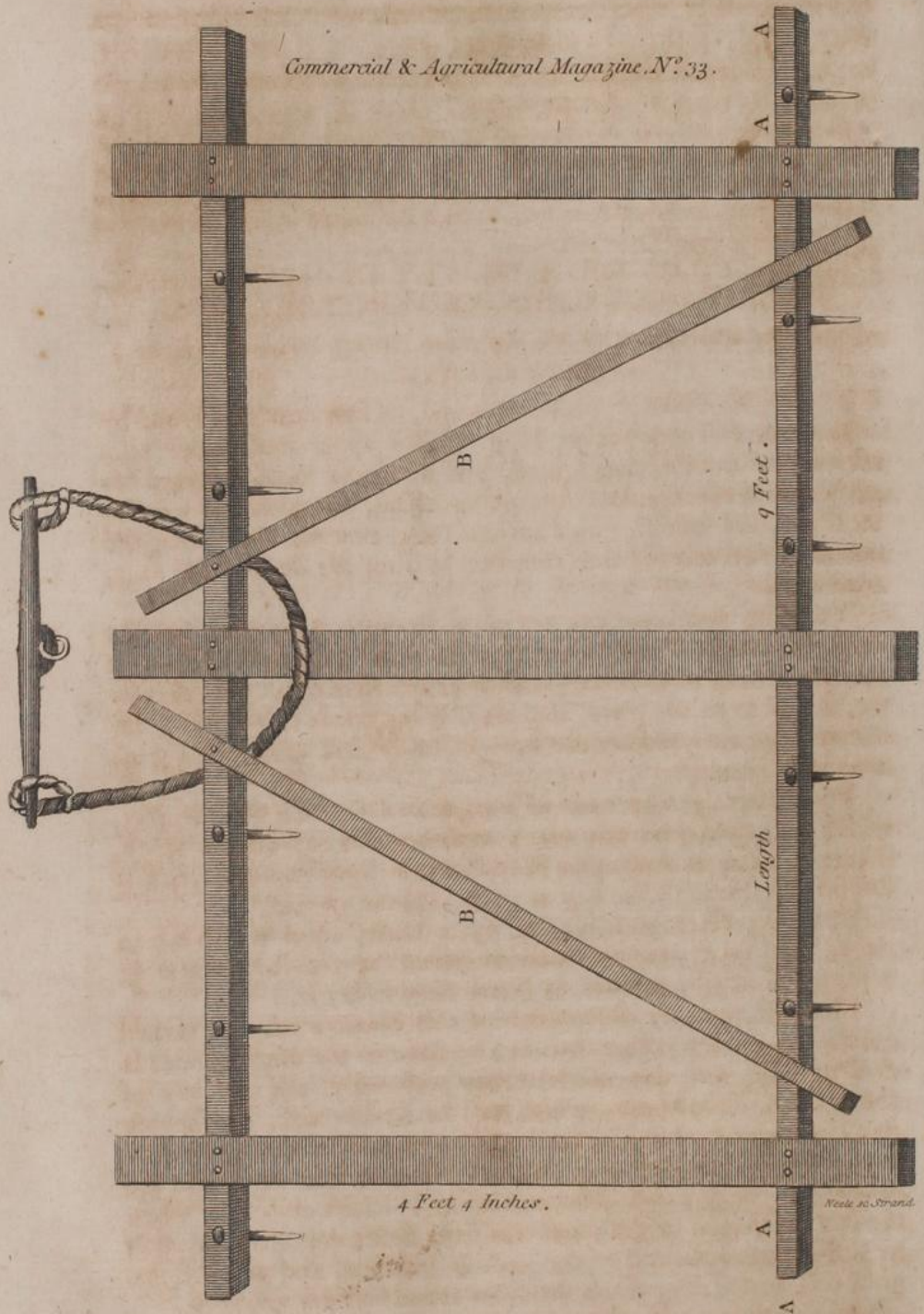


*C. Bloys van Treslong's Hay Harrow.*

*Commercial & Agricultural Magazine, N<sup>o</sup> 33.*



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[VOL. VI.]

As the season for Hay-making is not far distant, the Editor thought it his duty to lay before the Public two interesting Papers on the subject respecting methods lately practised on the Continent with success; one for making Meadow-Hay, the other Clover-Hay; both which will be found to contain much useful information, to treat the matter in different points of view, and elucidate its theory.

DESCRIPTION OF A NEWLY INVENTED HAY-HARROW, BY C. BLOYS VON TRESLONG.

(From the Transactions of the Rotterdam Society. Vol. II. p. 88.)

With a PLATE.

**T**HIS Harrow is made of wood, in size nine feet broad by four feet four inches long. The upper and under rails are two or three inches square, and nine feet long, fastened together with three pieces five inches broad, one inch and a quarter thick, and four feet four inches long, one in the middle and the other two on each side, ten inches from the ends of the rails, as at A A.

To give this machine yet more strength there must be two diagonal braces B B; in each of the rails must be five teeth of six inches long in the clear, and three quarters of an inch diameter, placed as in the plate, and sloping outwards to the rear, for if they slope forward, or are upright, they will cluster the grass too much in heaps.

The teeth might be made of iron, and of course a little smaller, which I intend to try this year; however this depends on fancy, if care is taken to make the Hay-Harrow light enough, least it should sink through the hay or grass into the ground.

The Hay-Harrow is drawn by a horse, upon which a man rides, who takes care to scatter or spread the grass by harrowing it from the swath, as thick as is necessary to dry it.

That the grass by the means of this Harrow may be turned quicker and much better than can be done in the usual manner is evident; for with this machine one may easily turn the hay of three acres in one hour, which will be well mixed; for suppose that the upper part of the hay is dry at nine o'clock in the morning, it may be turned at ten o'clock, so that one can have the benefit of the greatest heat of the sun; on the contrary, when the hay is turned in the usual way, the best time of the day will be passed before the last of the grass is touched, and part of the grass will be too dry, when the other is not half dry enough.

On a warm and windy day one may keep the horse constantly going. When the last of the acre is turned, begin again with

the first, because the grass will be sufficiently dry on the upper part, so that if the work is done at an early hour of the day, the cocks may be put up in the afternoon; for if it should not be sufficiently dry, it will be so before it is all cocked. This mode of proceeding being more expeditious and less expensive (if not preferable in respect to the improvement of the hay) must be preferable to the usual way. For suppose the hay is put into cocks after this manner, it is safe if it should begin to rain the next, and continue for some days.

Last summer I got the grass of twenty fields made into cocks the second day from the time the grass began to be cut, after which day rainy weather commenced, and continued almost unremittingly for ten or twelve days.

By my method I could make much use of the little intermission of great rain which was really useless to others, and my hay was fresh and good.

As we cannot be sure of the weather, and as it is known that hay cannot be made so expeditiously when we follow the usual way, we ought to be very careful to make the best use of fine weather during the hay-harvest.

The importance of this assertion is shewn in the following Dutch proverb: *That a man is in as great hurry, as if he was going to make hay.* But if it is necessary to be so very anxious of having made the hay during fine weather, it will of course be indispensably necessary to redouble our exertions at an unfavourable season.

How much more preferable must this newly invented machine be, by means of which we can do as much work in one day, with one man and a horse, as fifty men can do in the common way! And where are so many men to be found immediately? And how many inconveniencies there are to keep them in order, and see them do their duty properly?

I must confess that the grass is not turned so neatly and so even, when done by the Hay Harrow, as it can be done by hands; but this very circumstance shews the utility of the instrument; for the more irregular the grass is mixed, the sooner it will dry, because the winds can blow through it much easier than when it is laid flat together. As it may happen that the grass will be heaped up too much in some places, or perhaps too little in others, one labourer will be sufficient to do that work on the side of the ditches or other inequalities where the Harrow could not turn the grass well. One hour will be plenty of time for one man to regulate the hay on three or four acres, or the man who manages the horse may, during the time the horse is fed, or the grass is left to dry, do that business.

Farmers may be afraid of letting the Harrow be conducted without having a man after it to guide it by a cord, lest the grass

would be heaped up in some places. To guard against this objection, I have been so very particular in describing the Machine.

But it is to be observed, that the Harrow will bounce more or less, according to the distance of the horse from the Harrow, which must have been observed in common harrowing. The Harrow makes a balancing motion, that is, turning alternatively sideways, so that it does not always meet the same quantity of hay, or sometimes does not take deep enough, from which reason one can see that if it takes sometimes too much, it will loose it again in a little time after.

A good Hay-Harrow should therefore be of the size here described, and which by experience I find to be the best, having made the hay of seventeen acres with no other assistance but one man and one horse, and I can affirm that these seventeen acres did not cost me seven shillings and sixpence for hay-making, besides the expence of the Harrow. The hay was of a fine green colour, and good quality. I have invented likewise a Machine to gather the scattered hay, which is of the same size as the abovementioned, but it has four rails, and is full of teeth, of the length of four inches, and six inches distant from each other.

*An Account of the Method of making Clover-Hay, invented by the Rev. Mr. Klappmeyer, of Wormen, in Courland; communicated to the Secretary of the Society of Arts, &c. by his Son Mr. John Taylor, and published in their 19th Volume.*

**I**N the method of making Hay, recommended by the Rev. Mr. Klappmeyer, not only a number of hands are saved, but the Hay is better and more nourishing. The Hay is prepared by self-fermentation, whereby it retains its nutritious juices, and only loses its watery particles; it is dried more expeditiously by dissipation of its humidity, and contraction of the sap-vessels and thus its nutritious juices are concentrated. This process is conducted in the following manner, viz. The sap-vessels are expanded by the circulation of the liquid-juices by heat, and the superfluous humidity is exhaled: on cooling, the sap-vessels contract, and thus future intestine fermentation is prevented, and the nutritious quality preserved.

Upon this principle, the Clover intended for Hay, after having been mowed, remains till four o'clock in the afternoon of the following day, in the swath, to dry; it must then be raked together into small coils, and afterwards made into large cocks in the form of a sugar-loaf, and such as would require six or eight horses to remove. To prevent the air from penetrating these cocks, and to produce a quicker fermentation, they must, while forming, be trod down by one or two men. If it be a still, close, warm night, the fermentation will commence in four hours, and

manifest itself by a strong honey-like smell: when a proper fermentation is begun, the cocks will, on being opened, smoke, appear brownish, and may then be spread abroad. If in the morning the sun is warm, and a little wind arises, the Clover-Hay will quickly dry; it may then, towards noon, be turned with the rake or pitch-fork, and about four in the afternoon, will be sufficiently dried, so that it may be immediately carted into the barn, without any danger of a second fermentation.

By this method of management the Clover will require only three days, from the time of mowing, to its being housed, and very little work: whilst in the common way, even in good weather, it requires six or eight days; in the old method it frequently becomes of a black colour; but in the new method it is only brown, has an agreeable smell, and remains good and unchangeable in the barn. The farmer has also another advantage, that if he has not carts enough to carry it into the barn, he needs only, at sun-setting, to heap it again into large well-trodden cocks, and thatch them with straw, in which state they will remain the whole summer without damage or loss. This Clover-Hay is not only greedily eaten by sheep and lambs, but also by horses, calves, and cows.

The last in particular prefer it to the best Meadow-Hay: it produces a great quantity of rich milk; and the butter made from it, is almost as yellow as summer butter.

As this new mode of making Hay depends principally upon two circumstances—first, that the mown Clover, when brought together into large heaps, may ferment equally and expeditiously; secondly, that if the day succeeding the fermentation be dry, sunny, and windy—on this account it may be proper to point out what should be done when circumstances are unfavourable.

Let us suppose, therefore, that the night after the Clover-Grass has been placed in the great cocks, be cold, damp, or rainy, the fermentation will yet take place, although it may require a term of twelve, sixteen, or twenty-four hours to effect it. If it be a second or third crop, at which season the nights are colder, it may even require from thirty-six to forty-eight hours before the fermentation ensues: it will, however, commence, and may be ascertained from this circumstance, that you can scarcely bear your hand in the interior of the cock.

Even if the night be dry, yet if a strong cold wind blows, the cock may not ferment equally, but only in the middle and on the side opposite to the wind; the other parts may still remain green. In such a case the following rules must be attended to:—

First, If the cock has only fermented in the middle, and on that side where the cold wind did not act upon it, the whole heap must, nevertheless, be opened the following morning. That which has already fermented must be separated and spread to dry; it must be turned towards noon, and may be carted into the

barn in the evening: but that part of the cock which has not fermented, must be again put together into large cocks, and fermented in the same manner as the preceding part, after which it may be spread to dry, and brought into the barn.

Secondly, In such cases where a small portion of the cock has fermented thoroughly, but not the greater part, the heap must be spread abroad in the morning, but must be again made into a close cock in the evening, in such a manner that the part which has fermented be placed at the top or outside of the cock, and that which has not fermented be inclosed within it; then on the ensuing morning, or if the weather be cold and rainy, on the morning afterwards, the Clover heap may be again spread abroad, and the Clover treated as in Case No. I.

Thirdly, If, in spreading the heap abroad, it be found that nearly the whole of the Clover has fermented, it will not be necessary to delay the housing of the whole on account of some small portion; but the Clover may be dried and carted into the barn. The small portion of Clover which remained unfermented, will not occasion any disaster to the other which has fermented; for there is a material difference betwixt hay thus managed, and the meadow grass which is brought whilst damp, or wet with rain, into the barn, which will grow musty and putrid.

Fourthly, In such instances, where some of the cocks of Clover have thoroughly fermented, and it rains on the morning they ought to be spread abroad, the Clover must be opened and spread even if it rains violently; since, if it was suffered to remain longer in the heap, it would take fire, or its juices would be injured by too much fermentation; the leaves and stalks would become black, and the Clover unfit for food: therefore, if the rain continues, the spread Clover must be turned from time to time, but not carted into the barn till dry. This drying takes place, if the rain discontinues for a few hours, much more expeditiously with the Clover which has fermented, than with that made in the common way. Besides which it must be remarked, that the fermented Clover remains good even if it continues some weeks exposed to the rain, provided it is at last suffered to dry before it is put into the barn; otherwise the wet from the rain will render it musty and bad. The Clover which has been, for so long a time, exposed to the rain, will not, however, be so nutritious as that which has been well fermented and sooner dried, but it will be far superior to that which has been exposed to the rain, and got up in the common method.

