poſſible; each plant had four feet and a half ſquare; about a ſtone of manure was given to each cabbage, or fourteen tons per acre, the manure they had was very indifferent; they were ſet with a line, to ſecure their being ſo perfectly exact as to permit the ploughs to work in every direction; they were planted in the firſt week of April, there was a great loſs of plants from uſing too thick a dibble, which left the roots of the plants hollow; many died in conſequence of it, and the very dry ſeaſon which followed; the ploughs were kept at work in various directions, during the whole ſummer, which I conceive to have greatly contributed in producing ſo remarkable a crop, in a year ſo unpropitious to cabbages; had the plants generally ſucceeded, I do not know what weight might not have been obtained.

The ſtatement of the value of green crops, will, I doubt not, appear ſurpriſing to many, which indeed I witneſſed from the obſervations of the perſons preſent, whilſt the experiments were making. All I have to intreat, is, that thoſe who may be leaſt diſpoſed to agree with me, will only take the trouble, before they reject it, of making their own calculations.--The expenſe of this ſyſtem is, undoubtedly, great; ſo is the produce. The error, moſt farmers fall into, is by endeavouring to do too much; I will venture to aſſert—a little, well done, will make the moſt ample returns. Do little, but do it well; that is the ſyſtem of profit: better leave half the farm in a ſtate of nature, and completely cultivate the other half; though the rent be paid for the whole: if I am right, it ſtrongly points out the folly of having too large farms.—The ſchooſe farm conſiſts of 520 acres, with the command of every requiſite means and great advantages of ſituation; with four years of moſt active exertions, I have not been able to bring it into any thing like cultivation: I have ſtill 170 acres with little done to it, which produce comparatively trifling profit. I ſhall ſtate the laſt year's crop, with the ſuppoſed value, in order to enable thoſe, who have viewed the operations then carrying on, to make their own eſtimates on the probability of ſucceſs of the plan: I do not mean to offer theſe calculations as very correct; but ſufficiently ſo, for every purpoſe which can be required,

Acres.		£
115	of wheat, at 13l per acre,	1495
42	of beans, cut Auguſt 13th, at 5l.	210
30	of barley, at 10l.	300
45	of potatoes, (300 carts,) at 13l.	585
8	of carrots, (220 carts,) at 50l.	400
20	of clover, at 20l.	400
8	of cabbages, at 30l. (having 35½ tons,)	240
32	of green crop, at 5l.	160
6	of lucern, at 15l.	90
100	of hay, (250 carts,) at 2l. 10s.	250
70	of oats, at 5l.	350
2½	of paſture	5
	after graſs, at 1l. 10s.	150
24	fallow	
12	under irrigation	£4675
4½	ſince obtained	
519	total acres.	

By this it will be found, 306 acres have produced 3880l. or near 13l. per acre; 170 acres 755l. very little more than 4l. per acre.

The expences attending the ſyſtem here followed, is, undoubtedly, conſiderable; but the profits are ſuch, as amply to compenſate them: the eſti-

mate of the crops, does not include the advantage gained, on the consumption of it by the farmer, which is very great, especially where many horses are employed. I have been led into this digression, solely with a view of shewing what very moderate ground will produce; and to draw the attention of the society to the progressive improvements, which are yet to be made. It will appear clearly, on land of the value of this farm, that oats cannot be grown with advantage, especially when manure can be obtained for wheat; and least of all, can it be kept in natural grasses, or employed in grazing. Pasture is alone suited to land of comparative little value in high or exposed situations, and distant from manure. The object I propose, is to make a little ground yield a large produce: in prosecution of this system I have had one pupil, Mr. Henry Thornton, of Catterall Hall, Lancashire, to whom I had the pleasure of presenting a cup, at the anniversary, as a token of my respect, value, and esteem for him. Vain are the fairest hopes! a few days illness deprived him of life, and his aged and respectable parents of a most invaluable child, and left me to lament his loss, not only from the many amiable qualities he possessed, but from the disappointment of my well founded hopes of seeing my plans improved upon, and carried by him into effect, in the most populous part of the kingdom.