This new mode has been adopted with success, during the years 1798 and 1799, in Silesia, and found, in every respect, preferable to the old manner. On one of the estates there, it rained much during the Hay time; they were obliged to spread the Clover out of the large cocks, owing to its having been fermented only in the middle: the parts which had not fermented

were carefully separated and made again into large cocks, which fermented at the expiration of thirty-six hours, rainy weather and cold nights continuing during this period; after which time it was again spread abroad. The former, as well as the latter, remained for three days exposed to the rain, during which period it was turned several times; the rain ceased on the fourth day, so that the Clover-Hay was turned towards noon, and carted into the barn that evening. This Clover-Hay remained in the hay-loft without change, and was a very nutritious food. Several milch-cows were fed with it, who not only eat it greedily, but also increased in their milk. Lambs and calves also thrived with it greatly. This method of making Clover-Hay prevents its taking fire; for Clover which has been once well fermented and dried, does not change or spoil in the hay-loft.

Thus far I have given you the practice related by Mr. Klapmeyer; and if the hay season be wet in Lancashire, as is generally the case, I recommend you to make the trial on your farm.

If the weather should be remarkably hot, you may, by adopting this plan, prevent frequent accidents; for grass hastily made into hay, however dry it may appear to the hand, contains within its fibres much humidity; and when trod down in the stack will ferment rapidly, from this humidity endeavouring to escape, which often fires the stack. A certain degree of fermentation is necessary in the making of hay, in order to develop its saccharine qualities, and make nutritious food. This saccharine fermentation is evident, from the smell and colour of the hay in common stacks; and from tasting an infusion of it, it resembles, in some degree, the process of making malt from barley, and requires a similar attention. I have no doubt that the method above related will prove generally advantageous, in making Clover Lucerne and Meadow-Hay in England, and lead to valuable improvements in agriculture.

I remain yours very affectionately,

Leipsig. June 4. 1800.

JOHN TAYLOR.

#### ON THE CASTRATION OF LAMBS.

*To the Editor of the Commercial and Agricultural Magazine.*

SIR,

AM truly sorry I had not the opportunity before this day of perusing the last number of your valuable Magazine, wherein I find a request from your Burford Experimentalist, for information "from experience" respecting castrating Lambs. Am doubtful the season for this business will be too far advanced for my hints to be of much service this year, provided any of your readers (who do not follow my practice, and are so unfortunate as to lose a part of this truly valuable species of stock, by this "harsh operation,") should wish to follow my rules. I am one

of those Farmers whose stock principally consists of sheep, and have cut my own lambs, and those belonging to most of my neighbours, for upwards of twenty years. Upon an average, I presume I cut 1500 annually, and have the pleasure to say I have not lost, on an average, one out of 200. I never cut them when the moon is in the south; I follow the rule of many shepherds in this neighbourhood, that is in observing the moon's sign, although I do not assert that it is of material consequence. I prefer cutting such lambs as are of a proper age, when the sign is from the knee downwards, and if the moon was not in the south I should chuse to cut them towards evening. I never found any ill effect by cutting lambs three weeks old, and have no objection to wait till a part of them are that age, to have the opportunity of cutting when the sign is as above, and then I should cut all that was above four or five days old, if they appeared to be healthy. I should rather cut them when the sign was in any part (except where the incision is made, and I am not certain if they were then to be cut that the effects would be fatal) than to permit them to be more than three weeks old. In the course of my practice, I have found that it is much better to cut them under three weeks of age, than to exceed it. This practice was pursued, with equal success, by my late father, who informed me that, in his early days, a neighbour requested him to cut his lambs, and, as he had a large stock, he said he would run the hazard of sacrificing one or two by way of experiment. The moon was in the south in the morning, and, by the Farmer's instruction, he then cut four. The remainder, upwards of 100, he cut the same day towards evening. Three out of the four first died, the latter all survived the act; but he was not so positive as to assert that their being cut when the moon was in the south was the cause of their death. The day proved a very hot one, for the season, and he thought that might be one cause for bringing on a gangreen, of which they died. About four years ago I met in company with a Warwickshire Farmer, amongst other things he told me he cut his own lambs, and (like me) many for his neighbours, and had been very successful. He said he had many years strictly followed my rules. Some years ago he, by inadvertance cut at different periods, a considerable number, without attending either to the southing, or sign of the moon, and that year he lost more than all the preceding and subsequent years of his practice put together.

I purpose to pursue the plan I have here laid down, but am open to conviction; I only say I have followed this practice many years with success, but do not assert that my success arises from my practice. I do not deny but lambs may do well if they are cut when the moon is in the south, and sign in any part, but so long as my success continues, I have no inclination to make

the experiment. With wishing the Burford and other Farmers good luck with their Flocks, and you in the prosecution of your valuable Work,

I remain, Sir,

Your obedient servant,

*Enstone, March 30, 1802.*

AN OXFORDSHIRE FARMER.

#### ON THE GRUB OF THE COCKCHAFER.

*To the Editor of the Commercial and Agricultural Magazine.*

SIR,

I AM of the same opinion with your correspondent, who has stated his alarms respecting the increase of the Grub of the Cockchafer of late years. Every possible means, I think should be devised for its destruction. Its ravages are not confined to the wheat crop, or to corn crops in general, but are extended to grass lands, to seeds, to turnips, and to almost every species of vegetable. With this prevalence, however, fortunately for us, the rook tribe is well acquainted, and is constantly in search after these grubs as its favourite food: but its daily consumption is not sufficient effectually to keep under the rapid generation of these noxious insects, but only serves as a check; for the number of rooks is by no means so great as it was formerly in these islands. These insects are frequently concealed too deep under the surface of the ground to come within the reach of the rook, or the whole race of them, near a rookery, would soon be destroyed; for it is astonishing to see with what nice investigation these birds search for the decayed blades of grass or corn, or for the withered leaves of a turnip; and where these are found, they will use all their efforts to dig up the earth with their beaks, in order to find out the destroyer of the roots of these decayed plants. But I may here be thought to busy myself in recommending a remedy more pernicious to the products of the earth than the evil which I have mentioned. I allow that the injury sustained by various corn crops from these winged plunderers themselves is frequently very great: but still I am of opinion, that the ravages of the grub of the cockchafer are more general and extensive than those of the rooks. I have however heard of and read many other remedies for this evil, and some of them I shall mention; for every thing on this subject that has only plausibility to recommend it, I think is worthy of consideration.

That ingenious French writer, Mr. de Chateaufieux, speaks of an insect, which is certainly of the same kind, if it be not the very insect which we have now under consideration. This gentleman, after saying, "Our wheat in the month of May, 1755, sustained a loss, which even that cultivated according to the new husbandry did not escape," describes the worm thus: "We found in the earth many little white worms, which afterwards became of a chesnut colour. They are usually found between

the first joint of plants and the roots; every stem which they attacked grew no more, but became yellow, and withered. The same misfortune happened likewise to us in the year 1732. The insects appeared towards the middle of May, and made such havock that the crops were almost destroyed.

The ingenious Mr. Stillingfleet, also, in the second edition of his *Miscellaneous Tracts*, speaks of an insect which is probably the same with that which we are seeking to destroy. His words are, "thus in Suffolk, and in some parts of Norfolk, the farmers find it their interest to encourage the breed of rooks, as the only means to free their grounds from the grub; from which the tree or blind beetle comes, and which in its grub-stall destroys the roots of corn and grass, to such a degree, that I have seen a piece of pasture ground where you might turn up the turf with your feet. And Mr. Matthews, a very observing and excellent farmer, of Wurgrove in Berkshire, told me," says Mr. Stillingfleet, "that whilst his men were hoeing a piece of turnips, the rooks alighted and remained for a considerable time, in a part of the field where they were not at work, and that the crop was very fine in that part, whereas in the other parts there were no turnips that year."

M. de Chateavieux describes this worm as being first white, and afterwards becoming of a chesnut colour. I have carefully sought them at different periods during the past year, but have always found them of the same chesnut colour, never varying in any particular, excepting that of size, which I find the same at all seasons in which I have seen them.

This insect which Mr. Stillingfleet speaks of, and calls a grub, which destroys corn and grass, I believe to be the same which we have been speaking of (although the report which he relates from Mr. Matthews seems rather to contradict it,) because I have observed, that the red or chesnut worm never appears voluntarily upon the surface, but when the earth is turned up either with plough or with spade, the rooks and crows are very bold in their approach to pick them up; a circumstance which, I own, has in some degree abated my enmity to these birds: I therefore never destroy nor frighten them off my land whilst I am ploughing it; but when I sow, when the corn rises, and when it is ripe, I destroy or banish them as well as I can, because the mischief they do at those times is intolerable."

In the report of the transactions of the Dublin society, we find this grub minutely described in its form and in its habits; and likewise a recital of various experiments which were made some years back, for its destruction. These I shall relate.

"These worms" are there said "to be about half-an-inch long, and about one tenth of an inch in diameter: they are jointed in their skins, and are of a very fine texture: they have

many short legs, two small black specks, which appear to be their eyes; and two small points springing from their heads, with which I believe they cut the corn, &c.; and which, in that work, I apprehend, act like forceps."

"When they are exposed to the air, by turning up the earth which is infested with them, they will very soon cover themselves again in the soil; which they are very capable of doing, by the strength which their make gives them, although they appear to be sluggish insects, and have not the advantage of a sliminess of the skin, which the common large creeping worm has."

This worm's endeavouring to cover itself from the air, is certainly from natural instinct, as it will soon die when exposed to that element; as will appear by the experiment, No. 10, hereafter mentioned.

These worms seem to abound more in ground which is lightly tilled, than in such as has been well worked; but in lay ground they seem to be more numerous than any where else: and the fields in which they are found in abundance are generally of a wet nature. Whether this circumstance contributes to their increase I cannot say; but the following experiments prove, that they will live longer in water than they can when exposed to the open air.

No. 1. Ten of these grubs put into a glass with common salt in it, were all dead in four hours.

No. 2. In a glass with brine in it, all dead in six hours.

No. 3. In a glass with lime in it, which had been slaked for a long time, and exposed to the weather; they were all dead in forty-four hours.

No. 4. In a glass with the above lime, and some water in it; they were dead in twenty hours.

No. 5. In a glass with lime newly slaked; they were dead in fourteen hours.

No. 6. In a glass with lime water, made with cold water; they were dead in ten hours.

No. 7. In a glass with foot in it; they were dead in four hours.

No. 8. In a glass with foot and water in it; they were dead in four hours.

No. 9. In a glass with water only in it; they were dead in fifty-two hours.

No. 10. In a glass without any thing but these ten grubs in it; they were dead in thirty-two hours.

By these experiments we see, that each of the articles here used, will kill this insect in a short time, particularly the salt and foot.

"Where lime can be conveniently had," this experimentalist, (Mr. John Wynne Baker) adds "and is used as a manure, I am

inclined to believe that no injury can be sustained from these worms; but I am afraid that a small quantity will not effectually destroy them."

Where salt shall be used to destroy this grub, it must always be sown before the intended crop; for although corn will vegetate, and receive benefit from salt as a manure, when it is used prior to the sowing of the grain, yet if it is used after the corn is growing it will certainly destroy it. Where salt is used for this purpose only, perhaps about four hundred and a half will suffice for an acre.

We see by these experiments likewise, that soot kills these animals as soon as salt; and as it is almost always attainable at a much lower rate than salt, and may be used with a safe and a salutary effect to the crop at any time.

"I had" says Mr. Baker "some small parcels of barley under experiments, which these worms began to destroy; and, in order to convey the soot as soon as possible to the roots of the plants, I mixed a little of it in water, and poured it on the plants with a garden watering-pot: the consequence was, that I did not lose one plant afterwards.

The ingenious Worlidge recommends a strong lee, made of fixed salts, for this purpose; but this would be very expensive, and almost impracticable to be used to any extent.

Mr. Mortimer recommends sea water, for such lands as are near the sea coast; to this expedient surely there can be no objection. He says he used soot once with success, but that it did not succeed with him afterwards. Probably this want of success was merely owing to his having used it too sparingly.

These remedies appear to me simple and rational, and at least worthy of the consideration of the public at the present day.

I am, your humble servant,  
T. P. S.

#### MR. BULLOCK'S DRAWBACK LOCK.

(From the 19th Volume of the Society, &c.)

A Bounty of Fifteen Guineas was voted to Mr. William Bullock, of Portland-Street, for an improved Drawback Lock for House-doors. A complete Lock is reserved in the Society's Repository.

**I** HAVE herewith sent, for the inspection of the Society, an improved Drawback Lock for House Doors, &c. which improvement is in latching the door; for it is well known, particularly in damp weather, that the air drawing through it, rusts the head or bevel of the bolt, by which means it requires great force to shut the door, and occasions a disagreeable noise, besides shaking the building.

It has frequently happened that the house has been exposed to robbery from the door being left unlatched, when supposed to be fast. This improvement removes all these inconveniences, as it

lets the bolt shoot into the staple immediately when the door closes, but not before; and the reliever works so very easy, that the door is made fast with one twenty-fourth part of the force required with locks upon the common construction.

By an experiment with the Lock sent herewith, it will be proved that two ounces added to the reliever, will shoot the Lock with more ease than three pounds will do applied to the bevel bolt; and if the Lock is rusty, the advantage will be much more in favour of the new method. I flatter myself it will be of great utility to the public, as its construction is simple and cheap. It may be added to any old lock, as may be seen from that now sent. It may be advantageously applied to French windows and glass doors, as it prevents the door from being strained, or the glass broke by the force applied to shut them. I have fixed several Locks, upon this new principle, which answer well.

I remain, with respect,

Sir, Your most obedient servant,

No 6, *Portland-street, Soho,*

WILLIAM BULLOCK.

May 5, 1801.