I have to apologize to the society, for the length of the detail I have been led into; I hope the ensuing year will afford me the pleasure of exhibiting to them great improvements in the plan I have submitted to their consideration, and which I entertain the most sanguine expectations of making not only beneficial to myself, but useful also to the public.

P. S. Since the report has been finished and sent to the press, I have been enabled to ascertain the following statement which will afford a clue to the calculation of farming expenditure at the school farm, and at the same time answer the doubts entertained by many persons, how far such expenditure is judicious and may answer to a farmer.

In 1804, twenty-eight acres near Hunday gate, (called Colkers,) was taken into my own management; it was in such a state as not to afford pasture for two horses, during the summer months: in 1805 it was broke up by my bailiff, Mr. Kendall, who with unremitting attention, pursued the draining and fallowing of it; it was well covered with compost, and sown by Mr. M'Dowgall's drill, taking forty-five Winchester's and a half of seed. The most accurate calculation of the expences attending the whole operations, amounted to 18l. per acre, or 504l.

The return of grain, 1069 Winchester's, forty-five of these were injured by the thatching of the stacks being imperfect, it was sold as follows;

		£.	s.
1024 Winchester's,	at 10s.	512	0
45 ditto,	at 5s. 4d.	12	6
Straw, suppose		40	0
		564	6
Expence of thrashing by the machine,		24	0
		540	6

This gives twelve Cumberland bushels and two-thirds, or thirty-eight Winchester's per acre, and a return of twenty-three and a-half on the seed sown. The value of the ground is now 40s. per acre, I submit to others to say what was its worth in 1804. It will have beans, drilled at thirty-two inches the present season, (which will admit of their being well cleaned and worked with the plough and harrow), these are to be succeeded by a second crop of wheat.

Thus, what would not have afforded paſture for two horſes, for a few months, in ſummer, in the year 1804, has yielded, in 1806, bread-corn for 152 perſons for twelve months. The bean crop, ſnppoſe it worth 7l. per acre, will pay all the expences of the ſucceeding crop of wheat, and in 1808 it may again be expected to furniſh nearly as good a return.

TO THE PUBLIC.

FROM ſome obſervations which have, accidentally, come to my knowledge, I feel it incumbent upon me (once for all) to vindicate the ſociety as well as myſelf, and to have it diſtinctly underſtood in what manner, and by whom the judges of farms, cattle, &c. are appointed.—The committee, whoſe number and reſpectability exempt them from every ſuſpicion, are the perſons to ſelect proper judges to view and to decide; they, themſelves, examining and determining all claims by certificate. Every poſſible precaution is taken, not only to ſecure ſtrict juſtice, but to prevent the poſſibility of a ſuſpicion of the contrary.

How far Ignorance or Malice may be led to miſconceive or miſrepreſent I know not; but to thoſe who value Truth, and can and will judge, I appeal, if any further precautions can be taken, let them be pointed out, and there will be but one opinion as to their adoption. The ſociety is inſtituted for public benefit, it depends on no powerful confederacy; but looks for its ſupport to the public opinion of its utility: it can only be beneficial, as it is ſupported by the community at large;—to deſerve a continuance of this ſupport, a doubt muſt not be ſuffered to exiſt of its INDEPENDENCE and FREEDOM from all undue influence and control. Merit alone muſt be clearly and indiſputably underſtood to govern its deciſions; the committee and the ſociety's other officers are amenable for every act they do to the whole body, and every friend to the ſociety will do well to require explanation, if unfortunately a doubt upon any tranſaction ſhould ariſe. The promoters of this ſociety are actuated by no narrow or confined views. Individual Benefit and Public Proſperity are the motives of action; to the firm belief of theſe principles alone can be attributed the unexampled ſpirit with which the ſociety has been patroniſed;—this or that action may, in its turn, domineer; but the cauſe of Plenty as oppoſed to Scarcity, muſt ever have the hearts and wiſhes of the people of this and every other country.

It is propoſed that the cattle intended to be ſhewn for the different premiums, ſhould be viewed by the judges at the Schooſe on the Thurſday, at twelve o'clock, they muſt, therefore, be there by that time, or on the day previous. The committee, in future, to meet one month before the anniverſary, and, at that meeting, to fix upon proper judges, who may have timely information to prevent delay;—with the conſent of the owners, the cattle ſhewn, to be put up to ſale, on the Friday, the owners to be at full liberty to purchaſe them in. Such perſons as wiſh for a more particular view of the operations at the Schooſe farm, are requeſted to meet there on the Thurſday, at eleven o'clock. It is to be underſtood, the power reſerved by the ſociety to withhold any premium, is to guard againſt fraud, or caſes where the claim is void of all merit.—Several recommendations for additional premiums, wait the meeting of the committee; due notice of their determination will be given.

WORKINGTON HALL,
December 1ſt, 1806.

FEBRUARY 15.

At Hereford Candlemas fair, on Tueſday laſt, the cattle exhibited an excellent ſhow of animals, although the number of beaſts was ſmaller than is generally witneſſed at this fair.—Cattle of every deſcription ſold well, as the buyers were numerous.—Several fine horſes were brought for ſale in the horſe fair, which went at very high prices, and animals of an inferior deſcription alſo ſold dear. Fat pigs brought 6s. 6d. per ſtone. Hops averaged from 4l. 10s. to 4l. 15s. per cwt. Cheeſe, beſt making, ſold from 66s. to 73s. and two-meal from 56s. to 68s. per cwt.

Letbury Fair, on Monday, exhibited but a ſmall ſhow of cattle, which ſold quickly at good prices. Horſes all went high. Pigs were on the advance. Cheeſe, two meals, averaged from 54s. to 56s. per cwt.; of the beſt making none were offered for ſale.

Miscellanies.

Parpoutier, a celebrated French chemiſt, has diſcovered a new ſpecies of utility, beſides its nutritive powers, in the potatoe, and his diſcovery has been proved in England by ſtucco plaſterers. From the ſtarch of potatoe, quite freſh, and waſhed but once, a fine ſize, by mixture with chalk, has been made, and in a variety of inſtances ſucceſsfully uſed, particularly for ceilings. This ſpecies of ſize has no ſmell; with animal ſize, putrifying ſo readily, uniformly exhales a moſt diſagreeable and unwholſome odour; the ſize of potatoes being very little ſubject to putrefaction, appears from experience to prove more durable in tenacity and whiteneſs, and, for white waſhing, ſhould always be preferred to animal ſize, the decompoſition of which, always exhibits proofs of infectious effluvia.

The reſult of a courſe of experiments was laid before the Hereford Agricultural Society, on Monday, by T. A. Knight, Eſq. by which it appeared, that the ſtrength of the juice of any cider apple was in exact proportion to its weight. Thus the juices of the inferior apples were light when compared with the juices of the old and approved ſorts. The Foreſt Stire outweighed every other, until it was put in competition with the new variety produced by Mr. Knight, from the Siberian Crab and the Lulham Pearmain; nor could any other juice be found equal in weight to the latter.

In the year 1806, there were grown on moſs land, at Caſtle Head, never before cultivated, carrots, which in one ſquare yard (tried in ſeveral parts of the field) weighed 47lb. Half an acre produced, on the average, 9 tons, 4 cwt. 2 qrs. 16lb. carrots, which, at 4s. per cwt. would amount to 36l. 18s. 6d. The quantity of potatoes growing on four ſtatute acres of the ſame field was 690 buſhels. The rows were four feet aſunder.