Mr. CHARLES TAYLOR.

*Description of Mr. William Bullock's improved Drawback Lock,  
See Plate 1. Fig. 4, in our Number for last month.*

A. Is the new iron latch here affixed to an old common drawback house-lock.—B. An iron pin at one end of the latch, on which pin it is moveable.—C. A projecting part of the latch, which, when the common spring bolt D of the lock is drawn back, in the usual manner, is forced into the nick on its higher part at E, by the spring F, underneath the latch.

The bolt D then remains within the lock, until, on closing the door, the reliever G gently presses on the lock box, fixed in the common way on the door cheek; which pressure draws the projecting part C out of the nick E, and permits the end of the bolt D, by the force of the spring G, to slide into the lock-box, and fasten the door.

OF THE MOST ESSENTIAL IMPROVEMENT,  
NOW WANTED IN HUSBANDRY.

*To the Editor of the Commercial and Agricultural Magazine.*

SIR,

THERE is a subject, on which I do not remember to have, hitherto, seen any communication in your Magazine; but which I should suppose to be, above all things, important among those which belong to Husbandry. Permit me to suggest it to the attention of yourself, Sir, and your Readers.

The subject I mean, is, "the possibility of turning land from tillage to the state of pasture, with such success, that the surface shall be as firm and the sward as thick, luxuriant, and rich

on the very first year of renewed pasturage, as if it had not been plowed for five or six years preceding."

To this object, the Board of Agriculture has, of late, most laudably directed its enquiries. If such a possibility could be actually and satisfactorily established; we should soon see one-third of the best land in the island restored to tillage, which is now kept almost perpetually, in grass. I cannot conceive any thing in the way of writing and publication to be more likely to forward such an end, than an extensive correspondence about it, from time to time, printed in such a Work as your's. Long elaborate essays are not exclusively wanted. Would but every farmer, and every landholder that has, with due accuracy, observed any fact relative to this subject, faithfully and simply communicate it, with or without reflections, just as might be agreeable to him; we should not fail of accumulating, at length, a mass of facts, of which the due use might, in time, be happily made.

As I pretend, thus, to start new game before you; let me not refuse to give my poor assistance, in order to run it down. Two or three things in particular, just now occur to me, as likely to be of use, in order to our obtaining a firm surface and a good sward of grass immediately after a good crop of grain.

1. Let us endeavour to find out some indigenous plants which will branch out very thick from a single root, will grow with little care or culture from the seeds, and have seeds sufficiently hardy to vegetate even during the severe season of the year. Let us obtain seeds of those plants at the fit time in the year. If a thicker growth of grass than usual, may be with advantage procured, at the same time with the last crop of corn; then, let the new seeds be sown in mixture with the grass-seeds which are already in common use. If this experiment be one that cannot be usefully tried; why, then, not sow the new grass-seeds upon the wheat or barley stubble? A part might be wasted. But, the rest would take root; and would probably thicken to the proper degree, the growth of grass from the seeds which were formerly sown with the corn.

2. I should next propose that the stubble-land from which this new crop of grasses may be required, should be smoothed, as much as possible, by the removal of the large stones which may be scattered over it, and by levelling any hillocks of earth, and filling up any ruts which may happen to break its uniformity.

3. In addition to this, why should not such land receive, also, in the end of harvest, the advantage of being smoothed with a suitable roller? This operation would effectually give firmness and equality to the surface, prevent the new grass-seeds from being washed away, and prove materially useful to hinder the ground from being too much broken by the frosts, snows, and rains of winter. In spring, I would repeat the same care of removing stones and smoothing the surface with the roller.

From these operations, I should expect to have a thick sward of hay, and a firmer and more uniform surface, on the first year of the fields being out of tillage. On the second year, whether the growth of that field were consumed as pasture or cut for hay, I should expect it to answer, in all respects, as well as if it had been, for many years, under tillage.

It appears to me, to be a very great error in our culture of grasses; that we do not duly imitate nature in using a sufficiently various mixture of grass-seeds; and that we have not hitherto sought out with sufficient diligence, what grasses indigencous to this country might be advantageously adopted as subjects of culture.

Should these hints be honoured with insertion in your Magazine; I may hereafter perhaps trouble you with a communication upon the comparative value of fields in pasture and fields under tillage.

I am, Sir,

Your humble servant,

Coldingham, March 25, 1802.

R. S.

#### OF THE MOON'S INFLUENCE ON VEGETABLES.

*To the Editor of the Commercial and Agricultural Magazine.*

SIR,

I HAVE observed in a late Number of your valuable publication, an enquiry concerning the influence of the Moon on Vegetables; to which it is natural to suppose, that you may wish to obtain an answer from some correspondent who has had occasion duely to consider the subject.

Whether the Moon may exercise over Vegetables, any mysterious influence, like that with which she acts on man, in certain diseases,—I pretend not to know. This is a subject to which Philosophy has not, as yet, pushed either its observations, or its reasonings by analogy.—The notions of the vulgar upon this head, are such as ought neither to be, sceptically and in derision, rejected as false,—nor to be hastily adopted, as affording a foundation for any rule in the practice of husbandry.—It were worthy of the true philosopher, to institute such trains of experiments and observations, as might throw farther light on a matter interesting as this, to the primary utilities of life.

In another respect, I can freely assure you, that the Moon's influence on Vegetables, is very strong.—Light, even without heat, has a powerful action on Vegetables in growth. It gives colour, smell, and aromatic sapidity; as is clearly evinced by the comparison of plants growing in the shade, with those which, without being in a warmer temperature, grow in the light.—It contributes, likewise, greatly to the ripening of grain and fruits. Every farmer, and every gardener well knows, of what importance, a few nights of clear, unclouded moonshine are, to forward the maturity of either corn or fruits, when he is waiting

with eager expectation, to pluck the one for the market, or to put his hand to the sickle, to reap the other.—Besides, Sir, plants, like animals, are subject, in their vital irritability, to the power of certain stimuli or exciting causes. Some plants fold up their flowers when the Sun's rays are withdrawn from acting upon them. Curious enquirers into the physiology of vegetables, have ascertained, that at least certain plants are, like animals, liable to fall into a sort of *sleep*, when their vegetative energies are for the time, wearied out, or when they are not acted upon by those stimuli which possess the power of duely exciting them. And the Moon's light, therefore, as being undeniably a stimulus capable of rousing, more or less, those powers by which vegetables grow and ripen, possesses, likewise, in this view, a considerable influence on vegetation.

Farmers, and writers on husbandry, generally err, by slighting minute and pointed accuracy in the detail of facts.—I should therefore, wish, Sir, that your Agricultural Readers would not content themselves with embracing the truth which I have, here, briefly stated; but would institute for themselves, particular experiments, to verify that truth yet farther; and would, from time to time, make public, in your Magazine, the genuine results of their experiments.

I am, Sir, yours,

Nottingham, April 1, 1802.

PHILIP LAMBE.

#### OF THE UTILITY OF BOTANY IN AGRICULTURE.

*To the Editor of the Commercial and Agricultural Magazine.*

SIR,

IT is but justice to own, that your Magazine brings under public notice a greater variety of facts and hints, adapted to promote the improvement of husbandry, than are to be found in any rival publication of the present time.

You will excuse, therefore, my desire to see inserted in it, a reasonable hint, which I think I can give, relative to the study of Botany, as particularly deserving the attention of the farmer, on account of the new advantage with which it may yet be applied to benefit agriculture.

Sir, it is true, that most of the plants, naturally growing in Great Britain and Ireland, have been already examined; that their genera, species, and individual peculiarities of appearance have been ascertained; that their native location has been, of course, observed; and that Withering, Lightfoot, Hull, and others, have enrolled their history, in convenient printed catalogues.

But, Sir, vast is the distance between the knowledge of the scientific and learned, and the actual incorporation of that knowledge with the common sense which enlightens the ordinary mass

of mankind, forms the familiar rules of the useful arts, and regulates the practice of common life. In fact, it is wonderfully little, that Botany has as yet been allowed to contribute to the advancement of agriculture. Candid farmers will not be offended with a brother for venturing to assert, with the most ingenuous intentions of serving them, that they have not yet duely studied the history of the grasses, the pot-herbs (olera), the ligneous vegetables, the aquatic plants, &c. of their country, with the purpose of discovering among these, new plants fit to be adopted among the subjects of culture in their husbandry.

Besides, even the Botanists have not duely studied the habits of growth, and the uses, of our indigenous plants. Can I be said to know much of the nature and character of any man, whose name merely, age, and official situation have been mentioned to me, and whose face I may have once or twice seen? Certainly not. But, it is little more, that, in very many cases, our botanists have yet been able to tell us, of our native plants which are enumerated and described in their catalogues. The roots, the stalks, the leaves, the growth, should be much more particularly examined. We should observe, what insects particularly prey on this or that plant, what other animals are fond to eat it? In what soils it peculiarly delights? How far it is capable to resist the power of excessive moisture? Whether, in a dry state, it remain considerably sapid, or wither so entirely as to become little fit for nourishment to cattle? Whether its seeds may be easily gathered, preserved, and sown so as to afford a new crop? Whether they may be put to any good use in domestic œconomy? Whether it be a hardy winter plant, or merely a summer plant? With a thousand other minute particulars, which in respect to any one plant, are not to be learned otherwise than by a multitude of experiments and observations, and of which the knowledge would contribute infinitely to the improvement of husbandry in Ireland and Great Britain.

Now, Sir, as many plants are now in vigorous growth and in flower; as a new number rises every day, into this state; as this is the very season for botanical research; I should wish most earnestly to recommend to every farmer, to collect specimens of each of the indigenous plants growing on his own farm, to deposit the specimens between leaves of coarse soft paper,—to follow, with his observations, every plant through the different stages of its growth, ripening, and decay,—to note down briefly what he sees of it,—and to pursue this train of observation till he shall have thoroughly mastered every minute particular in its history. What a pleasing amusement this is to the gentleman farmer who attends his workers, but is exempted from the necessity of manual labour! What an accomplishment this, and what an ingenious diversion to the farmer's son! Infinite is the good which would result from it.

*Hampstead, April 6, 1802.*

T. R.

## HINTS AND QUERIES REGARDING CATTLE.

BY SIR JOHN SINCLAIR, BART. M. P.

THE object that every Farmer ought to have in view, who breeds and maintains domestic animals, is profit; consequently he ought to find out, as Bakewell happily expressed it, "*the best machine for converting herbage, and other food for animals, into money.*"

For that purpose, it is necessary to ascertain, the shape and nature of the animal, which makes the most profitable use of the food it eats; that however must depend much on the price of the different articles which the animal produces. For instance, tallow formerly bore a higher price than meat, and consequently was a greater object in the breeding of cattle and sheep than at present, when it sells at an inferior price\*. Milk, and the various articles produced from it, have become so valuable, as to render a good dairy cow the most profitable of all our domestic animals, and consequently intitled to peculiar attention†. Meat, however, is at present, the object most generally attended to, and it is certain that the breeding of cattle and sheep for the shambles, was never carried to such perfection as it has lately been brought to in England.

The cause of this it may not be improper briefly to explain.

Stock, in general, (and this is still the case in a multitude of instances, and must always be so when the breeder has not food at command, calculated for fattening as well as rearing his cattle,)

\* It would be a curious and important subject of inquiry, to endeavour to ascertain the real price, and the relative value, of beef, tallow, and leather, at different periods, more especially within the last century. It is evident, that the farmer, must always aim at producing those articles, which will yield him the greatest profit; and at present, flesh must be the object; for my butcher informs me, that on the day on which this note is written, (25th Jan. 1802,) beef is sold at 9½d. per lb. and tallow at 5½d. per lb. or 3s. 11d. per stone. Flesh consequently is, to tallow, as 38 is to 23. It is therefore for the advantage of the farmer, as the market now stands, to produce flesh rather than tallow.

† It is much to be regretted, that the real value of a good dairy-cow, is not more generally known. I am assured by a most respectable country gentleman, (Walter Trevelyan, Esq. of Necher Witton, in Northumberland,) that a well-bred Teeswater cow, will give, on an average, 14 quarts at each of two milkings, or 28 quarts per day. Some of the Teeswater breed, according to Culley, (p. 40.) give even to the amount of 36 quarts per day. But calculating at 28 quarts, this, at 4d. per quart, amounts to 9s. 4d. per day, and in six months to 84l. Another intelligent gentleman, (one of the representatives of Ireland in the Imperial Parliament), who has had great experience in cattle-farming, observes, that any cow, at all calculated for the dairy, will, in seven months milking, pay double her price to the butcher. Take, for example, an Irish or Scotch cow, calving in May, and value the grass she eats at 3l.; if she gives from 10 to 12 quarts per day, the farmer will not only be indemnified for attendance, rent, &c. but at the end of the season, he will have the cow for nothing. Can there be a greater inducement to dairy-farming?

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was formerly bred by one set of men, fattened or prepared for the market by a second, and killed by a third \*. Whilst these three occupations continued distinct, with only occasional communications or intercourse with each other, no great improvement could be effected. That division of labour, or separation of professions, so useful in manufactures, was pernicious to this important branch of agriculture, by preventing the principles, on which the improvement of our domestic animals might be effected, from being ascertained †.

A person, however, of strong natural sagacity (Robert Bakewell, of Dishley, in the county of Leicester,) though he did not unite, to the extent that his disciple, Culley, has done, the two distinct occupations of breeder and grazier, yet having acquired great skill in grazing, by preserving his breeding stock in the highest possible condition, and having called in to his aid, all the skill and experience which the butcher had acquired, was thus enabled to ascertain the principles, not only of breeding domestic animals, so as to answer the common expectations of the farmer, but also of bringing them to a degree of perfection, of which, before his time, they were scarcely supposed capable: and by directing the public attention in general, and that of the farmer in particular, to the art of breeding, he has in various respects most essentially benefited his country. By his example that most important system was very generally established, of certain breeders directing their whole attention to the rearing of males, and letting them for the season, at such prices as would amply indemnify the breeder for all the care and expence he had bestowed upon them; a practice which had originally taken place in Lincolnshire, but had never been carried to any great height, till adopted by Mr. Bakewell.