Subſtitute for barm, which may prove generally uſeful;—To a pint of freſh beer, or porter, put a table ſpoonful of brown ſugar, and as much flour as will convert it to the conſiſtence of a batter; put the mixture into a ſmall jar or bottle, corking it cloſe, as it is apt to fly. Shake it well twice a day, for ſix days, it will then be fit for uſe. The above will work 14 pounds of flour; leave about a tea cup full in the bottle, and add the ſame quantity of bear, ſugar and flour, it will be fit for uſe in three days. Leave the barm to ſpunge with the flour ſome time in the day, make the bread at night, and bake it early next morning. The barm is to be beaten up with a little warm water, to ſponge in the flour as ſoon as it is out of the jar, and left for about ſix hours before the bread is made.

In a garden at Earſdon, near North Shields, there is now a gooſeberry buſh covered with young gooſeberries about the ſize of a pea; and what is remarkable, there is not a leaf to ſhelter them.

FEB. 15.

M. Leori, who has made many ſucceſsful experiments in agriculture, adviſes perſons by no means to procure grain for ſowing from a ſoil north of their own land, but from a country ſouth of it; becauſe he ſays it is a general rule, that the product of ſeed improves in going from ſouth to north, and that it decreaſes in virtue in going from north to ſouth.

A pig of the old Pembrokeſhire breed, reared by Lord Cawdor, was ſlaughtered a few days ſince at Stockpole Court: its height was three feet five inches, girth eight feet one inch, length from the noſe to the root of the tail ſix feet ſeven inches, and weighed, when alive, ſixty ſcore ſeventeen pounds. The four-quarters, with the head, weighed forty-three ſcore ſeventeen pounds, and the rough fat forty-five pounds. The meat was diſtributed amongſt his Lordſhip's cottagers and labourers.

FEB. 22.

Laſt week Mr. Cole, of Woodbridge, ſlaughtered a ſheep, and afterwards took from her a lamb, which is now alive.

A hare of a ſingular appearance was killed lately by the greyhounds belonging to the Rev. Mr. Evans, of Kingsland, the face, ſhoulders, and fore legs, being of the pureſt white.

A perſon at Dorcheſter, has been lately convicted in ſix penalties, of 10l. each, for wilfully making falſe returns to the Inſpector, appointed under the Corn Act, of having purchaſed conſiderable quantities of oats, on ſeveral days, in the months of November and December laſt, at the prices of 40s.—40s. 6d.—41s.—41s. 6d.—42s.—42s. 6d. and 43s. per quarter, and which he ſtated to have bought of Meſſrs. W. H. and I. Henning; when, on the fulleſt inveſtigation, it clearly appeared that none of ſuch purchaſes had been made, and that during thoſe periods the general price of good oats, at Dorcheſter and its neighbourhood, was from 28s. to 32s. per quarter; as, in conſequence of theſe falſe and fictious returns, great impoſitions have been practiſed on Government. The Magiſtrates, before whom the defendant was convicted, have very wiſely determined to tranſmit an account of the proceedings, which have thus come before them, to the Lords of the Treaſury.

LONDON PRICES OF GRAIN for *Feb.* 1806.

MARK LANE, *Monday*, Feb. 2, 1806.

We had little wheat up for this morning's market; but which, added to the quantity on hand, furniſhed a middling ſupply. The uninterrupted working of the mills having brought much flour into the warehouſes, our millers become very backward in purchaſing. Hence we had again, to-day, (except for fine ſamples) a heavy market, few ſales, and declining prices: good Red Wheats were at about 74s. per quarter.—In Barley, we have nothing material to note, except that it ſtill arrives in plenty; and, as with all Grain, the ordinary gives way the moſt. Malt is rather cheaper.—White Peaſe, fine boilers, are not quite ſo high as laſt Monday, nor can any addition be made to the prices of Beans, of either kind.—We have not many arrivals of Oats; prime ſamples are rather dearer.—In other articles, no particular alteration.

Price of Grain, on board Ship, as under.

Wheat	50s 60s 65s	White Peas	50s to 65s od	Beans, Old	—s to 47s
Fine	70s to 76s	Boilers	80s to 88s	Ticks, new	16s to 36s
Superfine	78s to 82s	Suffolks	90s	Ditto Old	—s to 40s
Rye	36s to 45s	Grey Peas	34s to 44s	Oats	22s 27s to 31s
Barley	30s to 31 sod	New, ditto	46s	Polands	—s to 33s od
Malt	64s to 72s	Beans, new	35s to 41s od		

London Prices of Grain, for Feb. 1807.

Monday, Feb. 9.

Our ſupply of Wheat was rather ſhort this morning, and the buyers numerous; prices, in conſequence, advanced two and three ſhillings per quarter.—In Barley and Beans, of both ſorts, the arrivals, added to the ſtock in hand, were ſufficient to anſwer the demand. The ſales of theſe, and of Malt, were all of them dull, with no improvement in price. White and Grey Peaſe, on the contrary, were rather dearer.—We had not many freſh Oats up, but pretty large remainders of former arrivals.—Good Horſe Corn obtained better prices, but the other ſorts remain at about laſt currency.—Fine Flour ſteady at 70s. per ſack.

Wheat	50s 60s to 68s	White Peaſe	50s to 70s	Old	47s
Fine	—s 70s to 76s	Boilers	80s to 88s	Ticks new	30s to 36s
Superfine	78s to 82s	Suffolks	—s to 90s	Old	40s
Rye	36s to 44s	Grey Peaſe	36s to 45s	Oats	21s 26s 29s
Barley	30s to 38s	Fine new	47s	Polands	30s to 32s
Malt	58s to 70s	Beans new	36s to 42s		

Monday, Feb. 16.

Our arrivals of Wheat to-day were not numerous. The Mealing trade bore a briſkneſs early in the mornnig, but which went off towards the cloſe, and prices were deemed nearly the ſame as laſt Monday. We had pretty good ſupplies of the different ſorts of Norfolk Barley to-day, and which gave way full one ſhilling per quarter. Malt is likewiſe heavy, but not with any material alteration in price.—White Peaſe, boilers, of the fineſt quality, fetched nearly laſt Monday's terms.—Grey Peaſe, and old Beans, of both ſorts, were dearer. The other ſorts remain unaltered.—But few Oats have arrived ſince our laſt, and rather higher prices demanded for thoſe of the beſt quality.—Flour fully keeps its price.

Wheat	50s 60s to 70s	White Pease	50s to 70s	Ditto, old,	49s
Fine	—s 72s to 78s	Boilers	80s to 88s	Ticks, new	30s to 37s
Superfine,	80s to 84s	Suffolks,	—s to 89s	Ditto, old,	42s
Rye	36s to 46s	Grey Peas	40s to 46s	Oats	20s 27s to 30s
Barley	30s to 36s	New ditto	48s	Polands	31s to 32s 6d
Malt	60s to 70s	Beans, new	36s to 42s		

Monday, Feb. 23.

Our ſuppiles of Wheat were rather ſhort this morning, and which procured for fine ſamples a ſmall advance in price.—Barley retains its value at the ſubjoined currency.—Malt the ſame, but with no briſkneſs in the ſale.—White and Grey Peaſe are rather a ſhort ſupply; they all keep their prices.—Beans of both ſorts have been ſubject to very little alteration.—Oats, and indeed moſt other articles of grain, have come ſparingly to market; on which account there was no abatement from laſt Monday's terms.—The Bakers appear to be pretty well furniſhed with Flour; the price ſteady, at 70s. per Sack—72s. nominal.

Wheat	50s 60s to 68s	White Peaſe	50s to 70s	Old	48s
Fine	70s to 78s	Boilers	76s to 84s	Ticks, new	30s to 38s
Superfine	80s to 84s	Suffolks	88s	Old	40s
Rye, new	36s to 46s	Grey Peaſe	36s to 46s	Oats	22s 23s 31s
Barley	32s to 38s	New, ditto	48s	Polands	—s to 33s
Malt	60s to 70s	Beans, new	36s to 42s		

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

From the Returns received in the Week ended, Feb. 14, 1806.