In discussing the important subject of cattle, it is proper, in the first place, to observe, that a distinct breed of cattle may be formed, 1. in consequence of the soil of the country, and the vegetables it produces; 2. from the climate, which, in various respects must affect the animals living under its influence; 3. from a particular shape, size, or colour, becoming fashionable, and consequently in great demand; 4. from the nature of the animals they may be imported into it from other counties; and 5. from the various crosses which have been made among breeds in some respects distinct, and from which a new variety may arise.

\* The intermediate occupations of drovers, salesmen, &c. have no occasion to acquire any peculiar knowledge, (excepting as to the state of the markets in various parts of the kingdom,) different from that of the other professions above mentioned.

† But when the properties essential in forming a perfect breed, are fully ascertained, the separation of occupations, above alluded to, will become useful, as one farm may be better calculated for breeding, another for fattening, &c.

It is not proposed, however, to attempt any particular enumeration of the various breeds in these kingdoms, for though differing in regard to colour, size, &c. they claim, in many respects, the same valuable properties. The great object, therefore, to ascertain is, what particulars are essential to form a perfect breed; because if these are once pointed out, there is no sort that may not be improved by attentive breeders, either by crossing with other stock, or by selecting the best specimens of the breed itself, so as to acquire the qualities that may be wished for. These particulars may be considered under the following general heads, namely, 1. Size. 2. Shape. 3. Disposition. 4. Hardiness. 5. Aptitude to feed. 6. Early maturity. 7. Milk. 8. Quality of Flesh. 9. Fat. 10. Hide; and, lastly, Fitness for working.

*Of the Particulars essential in forming a perfect Breed.*

1. *Size.* It is difficult to lay down any general rule for the size of cattle, as so much must depend on the nature of the pasture, and on the means which the grazier has for ultimately fattening them; nor has it yet been proved, by decisive and repeated experiments, whether the large or the small sized pay best for the food they eat. The experiments ought to be made with similar breeds, but of different sizes, and the particulars to ascertain are, whether it does not require a much greater quantity of food, 1, to rear a great ox, than a small one; 2, to feed him when working; and 3, to fatten him afterwards. A large calf certainly requires more milk than a small one, but if it pays as well for what it consumes, or grows in proportion to what it takes, there is no objection on that account, on the score of profit; nor if a large ox eats more, provided he works proportionally more than a small one. In regard to fattening, the experiments of Lord Egremont are rather favourable to the opinion, that fattening stock do not eat in proportion to their weight, but that a small ox, when kept in a stall, will eat proportionally more, without fattening quicker than a large one.

Without pronouncing decisively on a question so much contested, as whether large or small cattle ought to be preferred, (which will require indeed a great number of experiments finally to determine,) I shall endeavour shortly to sum up the arguments made use of on either side.

In favour of small or moderate sized cattle, it is contended, 1. That a large animal requires proportionally more food than two smaller ones of the same weight. 2. That the meat of the large animal is not so fine grained, and consequently does not afford such delicate food. 3. That large animals are not so well calculated for general consumption as the moderate sized, particularly in hot weather. 4. That large animals poach pastures more than small ones. 5. That they are not so active, consequently not so fit for working. 6. That small cows, of the true

dairy sort, give proportionally more milk than large ones. 7. That small oxen can be fattened with grass merely, whereas the large require to be stall-fed, the expence of which exhausts the profit of the farmer. 8. That it is much easier to procure well-shaped and kindly-feeding stock of a small size than of a large one. 9. That small sized cattle may be kept by many persons, who cannot afford either to purchase, or to maintain large ones; and lastly, If any accident happens to a small-sized animal, the loss is less material.

In favour of the large-sized, it is on the other hand contended, 1. That without debating whether from their birth till they are slaughtered, the large or the small ox eats most for its size, yet that on the whole, the large one will ultimately pay the farmer as well for the food it eats. 2. That though some large oxen are coarse grained, yet that where attention is paid to the breed, the large ox is as delicate food as the small one. 3. That if the small sized are better calculated for the consumption of private families, of villages, or of small towns, yet that the large ox is fitter for the markets of large towns, and in particular of the metropolis. 4. Even admitting that the flesh of the small sized ox is better when eaten fresh, yet the meat of the large sized is unquestionably better calculated for salting, a most essential object in a maritime and commercial country, for the thickest beef, as Culley justly remarks, (p. 47,) by retaining its juices when salted, is the best calculated for long voyages. 5. That the hide of the large ox is of infinite consequence in various manufactures. 6. That where the pastures are good, cattle will increase in size, without any particular attention on the part of the breeder, which proves that large cattle are the proper stock for such pastures. 7. That the art of fattening cattle, by oil-cake, &c. having been much improved and extended, the advantage thereof would be lost, unless large oxen were bred, as small ones can be fattened, merely with grass and turnips; and lastly, That large cattle are better calculated for working than small ones, two large ones being equal to four small ones, in the plough or the cart.

Such are the arguments generally made use of, on both sides of the question; from which, it is evident, that much must depend upon pasture, taste, markets, &c. But, on the whole, though the unthinking multitude may admire an enormous bullock, more resembling an elephant than an ox, yet the intelligent breeder (unless his pastures are of a nature peculiarly forcing,) will naturally prefer a moderate size for the stock he rears; or, perhaps, may adopt that plan of breeding; according to which, the males are large and strong, and the females of a small size, yet not unproductive to the dairy\*.

\* See Mr. Knight's valuable account of the Herefordshire breed. Communications to the Board of Agriculture, Vol. II. p. 172. The Here-

2. *Shape.* \*. It is extremely desirable, to bring the shape of cattle to as much perfection as possible; at the same time, profit and utility ought to be more attended to than mere beauty, which may please the eye, but will not fill the pocket, and which, depending much upon caprice, must be often changing.

As to the shape of cattle, however, breeders seem to concur, in regard to the following particulars, to wit.—1. That the form ought to be compact, so that no part of the animal should be disproportioned to the other. 2. That the carcass should be deep. 3. Broad; and 4. That the head, the bones, and other parts of little value, should be as small as possible.

It is evident, however, that the form ought to be adapted, as much as possible, to the wishes of the consumer. For instance; if cattle are to be sold in London, or in other places, where beef for rump-steaks is much in demand, and sells higher than any other parts of the carcass, that is an object to be attended to in cattle, bred for the Smithfield, or any similar market, which would not be essential in other counties, where no such distinction is made in the meat that is consumed.

3. *Disposition.* It is of great importance, to have a breed distinguished by a tame and docile disposition, without, however, being deficient in spirit. Such a breed is not so apt to injure fences, to break into other fields, &c.; and, unquestionably, less food will rear, support, and fatten them. As tameness of disposition is much owing to the manner in which the animal is brought up, attention to inure them early, to be familiar and docile, cannot be too much recommended.

4. *Hardiness.* In the wilder and bleaker parts of the country, hardiness of constitution is a most important requisite; and, even where stock is best attended to, it is of essential consequence, that they should be as little liable as possible to disease, or any hereditary distemper; as being *lyery*, or black-fleshed †, or having yellow fat ‡, and the like. It is a popular belief, that a dark colour is an indication of hardiness; and that cattle with light colours, are softer, and more delicate. A rough pile is also reckoned a desirable property, in a Highland breed; and, above all, in *out-winterers*, as they are called, or cattle kept

fordshire, Devonshire, and Suffex, resemble each other much in this respect.

\* It is a common saying with farmers, “*that all breed goes in at the mouth,*” and it is certain that no animals can be well shaped, unless they are well fed, both in summer and winter. It is almost incredible, how much the same breed will improve, when they are better taken care of. That, however, ought neither to prevent selection, nor judicious crossing.

† Culley on Live Stock, second edition, p. 43. It is singular, that these black-fleshed animals have little or no fat, within nor without.

‡ See Middleton’s Middlesex, p. 576.

out all winter, those who will face the storm, and not those who will shrink from it, are in request\*.

5. *Easily maintained.* It is well known, in the human race, that some individuals eat a great deal, and never get fatter; whilst others, with little food, grow immoderately corpulent. As the same takes place, in regard to cattle and to other animals, it is evident, how important it must be, to ascertain the circumstances which produce a property so peculiarly valuable in them. Bakewell strongly insisted on the advantage of small bones for that purpose; and the celebrated John Hunter declared, that small bones were generally attended with corpulence, in all the various subjects he had an opportunity of examining. It is probable, however, that a tendency to fatten arises from some peculiar circumstance in the internal structure of the body; of which small bones is, in general, an indication; and that it is only in this point of view, that they ought to be considered essential, for they often weigh as heavy, and consequently require as much nourishment, as large ones. Small bones, like those of the blood-horse, being compact and heavy: large bones, like those of the common dray or cart-horse, being extremely porous, and, consequently, light for their apparent bulk. Indeed, cattle ought not only to be easily maintained, in point of quantity, but, in remote and uncultivated districts, in regard to the quality also of the food they consume; and it is certain, that some particular animals will fatten as well on coarse fare, as others will do on the most luxuriant.

6. *Early maturity.* Arriving soon at perfection, is a material object for the breeder, as his profit must, in a great measure, depend upon it. This is a circumstance, indeed, not only extremely material to the farmer, but, in a populous country, where the consumption of meat is great, to the public also; as it evidently tends to furnish greater supplies to the market. In regard to this point, however, some wish to make a distinction between sheep and cattle; as the latter, they affirm might pay for its keep, by working, or by milk. But is not the farmer indemnified for the expence of maintaining sheep, by the valuable manure it yields, and the fleece which it annually produces, which, when manufactured, is the source of such profit to the community †?

7. *Milk.* The dairy is such an object, in many parts of the kingdom, and it is so desirable to have a living machine that can convert, in abundance and perfection, the food it eats, to so

\* It is remarked in the Highlands, that in bad weather, hardy cattle keep their back-bones straight, whereas soft ones bend them.

† In regard to early maturity, both as to sheep and cattle, it evidently depends much on the animal being constantly kept in the best possible order, for if it is once suffered to fall back, it requires a considerable space of time, and much trouble and expence, before it can recover what it has lost.

useful, so profitable, and so essential an article as milk, that the breed the most distinguished, for that property, must always be in request. Whether a particular breed ought to be kept up, for that sole purpose, or whether it is preferable to have stock partly calculated for the butcher and partly for the dairy, is a point well entitled to the most deliberate discussion. It is probable that, by great attention, a breed might be reared, the males of which might be well calculated, in every respect, for the shambles, and the females of which might, when young, produce abundant quantities of good milk, yet, when they reached eight or nine years of age, might be easily fattened. This would be the most valuable breed, that could be propagated, in any country, and indeed some of the best English and Scotch breeds, have almost reached that point of perfection.

8. *Quality of Flesh.* The quality of the flesh must certainly depend much upon age and sex, as old cattle must have firmer flesh than young, and heifers must be finer grained than oxen. The excellence of the meat, also, must depend much upon the size of the animal, and the food on which it is fattened. On the whole, however, there is no better sign of good flesh, than when it is *marbled*, or the fat and lean nicely interwoven, and alternately mixed with each other. Some of the Scotch breeds, (the more northerly in particular,) when properly fed, and when they arrive at a proper age, enjoy this quality, in great perfection; and hence, there cannot be either wholesomer food, or more delicious eating.

9. *Fat.* The advantages, or disadvantages, of fattening cattle and sheep, at least to the extent usually practised at present, is a point that has, of late, attracted much public attention. But any controversy, upon that subject, must necessarily arise from want of proper discrimination. Fat meat is generally accounted more nourishing than lean; but then none, except persons in the most vigorous state of health, can digest it: consequently, it is unfit for general consumption. Fat meat also, unless prepared with peculiar care, is apt to lose much in cooking; but there are modes, by which no loss is sustained in dressing it, which remove that objection. For instance, the keelmen of Newcastle purchase great quantities of fat meat. Being generally of Scotch extraction, they follow the custom, so usual in Scotland, of boiling their meat; the broth of which feeds the family, whilst they themselves eat the meat, generally in a cold state, and in great quantities, and are thus enabled to go through the heavy labour they usually undergo. In many districts, manufacturers and others bake their meat, with potatoes under it, and the fat, melted by the fire, falls upon the potatoes, and improves much their taste, and the nourishment to be derived from them. In either of these ways, little, if any, of the substance of the meat is lost. But according to the usual mode of boiling or roasting

fat meat, the loss is considerable, and the meat itself is far from being well calculated for nice or delicate stomachs. The art of fattening animals, however, is one that seems fit to be encouraged, as likely to promote useful knowledge; and although, in the course of trying a number of experiments, some excesses may be committed, yet, on the whole, much advantage must be derived from them.

10. *Hide.* It is well known, that the grazier, and the butcher, judge of the aptitude that any animal has to fatten from the touch of the skin. When its hide feels soft and silky, it strongly indicates a tendency in the animal to take on meat; and it is evident, that a fine and soft skin must be more pliable, and more easily stretched out to receive any extraordinary quantity of flesh, than a thick or tough one. At the same time, thick hides are of great importance, in various manufactures. Indeed, they are necessary, in cold countries, where cattle are much exposed to the inclemency of the seasons: and, in the best breeds of Highland cattle, the skin is thick in proportion to their size, with being so tough as to be prejudicial to their capacity of fattening. It appears, from Columella's description of the best kind of ox, that the advantage of a soft skin is not a new discovery, but was perfectly well known to the husbandmen of ancient Italy.

Lastly, *Working.* It is a most important question, not yet finally ascertained, whether the public, or the individual, gain by working oxen\*. It is more than probable that the husbandman, who has an inconsiderable capital, and little work to do, may find it for his interest, as they are cheaper to rear and to maintain, and will always fetch something. But the great farmer, who has constant occupation for his teams, and a sufficient capital to act upon, will generally find it advisable, though he may employ oxen for some purposes, yet, on the whole, to use horses. At the same time, the population of a country may increase so much, that the ground must be cultivated, either by the hands of man,

\* It is ingeniously remarked, that the working of oxen must necessarily increase the number, and only *suspends* the consumption. In the Survey of Northumberland, by Messrs. Bailey and Culley, some calculations will be found, extremely unfavourable to the working of oxen. In fact, it is a general and complicated subject; as the question is not, whether oxen, or horses, can be worked at the least expence, but whether by working horses, and feeding oxen, more butcher's meat will not be sent to the market? as oxen, when not worked, may be ready for consumption so much earlier than otherwise can possibly be effected. In favour of oxen, it is to be observed, that a ruminating animal will be served with one-third less food, than another of equal bulk, that does not possess that property. The reason is, that ruminating animals have stronger digestive organs, and every thing capable of being converted into chyle, or nourishment, is extracted from the food. But a horse's stomach is not fitted for this; so that a greater quantity of food is necessary, to extract the same nourishment. See White, on the Natural History of the Cow; Manchester Memoirs, Vol. I. p. 442.

as in China, or by animals which men will eat; and the price of beef may become so high as to cast the balance in favour of oxen. On these grounds, it is desirable, that the general breed of cattle in a country, should be capable of working. Indeed, as stock ought to produce something, even when rising to their full growth, if oxen are not to be worked, cows ought to be more generally kept, as the produce of their milk is so profitable, unless where pastures is of little value, as in Wales, or the mountainous districts of Scotland and Ireland.

These short hints, contain the substance of what has occurred to me on the principles of breeding cattle; and the result is, that cattle ought to be,

1. Of a moderate size, unless where the food, is of a nature peculiarly forcing.
2. Of a shape the most likely to yield profit to the farmer.
3. Of a docile disposition, without being deficient in spirit.
4. Hardy, and not liable to disease.
5. Easily maintained, and on food not of a costly nature.
6. Arriving soon at maturity.
7. Producing considerable quantities of milk.
8. Having flesh of an excellent quality.
9. Having a tendency to take on fat.
10. Having a valuable hide; and

Lastly, Calculated (should it be judged necessary) for working.

I shall conclude with observing, how desirable it would be, that, under the auspices of the Board of Agriculture, some person were appointed, perfectly competent to the task, and who had leisure to do justice to such an undertaking, to whose care and talents the important task might be committed, of drawing up a detailed system on the subject of cattle. But in order to make such a work complete, more especially that part of it which relates to the diseases of cattle, it would be necessary to collect intelligence, not only from every district in these kingdoms, (which might easily be done, by circulating queries for that purpose, and granting premiums to those by whom the best answers were returned,) and also to extract useful information from the writings of Young, of Marshall, and of Anderson, and from the various publications of the Board of Agriculture, but to apply, even to foreign countries, for the knowledge they can furnish: and with that view, it would be proper to carry on a regular correspondence, with the most distinguished societies in foreign parts, who have directed their attention to rural improvements. By collecting the information and experience of the different countries in Europe, upon that, and other subjects of a similar nature, there is every reason to hope, that the art, not only of breeding and managing domestic animals, but also every other branch of agriculture, might be brought to a degree of perfection, which otherwise must be unattainable.

## ON THE DIFFERENT KINDS OF CATTLE FARMS.

BY SIR JOHN SINCLAIR, BART. M. P.

CATTLE farms may be classed under the following heads:—  
 1. Breeding farms. 2. Dairy farms. 3. Grazing farms.  
 4. Suckling farms. And 5. Farms where cattle are worked.  
 A few cursory observations on each, is all that the limits of this paper will admit of.

I. *Breeding Farms.* In breeding cattle, it is proper, (if the size of the farm will permit the rule being observed,) to separate the different ages, and to graze them, as much as possible, in distinct pastures; as the older ones have a jealousy of the younger, driving them from the best grass, and sometimes doing them a material injury.

Bulls will, in general, retain their vigour till they are twelve or fourteen years old; and there are instances of their being kept till they are even nineteen years: but they are certainly in their prime from three to six. They ought to be kept in one field, which prevents their rambling; and the cows should be brought to them. But it is still a better plan to work the bulls with the oxen, as the owner has thereby the profit of their labour, and all risk of their doing mischief is prevented.

Mr. Bakewell used to put off sending his heifers to the bull, till three years old, but his cows often missed calf, which might be owing to that circumstance. It is better, therefore, to send them to the bull, at two years old, and some recommend strongly even an earlier period.\* In the northern counties, they wish their cows to calve when the grass is abundant. This, it is supposed, opens their milk vessels, and is a great means of rendering them ever after good milchers; which is not the case, unless nature is early made to have a tendency to that species of secretion. It has been found a good plan, to give the whole of the milk a young cow yields to the calf, which she readily does, and thus gets into a good habit of milking.

Bull calves † are generally nursed by the mother, but sometimes by hand. It is said, that Mr. Bakewell had two nurses for some of his favorite stock. On the other hand, in the north of England, where rearing a number of cattle is the object, they sometimes put two calves to one cow. Hay tea ‡ is sometimes

\* It is said that young cows, as early as even one year old, might be sent to the bull. If this would not stint their growth, (which good feeding might obviate) it would be a great improvement in particular cases where the dairy was an object.

† It has been remarked, that if a cow goes beyond her time, she generally produces a male calf.

‡ The following receipt for making hay tea has been tried, with success in the north of England. Take a large handful, or about 1lb. of red-clover hay well got in, and six English quarts of clear spring water; boil the hay amongst the water, until it is reduced to four quarts; then take out the hay, and mix 1lb. of barley, oat, or bean meal, amongst a little water: put it into the pot,

given them, and eggs, in spring, when they are cheap; but linseed is the best substitute for milk. The calves are served with linseed twice a day, at the rate of an English pint of linseed, and twelve quarts of milk, for twelve calves, which, with thirty-six quarts of water, is boiled into a jelly; a gallon of this soup is given, to each calf, twice a day. The linseed should be crushed.

II. *Dairy farms.* The proper management of the dairy is a most important source of profit, in many parts of the kingdom, and perhaps ought to be extended to many districts where it is at present but little known.\* In the neighbourhood of a town, the sale of the milk is, probably, the great object in keeping cows; but in the more remote parts of the country, if calves are not fattened, cheese and butter, being so easily preserved and transported, are the proper articles to attend to, with the view of domestic consumption, or of foreign export.

The points to be principally attended to, by any person who sets up a dairy, are, 1. To get a proper breed, of milch cows. 2. To procure an attentive and skilful dairy-maid; as the whole success of the undertaking must depend on her good conduct. † And 3. To ascertain whether the milk produced by the pastures in his possession, is best calculated for making butter or cheese.

The proper hours of milking, and how often per day cows ought to be milked, are points of considerable importance. It is certain that some cows require being milked thrice a day, in the prime of the season, but as a general rule, it seems to be most advisable, to milk but twice a day, at six o'clock in the morning, and six at night. In this way, a cow has twelve hours each time to graze, or feed, and to prepare the milk for the pail. When they are milked thrice a day, it occasions much unnecessary trouble to the dairy-maids, not only in going to the cows, but also in preparing their vessels for holding the milk, unless they have an ex-

or cauldron, whilst it is boiling; keep the whole constantly stirring, until it is boiled and thickened. Let it cool, to be luke-warm; then give it to the calf, adding as much whey as will make a sufficient meal. This is a cheap mode of rearing calves, and may answer the purpose as well as more costly ingredients. In this way, the valuable article of milk may be saved for other purposes.

\* I regret much to hear, that in many parts of England, the advantages of the dairy are not so well known as they ought to be; and that the lower orders of the people cannot get a little milk, or butter milk, for their children. I wish much to call the attention of the liberal and public spirited country gentlemen, to a circumstance so important to so numerous a class of the community. The best remedies are, to have small dairy farms in the neighbourhood of all villages, bound to furnish the inhabitants with milk, at a moderate price; and if the Irish mode were adopted by the English farmers, of churning *all the milk*, instead of the cream alone, such a supply of excellent butter-milk would be procured, as would be of infinite service to their neighbourhood.

† Good dairy maids are so extremely scarce in many parts of the kingdom, that it would be proper to encourage them, by premiums at present applied for purposes much less essential,

traordinary number of them : it also puts the cows from grazing, and diminishes their time for rest. The dairy-maid should take special care to treat the cows with as much gentleness and kindness as possible, to prevent their taking any dislike to her, which would hinder their milking well; and should milk them *completely*, by which cows are prevented from going so soon dry, as otherwise may be apprehended.

The usual process of making of butter and cheese, and the purposes to which the whey may be applied, are so well known, that it is unnecessary here to describe them.\*

Cows are not at their prime state for milk until they are six or seven years old : and they will remain so until they are twelve. But as the older they grow, the worse they will fatten, some farmers begin to feed them, when they are from eight to ten, even though they are good milchers. The propriety of this system, may, however, be questioned. Whilst the value of the udder, in a good dairy cow, exceeds the value of the cow, her pasture and the necessary attendance, she may be kept to any age. The teeth, not the stomach fail, and therefore, as long as a cow milks well, she ought to be kept, as she can always be fattened by soft meat.

It has been remarked that some cows will give a large quantity of milk, which yet will yield little or no butter; and that a mixture of it, will even prevent the cream of the other cows from churning. This is owing, either to the animal being in an unhealthy state, or to a predilection for particular kinds of herbage, not favourable to the production of good milk.

\* The following particulars may be worth preserving in a note. Though fresh butter must be made with great care, yet salt butter requires, if possible, still greater attention, as it must be calculated for preservation; and though salt is indispensable for that purpose, yet, if the butter is properly prepared, and the salt properly mixed, the quantity required is not considerable. It is said, that the butter made in the months of May, June, July, and August, is the fittest for salting; and that butter made in the latter part of the season, will not take salt so well. In regard to cheese, in order to make it rich, they sometimes mix fine tallow with it, and sometimes butter: the latter mode is practised in the northern parts of Scotland. Sometimes, also, farmers, in the northern parts of England, make what are called *egg cheeses*, which are famous for toasting. After the curd is thoroughly prepared, they make this cheese, by putting five yolks of eggs to every pound of curd, mixing the whole properly, and putting it into the cheese-press as usual. As to whey, it is sometimes used for making butter, sometimes for feeding swine or calves, and sometimes prepared, in the north of England, in the following manner. The whey is put into a kettle or pot on a smartish fire, and when it is near boiling, some butter-milk is put into it, which is skimmed off, as soon as any curd seems to be formed on the top of the whey, some butter-milk is then again put in, and so on, from time to time, as long as any curds will arise. This substance is called *whey curds*, may be eat with cream or milk, and is not unpalatable diet. The whey that remains from this curd, is commonly called *wbig*, and when kept until it is four, and two or three sprigs of mint put into it, many are of opinion, that it makes a pleasant liquor, particularly in hot weather.

III. *Grazing Farms.* Some intelligent graziers recommend the following mode for feeding and fattening cattle. Suppose there are four inclosures, of from six to ten acres each, one of them should be kept quite free from stock, till the grass has got up; and then the prime or fattening cattle, should be put into it, that they may get the best of the food: the second best should then follow; and the young store after all, making the whole, feed over the four inclosures, in succession, as follows:

1. Inclosure. *Free from stock, till ready for the best cattle.*
2. Ditto. *For the best cattle, till sent to No. 1.*
3. Ditto. *For the second best, till sent to No. 2.*
4. Ditto. *For the young cattle, till sent to No. 3.*

No. 4 is then kept free from stock, till the grass gets up, and it is ready for the prime cattle.

The proper size of inclosures, has never yet been ascertained by experiment; probably from ten to thirty acres the best, but the size should be various, as small ones are best in winter, and large ones in summer; and small ones are better calculated for grass, and large ones for corn. Mr. Bakewell was a friend to small inclosures. Probably the best plan to adopt is, to feed cattle entirely in the house, or *foiling* them, as it is technically called. In that case, small inclosures must be preferred, as the shelter they afford, is extremely favourable to the growth of herbage.

The larger a bullock is, he must take the more food to support him. It is desirable to change his food often, and to give him frequently, but little at a time, which makes him more eager to eat. After his kidneys are covered with fat, he will take less meat every week. It is better therefore to ascertain the quantity he eats, by the week, than by the day.

Fattening cattle, to be sold immediately from the farmer's house, and not sent to market, should be kept moderately warm. If kept too hot, it makes them perspire, and their skins to itch: this vexes them, and they rub themselves against any wall or post within their reach, which is much against quick feeding. Currying and combing them, are useful practices; and washing them at least once a week, is of great service. Bleeding is now exploded, as an old and unnecessary practice.

IV. *Suckling Farms.* In some parts of the kingdom, the whole attention of the farmer is dedicated to suckling, or in other words, to feeding calves, for supplying the market with veal. In Essex this plan is reckoned more profitable than the dairy, and next to grazing. But the profit there, must depend much upon the immediate neighbourhood of that county, to so great, and certain a market as London.

The particulars connected, with this branch of rural economy, will, it is probable, be fully detailed, in the Improved Agricultural Survey of Essex, in so far as regards that and the neighbouring districts. But as the mode of suckling adopted in some parts of

Scotland, is extremely different, it may not be improper to give a short account of it in this place.

As soon as the calf is dropped, it is put into a box made of coarse boards,  $4\frac{1}{2}$  or 5 feet long, and 4 or  $4\frac{1}{2}$  feet high, and about 2 feet wide, according to the size of the calf. The boards are not put so close but that a sufficient quantity of air is admitted, light is however, carefully excluded, and the box has a cover for that purpose.\* The box stands on four feet, which at one end are four inches high, but at the other only two inches, and as there are holes at the bottom, all wetness is drained off. The bottom is also covered with straw or hay, which is changed twice a week. For seven or eight days, milk is but cautiously given; for unless a calf is fed moderately at first, it is apt to take a loathing to its food. It should be bled in about ten days, and afterwards as much milk given it, fresh from the cow, either twice or thrice a day, as it will take. The bleeding should be repeated once a week; and at all times, when a calf loaths its milk, and does not feed well, bleeding ought to be repeated. These frequent bleedings prevent diseases from plethora, to which calves are subject, even when not fed so high, and still more so when they are. A large piece of chalk should be hung up in the box, which the calf will lick occasionally: this contributes nothing to the whiteness of the veal, but it amuses the animal, and corrects that acidity in the stomach, which might otherwise be engendered, and which certainly often takes place. A cow calf is reckoned the best for veal: if a bull calf is suckled, he ought to be cut when about a week old, otherwise the veal will neither be so good, nor so white. By this mode of treatment, calves are kept clean, quiet, warm, and dry, the veal they furnish is excellent, and they are soon ready for the market,† and on the whole it seems to be preferable to the practice of stupifying them with spirits, or with laudanum, so common in other places, where a different system is pursued.