INLAND COUNTIES.

COUNTIES.	Wheat.		Rye.		Barley.		Oats.		Beans.		Peas.		Oatmeal	
	s	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Middlesex	82	9	49	0	37	3	31	2	43	4	58	1	26	3
Surrey	84	0	42	0	37	10	33	0	42	6	52	6		
Hertford	74	5	43	0	39	0	27	4	38	0	44	3		
Bedford	74	10	52	0	36	10	25	8	43	2	51	2		
Huntingdon	75	5			36	0	23	0	38	5				
Northampton	70	0	48	0	34	11	73	9	40	3	39	6		
Rutland	73	6	42	0	39	6	22	6	41	0			62	0
Leicester	70	10	43	2	36	2	24	2	40	10	52	8	40	1
Nottingham	73	11	46	0	39	8	26	6	43	0	40	0		
Derby	76	0			42	6	26	6	49	0	44	6	37	1
Stafford	75	1			42	0	29	0	51	2			39	1
Salop	71	2	53	10	40	1	25	10			41	0	66	4
Hereford	73	0	46	4	37	0	27	3	47	2	43	2	64	11
Worcester	73	2			39	4	33	1	46	6	44	1		
Warwick	81	1			44	5	31	8	50	8	59	8	47	11
Wilts	75	8			37	0	32	0	51	8	44	0		
Berks	83	11			37	8	31	1	47	11	50	10		
Oxford	77	5			35	0	28	9	41	8	47	1		
Bucks	80	5			37	5	28	6	45	1	48	0		
Brecon	74	1	51	2	39	2	22	4			40	0	44	4
Montgomery	70	10			36	9	25	8			41	6	50	10
Radnor	69	9			36	10	22	1			38	4		
Maritime Counties.														
Essex	75	8	36	6	36	6	30	6	38	6	48	0		
Kent	83	6	48	0	39	0	34	9	39	0	58	0		
Sussex	79	8			35	0	33	0	47	0				
Suffolk	75	6			35	6	34	8	34	0	46	5	65	7
Cambridge	70	10			31	9	20	7	33	7	44	0		
Norfolk	70	4	46	0	33	11	25	4	35	9	50	0		
Lincoln	69	0	41	10	34	4	21	11	37	10				
York	69	0	41	8	35	2	25	4	41	9	65	4	39	1
Durham	78	7			41	0	26	11						
Northnmberland	70	0	51	0	37	5	26	9			40	0		
Cumberland	67	8	53	1	39	10	26	5	42	0			22	9
Westmoreland	73	8	62	0	37	0	28	10					21	0
Lancaster	73	3			41	7	27	10	49	4			22	4
Chester	68	11					26	1					21	9
Flint					44	8					42	6		
Denbigh	79	2			44	8	23	2	51	3	35	2	45	10
Anglesea					36	0	21	0						
Carnarvon	76	0			39	0	20	8					47	8
Merioneth	85	1			47	0	24	0			44	0	46	1
Cardigan	77	5			31	7	16	6						
Pembroke	64	5			35	4	18	10						
Carmarthen	83	0			34	8	19	0						
Glamorgan	79	2			36	1	19	4						
Gloucester	74	8			38	4	27	11	49	8	46	0		
Somerset	78	8			36	6	26	0	58	0	60	0		
Monmouth	77	10			40	2	25	7						
Devon	84	11			38	2	28	0						
Cornwall	81	4			37	0	21	7						
Dorset	78	4			36	7	28	0						
Hants	80	7			39	8	34	8						

Prices of Hops, Meat, Seed, Leather, Tallow, &c. for Feb. 1807.