V. *Farms where Cattle are worked.* The supposed necessity of beginning to feed oxen at an early age, is a great objection to their being generally used, as they are hardly trained properly to work, before it is thought necessary to fatten them, after which they do very little work: but in consequence of the improved mode of fattening by oil-cake, &c. there is no difficulty to fatten oxen, even at twelve years of age, which is a material circumstance in their favour.

\* All animals, when fattening, ought to be excluded from light as much as possible, as the best and safest mode of keeping them quiet; and infinitely preferable, to soporific drugs which are commonly given them. Exclusion from light, is practised by those who fatten poultry for the London market, with much success.

† Statistical Account of Scotland, Vol. VIII. p. 199. Vol. IX. p. 384, and in particular, Vol. XIX. p. 495, where an account of this mode is given, by a respectable country gentleman, Mr. Paterfon of Castle-Huntly;

It is thought best to begin to break in oxen, at three years old, and to give them full work at four. In the northern counties of England, four oxen are commonly used, the two foremost in harness, the other two in yokes. In Scotland it is not uncommon to work two oxen in harness, and without a driver. They are sometimes worked till they are from eight to ten, and even twelve years of age; but it is generally considered to be more profitable, to begin to feed them earlier.

Some people prefer free martins, † and spayed heifers, for working, to oxen. They are found very strong and active, and it is said they will, with equal feeding, work nearly as well as a horse.

It is a remark of the late Sir Charles Turner, that the advantage of working oxen, depended much upon the breed; and he preferred much the Lancashire sort, as they were not only active and hardy, *but lengthy in the carcass*, which enabled them to go four inches further each step, than almost any other kind.

I cannot conclude these cursory hints, without adverting to a most interesting subject, namely, the diseases of cattle, and the means of their prevention or cure, inquiries regarding which are so well entitled to the public attention and encouragement, instead of being left, as hitherto has been, the case, to the desultory exertions of private individuals. The stock of domestic animals in a country, is one of the principal sources of its wealth, and every circumstance that materially tends to diminish their number, or to decrease their value, must be attended with much public loss. Animals are in general subjected to much fewer disorders than men, and as their diseases are of a much less complicated nature, they are consequently much easier relieved. There can be little doubt therefore, that very moderate public encouragement, would be the means of discovering those remedies, that would be found the most effectual for their removal. Is it possible for the public money, to be better bestowed? It is said, that a very effectual remedy for the rot in sheep, ‡ has been discovered in Holland, yet no pains are taken to procure a knowledge of it in this country, though that disease has occasioned the loss of many millions of property, to the subjects of Great Britain, within these fifty years past. If that loss had not been sustained, would not the wealth of the country have been considerably augmented, its public revenue consequently increased, and of course great quantities of human food been preserved from destruction, which have perished, to the manifest injury of the nation?

† Free martins are cow calves cast at the same time with bull calves, which are never known to breed.

‡ An intelligent correspondent informs me, that it is a custom with some farmers, to pasture their sheep on ground abounding with *broom*, for several days, when the broom is in *blossom*, which they find, from experience, prevents the sheep so pastured from being infected with the rot for that season.

\*†\* We should be glad to receive as many Communications as possible on the subject of this Paper for insertion in our next Number.

## ON THE PRESERVATION OF STORES ON BOARD SHIP.

*To the Editor of the Commercial and Agricultural Magazine.*

SIR,

I HAVE made some efforts, of late years, towards improving and extending the common methods of preserving stores on board ship: and the result of a few of them I take the liberty of sending to you, for the use of your publication, if esteemed worthy of notice.

Finding the potatoe the most useful of all vegetables, I have had recourse to every possible means of preserving it. I have found this root most effectually preserved by slicing and gently baking it. After this process it will keep sweet for years. And in this state it is very serviceable to eat as bread, to boil for various purposes, or to be ground into flour, which may be mixed with wheaten flour for many salutary and profitable uses. I have a hand-mill on purpose to grind these potatoe slices, and likewise to grind biscuits. I have always been careful in selecting a dry mealy potatoe for this use, particularly that species distinguished by the name of champions. I always order the peel of the potatoes to be scraped off, and the eyes clearly taken out (in the same manner as every judicious cook prepares this root for the table,) prior to their being sliced, and dried or baked; and this will remove that strong flavour and smell of the potatoe, which would otherwise prevail in the flour. Due care should, in this case, likewise be taken in the selection of dry and seasoned casks for the reception of this food; especially if intended to be kept for a long voyage: and to insure a certainty of continuance of dryness, I have generally packed this preparation in, what is almost the driest thing in nature, the husks of oats, or what is called meal-feeds, which may be procured in abundance in any of the northern parts of this country, or wherever oat-meal is made.

Another species of preservation I have likewise practised, to good effect, on wheat flour, by carrying it to sea in the state of biscuits rather than in that of flour, and reducing them to flour again by means of my hand mill, as occasion might require. These biscuits, consisting only of fine meal, stowed in casks, in the same manner as the above preparation of potatoes, with a considerable quantity of the dry husks of oats at each end of each cask.

I am proceeding with several other similar experiments, which, if I find likely to benefit the community, I shall again take the liberty of troubling you.

Liverpool,  
March 24, 1802.

I am your humble servant,  
A WEST-INDIA CAPTAIN.

AN ACCOUNT OF THE METHODS OF CONVERTING GRASS LANDS INTO TILLAGE, AND OF RETURNING THEM TO GRASS AGAIN AFTER A CERTAIN PERIOD, (WITH SOME GENERAL OBSERVATIONS,) PRACTISED BY MR. WILLIAM GREENALL, OF ECCLESTON, LANCASHIRE.

In the Review department of this Magazine, we have endeavoured to give a faithful abstract, with due praise, of the Contents of the First Part of the Third Volume of the COMMUNICATIONS to the BOARD of AGRICULTURE. But, as the BOARD has honoured us with the present of a copy of that excellent publication, we are induced humbly to second, somewhat farther, the patriotic intentions with which it is made public, and to insert in our present Number Mr. GREENALL's Account of the Methods by which he has for some time, used to bring grass-lands under tillage, and after a due course of culture to restore them to pasturage. It seems to be peculiarly valuable, as faithfully relating facts within Mr. Greenall's own experience.

**A**T Candlemas, 1783, I made an addition to my old farm, by taking upon lease for fourteen years, a considerable quantity of grass-land. (pasture and meadow,) which consisted of a variety of sorts of soils. Having observed that manuring it on the grass had nearly lost its effect, and that land (like the appetite of man) becomes satiated by a continuance of the same thing, and will not answer so well to a repetition of the same manures, nor bear the same sort of crop so well as if changed now and then, I therefore broke it up; and the management and experiments I will give in detail, under the different denominations of soils I had to practice upon.

*First. On Sandy Soils.*

Experiment I. was on a field of 24 statute acres of a light sandy soil, lying upon red rock, on the declivity of a hill which had lain as pasture time immemorial; it being very thin of soil, and the rock near the surface; but the rock being of a soft flaty nature, with four strong horses, an iron plough, and much trouble, I succeeded in ploughing it, by the middle of March, 1783. The pieces of rock and the stones that were turned up by ploughing, I gathered and carried off; and in May following, I had it cross ploughed; and very well harrowed.

From a bed of marl, (in the valley,) at about 300 yards distance from the bottom of the field, I put about  $2\frac{1}{2}$  roods of 8 cubic, or 64 yards to the rood, of strong clayey marl, (in the month of June and July,) upon every statute acre, which I had equally spread, and then knocked into small pieces, and the stones gathered out, and carried off. Early in September following I had it ploughed again, and found the land in very good condition to receive the seed, as the marl, by effectually covering the land upwards of an inch thick\*, had created a considerable fermenta-

\* A rood of marl of 8 cubic yards will cover a statute acre of land 0.476 inch, or nearly half an inch thick. A statute acre contains 6,272,646 superficial inches on its surface, and a rood of marl of the above dimensions 2,985,984 inches, of an inch thick.

tion, and the fods were perfectly rotten; but as the marl and soil were not much mixed, and the marl being thrown under, I gave it another ploughing to mix it, and to throw the marl as near the top as possible, that it might receive the benefit of the frost and weather. I then sowed it with wheat, which I harrowed in. The wheat produced a crop averaging near  $38\frac{1}{2}$  bushels of 70 lbs. each, on a statute acre; near 43 Winchester bushels.

In November, after harvest in 1784, I had it ploughed and laid as open as possible, that it might receive the benefit of the winter, to make it incorporate and mix freely together. In March, 1785, I had it cross ploughed and well harrowed, and put upon it about a rood of compost of eight cubic yards to every statute acre. The compost consisted of soaper's waste, and strong loamy soil, proportioned about one ton of soap-waste, to four tons of soil, got by cleaning ditches and gutters, and from useless banks in the lands adjoining in the valley; I then ploughed it and sowed on it barley and red clover.

The produce of the barley was  $57\frac{1}{2}$  bushels Winchester measure to a statute acre; and the clover (being mown twice in 1786,) produced upwards of five tons to the statute acre.

In November, 1786, I ploughed it and laid it open as before, as I intended to lay it down to grass again. In March, 1787, I gave it two ploughings, and a light dressing with compost, consisting of dung and earth, proportioned about two tons of dung to three tons of earth, got from useless banks in the field, which was harrowed in with the seed-oats, grass-seeds, white clover, trefoil, and rye-grass. The oats produced a crop averaging 47 bushels of 45 lbs. each, or 57 Winchester bushels per statute acre, and the grass-seeds, being mown the year following, produced upwards of two tons of hay in every statute acre. As soon as I had got the hay, I gave it a dressing with compost, and have continued to do so every three years, changing every time the sort and consistence of the compost; and since then it has lain as a meadow, averaging an annual produce of near two tons to the statute acre, of a very good kind of hay.

Too much attention cannot be paid to the management of compost in its several stages and operations; but I will endeavour to explain this more fully herein afterwards.

The following account, copied from my books, will shew the expenses of the above management, and also the account of the produce, until it was laid down to grass again.

Dr. Part of New Farm, 24 Acres.		Hill-Field. Cr.	
1783.	£. s. d.	1784.	£. s. d.
Mar. 18. To ploughing 30 days, at		Feb. 2. By amount	
	10s. 6d. per day 15 15 0	carried down to	
		the debit side	353 6 11
Amount carried forward	£. 15 15 0		



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Dr. Part of New Farm, 24 Acres.			Hill-Field. Cr.		
1785.	£.	s. d.	1785	£.	s. d.
To balance brought down	116	17 6	Dec. 20. By 1221 bushels of barley, at 4s. 6d. per bushel	275	4 6
Mar. 15. To ploughing 24 days, at 7s. 6d. per day	9	0 0	By 47 ditto ditto, at 2s. 6d. per bushel	5	17 6
To 100 tons of soap-waste, and carting, at 12s. per ton	60	0 0	By 750 thraves of straw, at 8d. per thrave	25	0 0
To 20 bushels of lime, and ditto at 8d. per bushel	0	13 4	By balance carried down to debit side	37	1 5
To 4 men, each 25 days, at compost, at 1s. 6d. per day	7	10 0			
To carting compost	-	12 10 0			
To filling and spreading do.	6	3 3			
April 4. To 50 bushels of seed barley, at 3s. 9d. per bushel	9	7 6			
To 250 lbs. of red clover, at 6d. per lb.	6	5 0			
To harrowing and finishing, 14 days, at 5s. 6d. per day	3	17 0			
To guttering, fencing, &c.	1	4 4			
Aug. 14. To reaping barley, and expenses	-	5 1 8			
21. To housing, and expenses	3	2 1			
Sept. 29. To half year's rent 1786.	33	0 0			
Feb. 2. To ditto, ditto	-	33 0 0			
To proportion of taxes	-	4 7 7			
To thrashing 1268 bushels of barley, at 2½d. per bushel	13	3 2			
To carting, and marketing	2	5 0			
To 1 year's interest on £116	5	16 0			
	<u>£333</u>	<u>3 5</u>		<u>£333</u>	<u>3 5</u>
			1787.		
To balance brought down	27	1 5	Feb. 2. By 127 tons of hay sold, at £3 10s. per ton	444	10 0
July 1. To paid for mowing clover, and liquor	3	0 0			
To hay-makers, housing, &c.	4	7 1			
Sept. 1. To mowing second crop, and liquor	3	0 0			
To hay-makers, housing, &c.	4	2 5			
29. To half year's rent	33	0 0			
Nov. 28. To ploughing 24 days, at 7s. 6d. per day	9	0 0			
1787.					
Feb. 2. To half year's rent	33	0 0			
To proportion of taxes	-	6 18 3			
To cartages and expenses	-	10 1 3			
To 1 year's interest on £27	1	7 0			
To balance carried to Cr. side	309	12 7			
	<u>£444</u>	<u>10 0</u>		<u>£444</u>	<u>10 0</u>



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The following account from my books will shew the expenses of this method of management, and the produce of this course of crops until it was laid down to grass in 1787. For the sake of brevity, I will proportion the expenses, till after it was marled, from the other account, as they were exactly the same per acre.

Dr. Part of New Farm, 10 Acres.			Nearer Hill Field. Cr.		
1783.	£	s. d.	1783	£	s. d.
July 1. To ploughing, marling, &c.			Dec. 26. By 3516		
to this day	98	7 3	bushels of tur-		
To 12 lbs. of turnip seed, at 8d.			nips, at 6d. per		
per lb.	0	8 0	bushel	87	18 0
To sowing, harrowing, and			By balance car-		
finishing	2	7 0	ried to Dr. side	64	10 3
Aug. 10. To hoeing turnips	2	2 0			
Sept. 12. To ditto ditto	2	2 0			
29. To half year's rent	13	15 0			
Dec. 18. To pulling turnips and cut-					
ting tops	5	16 8			
To carting off, and expenses	11	4 4			
1784-					
Feb. 2. To half year's rent	13	15 0			
To proportion of taxes	2	11 0			
	<u>1152</u>	<u>8 3</u>		<u>152</u>	<u>8 3</u>
Feb. 2. To balance brought forward	64	10 3	1784.		
Mar. 25. To ploughing 10 days, at			Nov. 4. By 3293		
7s. 6d. per day	3	15 0	bushels of pota-		
Apr. 12. To harrowing four days,			toes, at 1s. 6d.		
at 7s. 6d. per day	1	10 0	per bushel	247	7 0
20. To ploughing eight days, at			By 174 ditto, at		
7s. 6d. per day	3	0 0	1s. per bushel	8	14 0
May 1. To 200 tons of dung, and			By 40 measures		
carting, at 7s. per ton	70	0 0	of turnips	1	10 0
To spreading ditto	0	15 0			
To 150 bushels of potatoes, at 2s.					
per bushel	15	0 0			
To cutting ditto, at 3d. per bushel	1	17 6			
To planting ditto, at 1d. per					
bushel	0	12 6			
To five days ploughing to cover					
ditto	1	7 6			
To guttering and finishing	1	2 3			
June 10. To ploughing among po-					
tatoes	1	7 6			
July 21. To ditto ditto	1	7 6			
To hand-weeding ditto	0	10 6			
To 2 lbs. turnip-seed for head-					
lands	0	1 4			
Sept. 29. To half year's rent	13	15 0			
Oct. 10. To getting 3472 bushels of					
potatoes, at 2d. per bushel	28	18 4			
To carting and expenses	6	7 0			
Amount carried forward	<u>£215</u>	<u>17 2</u>	Amt. carr. forw.	<u>£257</u>	<u>11 0</u>

Dr. Part of New Farm, 10 Acres.			Nearer Hill Field. Cr.		
	£.	s. d.		£.	s. d.
1784.					
To amount brought forward	215	17 2	By amount brought forward	257	11 0
Oct. 13. To ploughing 10 days	3	15 0			
To 20 bushels of seed-wheat	7	0 0			
To harrowing five days	1	7 6			
To sowing, fencing, and finishing	1	3 1			
1785.					
Feb 2 To half year's rent	-	13 15 0			
To proportion of taxes	-	2 2 10			
To one year's interest on £64	3	4 0			
To balance carried to Cr. side	9	6 5			
	£257	11 0		£257	11 0
Aug. 20. To reaping wheat	-	2 10 0	1785.		
To housing and expenses	-	3 1 3	Feb 2. By balance		
Sept. 29. To half year's rent	13	15 0	per Dr. side	9	6 5
Oct. 27. To ploughing 10 days	3	15 0	1786.		
1786.			Feb. 2. By 346 $\frac{3}{8}$		
Feb. 2. To half year's rent	13	15 0	bushels of wheat,		
To proportion of taxes	-	1 16 6	at 6s. 9d. per		
To thrashing 376 bushels of wheat,			bushel.	116	18 6
at 4 $\frac{1}{2}$ d. per bushel	7	1 0	By 23 $\frac{4}{8}$ ditto, at		
To carting and expenses	2	3 1	3s. 6d. per bushel	4	2 6
To balance carried to Cr. side	98	14 7	By 15 load of straw,		
	£146	11 5	at 21s per load	15	15 0
			By interest on 9l	0	9 0
				£146	11 5
1786.			1787.		
Mar. 10. To ploughing 10 days	3	15 0	By balance per		
To 11 roods of compost, at 60s.			Dr. side	98	14 7
per rood	33	0 0	Feb. 2. By 542		
To carting and spreading ditto,			bushels of barley,		
15s. per rood	8	5 0	at 4s. 6d. per		
25. To ploughing 10 days	3	15 0	bushel	122	19 0
April 4 To 20 bushels of seed-barley	3	10 0	By 30 do. do. at		
To grass-seeds	-	3 15 0	2s. 6d. per bush.	3	15 0
To harrowing and sowing	1	10 0	By 357 thraves		
To guttering and finishing	0	18 2	of straw, at 7d.		
Aug. 14. To reaping barley	2	5 0	per thrave	10	8 3
25. To housing and expenses	2	11 4	By interest on 89l.	4	9 0
Sept. 29. To half year's rent	13	15 0			
1787.					
Feb. 2. To ditto ditto	-	13 15 0			
To proportion of taxes	-	2 17 6			
To thrashing 572 bushels of bar-					
ley, at 2 $\frac{1}{2}$ d. per bushel	5	10 10			
To carting and expenses	1	10 0			
To balance carried to Cr. side	139	13 0			
	£240	5 10		£240	5 10
			1787.		
			Feb. 2. By balance,		
			profit at the end		
			of four years	£139	13 0

In the foregoing accounts, the prices of labour, produce, &c. are as they were in the respective years in which the business was done: but a comparative statement may be easily drawn. It may be also necessary to remark, the expenses of the marling are more than common, on account of the distance and carting it up hill. In common, two horses to a cart will go from the pit, 90 yards, and return, while four men fill a cart for them; and three horses will go 115 yards, and return, while the same number of men fill a cart for them.

Marl-pits should be made on the highest ground, not only on account of carting down hill, but that they may be laid dry by foughs, and the land made good again. If they are not laid dry, they destroy a great deal of land; and, if they are on high ground, they serve as reservoirs to make the land below continually wet, by the water draining through the stratum that generally lies between the marl and soil.

By experiment I. it appears that 24 acres of land produced four crops in five years, amounting to 1312*l.* 2*s.* 3*d.* and that the rent, management, &c. amounted, to 1045*l.* 4*s.* 4*d.* leaving a profit of 266*l.* 17*s.* 11*d.*; or, one statute acre averaged an annual produce amounting to 11*l.* 2*s.* 5*d.* and an annual profit of 2*l.* 4*s.* 6*d.*

And, by Experiment II. it appears that 10 acres of land, of the same sort in every respect, produced four crops in four years, amounting to 624*l.* 5*s.* 3*d.* and the expenses of management, rent, &c. amounted to 484*l.* 12*s.* 3*d.* leaving a profit of 139*l.* 13*s.* 0*d.*; or, one statute acre averaged an annual produce amounting 13*l.* 19*s.* 0*d.* and an annual profit of 3*l.* 9*s.* 9*d.* which leaves the result decidedly in favour of the course of crops, method of management, &c. practised in Experiment II. as the land is as much improved, and left in equally good condition. It also shews, that in breaking up grass-lands, fallowing should not be practised.

Experiment III. A field of eight statute acres (lying adjoining the before mentioned, on the summit of the hill) of the same nature of soil, but deeper and richer, I ploughed in February 1788; and marl being at too great a distance, I collected a large quantity of strong loamy soil, mud, &c. which I made into compost with soap-waste and lime, proportioned about one ton of soap-waste, four tons of soil, &c. and 20 measures of lime, of which, in March, I put about one rood and a half (of eight cubic yards to the rood) upon every statute acre, and harrowed it in along with the seed-oats. The oats produced a crop averaging near 43 bushels of 45 lbs. or 54½ Winchester bushels to a statute acre. In spring 1789 I ploughed it, and prepared it for potatoes, with which I planted it, in drills two feet asunder, by the plough, putting on every statute acre about 20 tons of dung, which produced a crop averaging 353 bushels, of 90 lbs. each,

to the acre. As soon as the potatoes were gotten up in October, I had the field ploughed, and sown with wheat, which produced, in 1790, upwards of  $38\frac{1}{2}$  bushels, of 70 lbs. each, or  $43\frac{1}{2}$  Winchester bushels to an acre. In November I had it ploughed, and again in the spring 1791, and put upon it a good dressing of compost, consisting of soil (got from uselefs banks in the field), dung, soap waste, and a small quantity of lime, proportioned about four tons of soil, one ton of dung, one ton of soap-waste, and about two measures of lime: the lime was put in merely to increase the fermentation in the compost during its several operations. This compost was harrowed in along with the seed-barley, grass-seeds, white clover, trefoil, and rye-grass. The barley produced on every statute acre 48 bushels, of 60 lbs. each, or 53 Winchester bushels, and the grass-seeds on the same quantity of land (being mown in 1793), near two tons of hay.

By this method of management the field is considerably improved, though not near so much as if it had been marled, as it requires manure every two years to keep up with the other fields in quantity of hay.

As the expenses of management have been particularised in the preceding accounts, I presume it will be sufficient briefly to state, that in four years this field produced four crops of the value of 429*l.* 9*s.* that the rent, expenses of management, &c. amounted to 315*l.* 5*s.* 2*d.* and that the profit amounted to 109*l.* 3*s.* 10*d.*; or, the produce of one statute acre annually averaged 14*l.* 5*s.* 5*d.* and a profit of 3*l.* 11*s.* 4*d.* It may be necessary to remark, that the prices of produce in the years this experiment was made in, were near one-tenth more than in the former years; therefore, in comparing the profits, one-tenth should be deducted from this statement, as the prices of labour, manure, &c. were nearly the same.

In February 1787, I ploughed a meadow of a deep, rich, sandy soil, that had been under irrigation a great number of years, which, perhaps by injudicious management, was grown full of rushes and very four grass, and I was much surprised to find that the oats were very full of weeds, which injured the crop. The water from a brook was brought in a direction, so as that it could be turned over the land at pleasure, and it struck me that the water, in filtering through the grass, had left the seeds collected in its course among it, and by ploughing the land they had vegetated.

A field adjoining, of the same nature of soil, and under the same management, I ploughed the year after; part, as before, was weedy; the other part I had pared and burned before it was ploughed, and the crop was perfectly clean, which convinced me that I was right in my conjectures in respect to the cause of the weeds. In the first crop the pared and burned part was about

one-fourth part better crop, but afterwards there was no perceptible difference.

I marled both fields after the crop of oats, and then managed and cropped them as in Experiment II. and the result was upwards of 15%. per cent. more produce and profit, as the land is naturally of a better quality. After the first year's mowing, when the land was laid down to grass again, I turned the water over it again, and the hay is very much improved, both in quantity and quality.

Being the farmer of the corn tithes of a district, where agriculture and the improvement of land is much encouraged and practised, (which I have annually surveyed and valued, and gathered in kind), I have been enabled to make accurate observations on a variety of methods of management and routine of crops; and by comparing the produce, probable profit, and condition of the land when laid down to grass again, I have found the plan I have pursued to have a decided preference in every respect to any practised by my neighbours, that has varied from mine. In breaking up grass lands of a sandy soil, I have invariably pursued the method of management, and course of crops, as in Experiment II. where marl could be had that would not cost more than 10%. per statute acre; but where it could not, I have practised as per Experiment III. and always with success, never ploughing the land I intended to lay down to grass again, for more than four crops, as I have found that keeping the land longer under tillage reduces the quality of the land for grass, and makes it more subject to weeds, and to lose its natural kind of grass.

It may appear unnecessary to manure lands that have been well manured on the grass, before they have borne one crop, after ploughing, but I have always found it to repay me, and I think it is the foundation of the subsequent improvement and profit.

*Secondly. On Clays.*

A field of nine acres, of a strong clayey soil, had lain as pasture many years. I broke it up in November 1789, (by ploughing it a strong furrow), with an intent to lay it down to grass again as soon as it was improved; and I managed it as follows:

In the spring 1790, I gave it a very good dressing with compost of dung and brook or river-sand, with a little lime, proportioned about two tons of dung, two tons of brook-sand got by cleaning water-courses, and five measures of lime, which I harrowed in along with the seed-oats, which produced a crop averaging 53 bushels, of 45 lbs. each, per statute acre, of 64 Winchester bushels. I ploughed it in November, after getting the oats, and again the spring following; when I put upon it a good dressing of compost, consisting of soap-waste,



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Dr.			Barn Pasture, Nine Acres.			Cr.		
1791.		£. s. d.	1792		£. s. d.			
To balance	-	18 8 2½	Feb. 2. By 371					
Mar. 1. To ploughing nine days,			bushels of beans,					
at 7s. 6d. per day	3 7 6		at 5s. per bushel	92 15 0				
To 45 tons of soap-waste, and			By 130 thraves of					
carting, at 13s. per ton	29 5 0		straw, at 6d. per					
To 90 tons of dung, at 6s. per			thrave	3 5 0				
ton	27 0 0		By balance car-					
To getting peat, per agreement	3 3 0		ried down	60 9 8½				
To carting ditto, and expenses	7 1 7							
To 150 measures of lime, and								
carting, at 8d. per meas.	5 0 0							
To making and attending com-								
post	3 2 1							
To filling, carting, and spread-								
ing ditto	5 2 7							
10. To drilling five days	1 17 6							
To 15 measures of beans	3 7 6							
To laying ditto in drills, at 1s.								
per measure	0 15 0							
To harrowing, guttering, and								
finishing	1 10 3							
Sept. 10. To reaping beans	2 2 0							
29. To half year's rent	12 7 6							
Oct. 1. To housing beans, &c.	1 1 5							
12. To ploughing nine days	3 7 6							
To 18 measures of wheat, at 8s.								
per measure	7 4 0							
To harrowing guttering, and								
finishing	2 1 4							
1792								
Feb. 2. To half year's rent	12 7 6							
To proportion of taxes	2 1 6							
To thrashing 371 bushels of								
beans, at 2d. per bushel	3 1 10							
To carting and expenses	0 17 2							
To interest on £18.	0 18 0							
		£156 9 8½						£156 9 8½
To balance	-	60 9 8½	1793.		£. s. d.			
Aug. 18. To reaping wheat	2 5 0		Feb. 2. By 352					
25. To housing ditto, &c.	1 2 5		bushels of wheat,					
Sept. 29. To half year's rent	12 7 6		at 8s. per bushel	140 16 0				
1793.			By 16 ditto ditto,					
Feb. 2. To ditto ditto	12 7 6		at 4s. per bushel	3 4 0				
To proportion of taxes	1 18 7		By 17 loads of					
To thrashing 368 bushels of			straw, at 21s. per					
wheat, at 4½d. per bushel	6 18 0		load	17 17 0				
To carting and expenses	1 3 5							
To ploughing nine days	3 7 6							
To interest on £60	3 0 0							
To balance carried down	56 17 5							
		£161 17 0						£161 17 0