Price of Hops.	1st Week	2d Week	3d Week	4th Week
Bags.	s. s.	s. s.	s. s.	s. s.
Kent — —	95 to 115	95 to 115	90 to 115	90 to 115
Suſſex — —	90 to 105	92 to 112	90 to 105	90 to 105
Eſſex — —	90 to 110	92 to 112	90 to 105	90 to 105
Pockets.				
Kent — —	100 to 130	100 to 132	100 to 132	100 to 132
Suſſex — —	96 to 112	100 to 115	96 to 115	96 to 115
Farnham — —	140 to 189	120 to 200	160 to 189	160 to 189
Seeds.				
Broad Beans, (per quarter)	23 to 68	28 to 68	28 to 68	28 to 68
Long Pods	30 to 48	30 to 48	30 to 48	30 to 48
Tares — —	36 to 50	32 to 46	32 to 46	36 to 50
Rye Graſs — —			10 to 26	10 to 26
Carraway, (pr cwt.) —	40 to 46	40 to 46	40 to 42	40 to 42
Coriander —	10 to 11	10 to 11	10 to 11	10 to 11
Trefoil —	5 to 25	6 to 25	6 to 25	6 to 26
Red Clover — —	32 to 82	32 to 82	32 to 84	32 to 90
White ditto —	42 to 95	42 to 90	42 to 90	42 to 100
White Muſtard Seed, pr bu	9 to 12	9 to 12	9 to 12	9 to 12
Brown ditto	10 to 17	10 to 17	10 to 17	10 to 17
Canary Seed				
Turnip, —				
Rape Seed, (per laſt) —	241 to 281	221 to 291	221 to 291	221 to 291
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.
Beef — —	4 6 to 5 8	4 4 to 5 4	4 0 to 5 0	4 0 to 5 4
Mutton — —	5 0 to 5 8	4 8 to 5 8	4 4 to 5 4	4 4 to 5 6
Veal — —	5 0 to 7 0	5 0 to 6 6	5 0 to 7 0	5 0 to 7 0
Pork — —	5 0 to 6 0	5 0 to 6 0	4 8 to 5 8	5 0 to 6 0
Lamb — —				
Head of Cattle—Beaſts about	1,900	1,700	1,900	1,800
Sheep and Lambes	15,500	14,000	18,000	16,000
Price of Leather.	d. d.	d. d.	d. d.	d. d.
Butts, 50lb. to 56lb. each	22 to 24	22 to 23	22 to 23	22 to 23
Ditto, 60lb. to 65lb each	24 to 26	24 to 26	24 to 26	24 to 26
Merchants Backs —	21 to 22	21 to 22	21 to 22	21 to 22
Dreſſing Hides —	17 to 18	17 to 18½	17 to 18½	17 to 18½
Fine Coach Hides —	18 to 20	18½ to 20	18½ to 20	18½ to 20
Crop Hides for cutting	21 to 24	21 to 23	21 to 23½	21 to 23½
Flat Ordinary —	17 to 19	17 to 18½	17 to 18½	17 to 18½
Calf Skins, 30 to 40lb. *p.* doz.	28 to 40	26 to 36	26 to 36	26 to 36
Ditto, 50lb. to 70lb. do.	34 to 40	33 to 39	33 to 39	33 to 39
Ditto, 70lb. to 80lb. do.	32 to 34	32 to 34	32 to 34	32 to 34
Sm. Seals (Greenland)	42 to 44	42 to 45	42 to 45	42 to 45
Large do. (per dozen)	51 to 71	51 to 71	51 to 71	51 to 71
Goat Skins *per* doz.		— to —	— to —	— to —
Tanned Horſe Hides prhide	18s to 34s	20s to 33s	20s to 33s	20s to 33s
Price of Tallow.	s. d.	s. d.	s. d.	s. d.
St. James's Market —	3 10	3 10	3 9	3 7
Clare Market —	3 11½	3 9½	3 9½	3 7½
Whitechapel Market —	3 11	3 9¼	3 7	3 7
Per ſtone of 8lb. Average	3 11½	3 9½	3 8½	3 7
Town Tallow —	67 0	65 0	63 6	61 0
Ruſſia (Candles) —	59 0	56 0	53 0	53 0
Ruſſia ditto (Soap) —	56 0	54 0	53 0	53 0
Melting Stuff — —	47 0	45 0	46 0	47 0
Ditto rough — —	30 0	30 0	30 0	30 0
Garves — — —	11 0	11 0	11 0	11 0
Yellow Soap — —	74 0	74 0	74 0	76 0
Mottled ditto — —	86 0	86 0	86 0	88 0
Curd ditto — —	90 0	90 0	90 0	92 0
Candles per dozen — —	10 6	10 6	10 6	10 6
Moulds — — —	11 6	11 6	11 6	11 6

Prices of Raw Hides, Hay and Straw, &c. for Feb. 1807.

	First Week	2d Week	3d Week.	4th Week.
Raw Hides.	*s.d. s.d.*	*.d. s.d.*	*s.d. s.d.*	*s.d. s.d.*
Beſt Heifers & Steers, pr ſt.		3 2 to 3 4	3 0 to 3 4	2 10 to 3 0
Middling — —		2 4 to 2 6	2 4 to 2 8	2 4 to 2 6
Ordinary — —		1 10 to 2 0	1 10 to 2 0	1 10 to 2 0
Market Calf — —		12 6 each	12 6 each	12 6 each
Eng. Horſe — —		14s to 16	15s to 16s	14s to 17s
Lamb Skins — —				
Sheep Skins — —		4 0 to 7 0	4 0 to 6 6	4 0 to 7 0
Price of Hay and Straw.	*l. s. d.*	*l. s. d.*	*l. s. d.*	*l. s. d.*
St. James's—Hay —	4 1 6	4 0 0	4 5 0	4 6 0
Straw —	2 17 0	3 0 0	3 0 0	3 3 0
Whitech.—Hay —	4 4 0	4 4 0	4 10 6	4 8 0
New —	0 — 0	0 — 0	0 — 0	0 — 0
Clover —	5 0 0	5 0 0	5 0 0	5 0 0
Straw —	2 18 6	2 15 0	2 19 6	3 1 0
Newbury.				
Wheat — — —	64s to 91s	63s to 90s	64s to 91s	64s to 94s
Barley — — —	34s to 38s	33s to 37s	33s to 38s	35s to 38s
Oats — — —	25s to 31s	26s to 30s	26s to 30s	26s to 31s
Beans — — —	—s to —s	—s to —s	—s to —s	—s to —s
New ditto — — —	—s to —s	—s to —s	—s to —s	—s to —s
Peas — — — —	—s to —s	—s to —s	—s to —s	—s to —s
Saliſbury.				
Wheat — — —	78s to 82s	76s to 80s	76s to 82s	76s to 81s
New ditto — — —	—s to —s	—s to —s	—s to —s	—s to —s
Barley — — —	34s to 38s	34s to 37s	36s to 38s	35s to 38s
Beans — — —	—s to —s	—s to —s	—s to —s	—s to —s
Oats — — —	32s to 37s	33s to 37s	33s to 37s	33s to 37s
Peas — — — —	—s to s—	—s to —s	—s to —s	—s to s—

TO CORRESPONDENTS.

WE have, with great pleaſure, received from Mr. F. B. Harries, a Drawing of his Clod Roller, a plate of which ſhall appear in our next, and for which, we beg of this gentleman to accept of our ſincere thanks.

We feel equally obliged to Mr. Saunders, for his valuable experimental Treatiſe on Swine, and the manner of their being kept. —We hope to hear frequently from this gentleman.

The Durham Farmer has afforded us much pleaſure by a method of handling the Horſe and Ox queſtion, not before touched upon.

The account of Count Bentinck's Embarkment in Norfolk, ſhall appear in our next.