Dr.		Barn Pasture, Nine Acres.		Cr.				
		£	s.	d.	£	s.	d.	
1793.					1794.			
Mar. 1.	To ploughing nine days	3	7	6	By balance	56	17	5
	To 110 tons of compost, carting, &c.	33	0	0	Feb. 2. By 438 bushels of oats, at 3s. 6d. per bushel	76	13	0
	To 45 measures of oats	6	15	0	By 25 ditto, at 1s. 6d. per bushel	1	17	6
	To grass-seeds	3	15	0	By 161 thraves of straw, at 1s. per thrave	8	1	0
	To harrowing and finishing	2	7	5	By interest on £56	2	16	0
Sept. 29.	To half year's rent	12	7	6				
1794.								
Feb. 2.	To ditto ditto	12	7	6				
	To proportion of taxes	2	5	1				
	To thrashing 463 bushels of oats, at 1½d. per bushel	2	17	10½				
	To carting and expenses	1	4	11				
	To balance carried down	65	17	2½				
		<hr/>				<hr/>		
		£146	4	11		£146	4	11
		<hr/>				<hr/>		
					1794.			
					Feb. 2. By balance, brought down, profit in four years	£65	17	2½

It appears by the account, that in four years nine acres of clay land has produced corn to the amount of 437*l.* 16*s.*, and that the amount of rent, management, &c. was 37*l.* 18*s.* 10*d.* leaving a profit of 65*l.* 17*s.* 2*d.*; or a statute acre has produced 12*l.* 3*s.* 2*d.*, has cost 10*l.* 6*s.* 7*d.* and left a profit of 1*l.* 16*s.* 7*d.* on the average annually.

My neighbour broke up a field at the same time, in every respect the same as to soil, &c.; he did not manure it for the first crop of oats; and I found by his tithe that they did not average more than 34 bushels to the statute acre. The year following he sowed it with beans, and put upon it upwards of 25 tons of good dung to a statute acre. The beans averaged 32 bushels per acre; and after they were got in, he sowed it with wheat, which was poor indeed, not averaging more than 24 bushels to the statute acre. The year following he managed it very well, both in ploughing and manuring it, but the oats only averaged 35 bushels per acre, and the grass-seeds were not full, nor the field improved. I had communicated to my neighbour my ideas and intentions in respect to the management of my field, and we differed in opinion; but he is now convinced that he was wrong, and has since pursued my plan on all his lands under tillage, by making all his manure into compost, and of a different nature to the soil he has to put it upon, and using soap-waste instead of a double quantity of dung.

(To be concluded in our next.)

*For the Commercial and Agricultural Magazine.*

PREMIUMS OFFERED BY THE SOUTH HANTS AGRICULTURAL SOCIETY, FOR THE YEAR 1802.

Communications of the proceedings of every Society in the United Kingdom, will be thankfully received, and faithfully related, by the Editor.

CLASS I.

**F**IVE Guineas to the Ploughman who does the most work and in the best manner in Three Hours, with Two Horses, and without a Driver.

Three Guineas to the second best Ploughman.

Three Guineas to the Ploughman who does the most work and in the best manner in Three Hours, with Two Horses, and a boy riding on one of them to drive.

Two Guineas to the second best Ploughman in the same manner.

Half-a-Guinea to each of the boys.

N. B. No person to be allowed to claim any of the above premiums for ploughing, unless he brings with him a certificate from his master that he has ploughed 30 acres for him in the same way between the 29th of September and the 24th of June next.

Four Guineas to the Ploughman who shall, in three hours, with oxen, plough the greatest quantity of land, and in the best manner, in proportion to the force employed.

Five Guineas to the man who shall, with a scarifier, roller, and harrows produce the best Tilth, on the greatest quantity of land, in Three Hours, in proportion to the number of horses.

Three Guineas to the second.

Half-a-Guinea to each of the drivers.

Candidates for all the above premiums to be at Southwick on Tuesday the 22d of June next, at nine o'clock in the Morning, in order to make proper trials before a Committee of this Society.

Five Guineas to the Ploughman who, in a husbandry-like manner, ploughs the greatest number of acres on his master's farm (not less than 40) with a single furrowed plough and two horses, without a driver, between the 29th of September last and the end of this season for sowing the Lent corn.

Three Guineas to the Ploughman that ploughs the next greatest number of acres (not less than 30) in the same manner.

Five Guineas to the Ploughman who, in a husbandry-like manner, ploughs the greatest number of acres (not less than 40) on his master's farm, with any number of oxen, the oxen being used also in the general business of the farm.

Three Guineas to the Ploughman that ploughs the next greatest number of acres (not less than 30) in the same manner.

Candidates for the four last premiums must send certificates from their masters as to the number of acres ploughed, and notice of their intention to claim the premiums, to Mr. REEKS, the Secretary, at Fareham, on or before the 1st of June next.

## CLASS II.

Four Guineas to the person who shall produce the best boar.

Five Guineas to the owner of the best two-year old bull.—  
No person to claim this premium without a certificate of the bull having been the property of the owner three months previous to the 22d of June, and the owner must engage to keep him three months longer.

Two Guineas to the person who produces the best Leicester ram.

Two Guineas to the person who shall produce the best South Down ram. If the rams be not shorn when produced, the Committee are to be at liberty of having them shorn.

Three Guineas to the person who shall produce the best cow, three years old, and bred in Hampshire.

Two Guineas to the person who shall produce the best heifer, two years old, and bred in Hampshire.

Cattle produced for these premiums must be at the Golden Lion, Southwick, before one o'clock on the 22d of June next.

## CLASS III.

To the labourer or cottager who shall raise the greatest quantity of potatoes on

£.	s.	d.
2	2	0
1	1	0
0	15	0

Three Perches	£.	s.	d.
Two Perches	0	10	6
	0	7	6

Candidates for these premiums must send to the Secretary before the 24th of June, 1803, satisfactory certificates of the weight or quantity raised, and of the number of perches of ground; and such certificates must be signed by the Churchwardens of the Parish, and that they believe the same to be true.

## CLASS IV.

Two Guineas to the labourer in agriculture, who has supported the greatest number of children without any or with the least relief from the parish.

One Guinea to the labourer who has in like manner supported the next greatest number of children.

Candidates for these premiums must send to the Secretary at Fareham, before the 22d of June next, a certificate of their case, signed by the Minister of the parish, and also by a member of the Society.

## CLASS V.

Three Guineas to the servant in agriculture who has served his master faithfully, and for the longest period.

Two Guineas to the servant who has the next best character.

One Guinea to the next.

Three Guineas to the labourer in agriculture who shall have served his master faithfully, and for the longest period.

Two Guineas to the second.—One Guinea to the third.

Two Guineas to the boy employed in husbandry who has served his master faithfully, and for the longest period.

One Guinea to the second.—One Guinea to the third.

Two Guineas to the shepherd who has lived the greatest number of years, not less than five, in the same service.

Three Guineas to the shepherd who rears the greatest number of lambs from 100 Ewes, or in proportion to his flock if more than 100.

Three Guineas to the dairy maid who has served one master or mistress faithfully, for the longest period, not less than three years.

Two Guineas to the second.—One Guinea to the third.

Candidates for these premiums must send to the Secretary at Fareham, before the 22d of June next, a written character from their master or mistress, which must be signed by the minister of the parish, and also by a member of this Society.

N. B. There being in the last year more candidates for the premiums in classes IV. and V. than the number of premiums offered, any person not receiving a premium in the last year may again send a character to the Secretary, and they will be entitled to the same claim as if no former character had been sent.

The Society reserve to themselves the power to withhold any of the premiums entirely, if there appears not to be merit sufficient in the claim; or to give such part only of any premium as the candidate shall in their judgment deserve.

*Fareham, April 15.* HENRY REEKS, Secretary.

#### ENUMERATION OF PATENTS LATELY ENROLLED.

*Feb 6.* ROBERT DICKINSON, of Long Acre, St. Martin's-in-the-Fields, Middlesex; for a method of fixing the straps of and to saddles, to which the girths are usually made fast.

6. John Southey Lord Somerville; for a double furrowed plough, fit and proper for the ploughing of land in this kingdom.

6. Charles Mercie, of the city of Bath, Music-master; for slides, which he calls air-slides, to be fixed to windows, doors, and partitions of all descriptions, for preventing the external air from entering rooms, carriages, &c.

19. Henry Pennick and Robert Dunkin, of the town of Penzance, Cornwall, Gentlemen; for methods for improving the sailing and navigating of certain ships and vessels.

19. Joseph Nelson, of Leeds, Yorkshire, Clothier; for a method of making or manufacturing woollen cloth.

19. Bryan Higgins, of the parish of St. Anne, Soho, Middlesex, Doctor in Physic; for an apparatus for heating air equally to any requisite degree, and methods of applying the air so heated with peculiar advantage, efficacy, and economy of the fuel, to the numerous purposes for which stoves and kilns have heretofore been employed.

23. George Holland, of the Parish of St. Andrew, Holborn, Middlesex, Hosiery; for a machine to be added to the stocking-frame, for the purpose of improving the manufacture, and expediting the manufacturing of fleecy hosiery, and various other kinds of hosiery.

## CRITICAL CATALOGUE.

I. *General View of the Agriculture and Mineralogy, Present State and Circumstances of the county of Wicklow, with observations on the means of their Improvement, drawn up for the consideration of the Dublin Society, instituted under the authority of Parliament, for the Improvement of Husbandry and Internal Resources, By ROBERT FRASER, Esq. author of the Agricultural Reports of the counties of Devon and Cornwall. Graisberry, Dublin. 1801.*

THE county of Wicklow is situate in the province of Leinster, immediately south of Dublin, by which county and part of the county of Kildare, it is bounded on the north. On the east it is bounded by St. George's channel; by the county of Wexford on the south; on the west by the county of Kildare, and part of the counties of Dublin and Carlow.

It is divided into six baronies and half baronies, Arklow barony, New Castle, Half Rathdown, Ballinacon, two half baronies of Talbotstown, Half barony Shillelagh. The climate is healthy and favourable to longevity. The bogs are not great instances of stagnant water. These bogs are not found unhealthy, like the marshes of England; they produce no agues nor other acute disorders. Far from causing putrefaction, they are possessed of an astringent principle, which preserves vegetables, trees and even organized bodies. This county is very mountainous, and abounds with mineralogical subjects of observation and research. The highest mountains are Kippure in the north, and Lugnaguilla in the south. In this district a vast mass of almost continuous granite covers an area of a hundred and forty miles. From this district a grand ridge of mountains extends itself into the sea, including the two beautiful mountains, called the greater and lesser Sugar Loaf. These mountains, so called from their conical shape, and the promontory, called Bray Head, consist entirely of horn stone, intermixed with quartz, sometimes in blocks, variously grained; in others it appears intersecting in veins the horn stone; the whole of extreme hardness. There is no lime rock to be found in the whole of the county of Wicklow, nor any vestige of such rock in the internal part of the mountains. In this county in Glenmalar is found a very rich lead mine in the granite strata, and another vein of lead has been found near the seven churches. The principal line of this metalliferous vein of country extends in a direction from the hill of Cronebane to Croughan mountain, on the borders of the county of Wexford, nearly N. E. and S. W. stretching about ten miles in length, abounding in metallic productions to an extent not by any means fully ascertained, but which in all probability is capable of employing the most extensive capital and an indefinite number of hands. In one part, on the north east of Wicklow metallic country are found the extensive copper mines of Cronebane and Ballymurragh, in the working of both which very large sums have been expended to the great advantage of the surrounding country, from the employment of the people, and the circulation of so much money, as must as have been expended in labour and subsistence. There is a curious and interesting account of the gold found in the county of Wicklow, and the author appears to think that it will be found in much greater quantities.

A section treating of origin and formation of the mountains and adjacent strata, enters very fully on subjects belonging to the naturalist.

The mountains of Wicklow give rise to many beautiful rivers and streams, which plentifully water this and the neighbouring counties. Here takes its rise the Liffey, proceeding to the west and north, and emptying itself into the bay of Dublin, watering an extent of above thirty miles, the greater part of which is a country highly cultivated; in others, which remain almost perfectly waste, the abundance of lime stone, gravel, and marle, holds out tempting rewards to the industry of man. Next in importance to the Liffey, is the Ovoca, which passes through a most beautiful and picturesque country. Third in importance is the Slaney. These streams of the county of Wicklow, afford ample opportunities for erecting machinery, both for the purpose of working the mines that may be found, and breaking and washing the ores, as also for the more important and extensive object, of employing the people in various branches of manufacture, particularly in the woollen manufacture, of which the great extent of mountain is highly capable of producing the staple to a considerable amount, by stocking those grounds with the breeds of sheep, best adapted to the soil and climate.

Our author now proceeds to the agricultural state and circumstances of the country, and enters into an investigation of the constituents and productive powers of its different soils. Our author here, is much too short, and general, in those parts that chiefly concern practical farming. Though not very full on this subject, he is, however, just, as far as his account extends. The following observation is well deserving of attention: "It might at first appear, that the custom of granting leases for three lives (a tenure, that gives such probable security to the tenant) would excite a great degree of spirit of improvement amongst the holders of these tenures. Experience, however, proves the contrary to be fact. For leaseholds on lives are, generally, under the most wretched cultivation. Easy rents may have produced a careless indolence, and hence an aversion to enterprize. The landlord having but little interest in such estates, and less power over such tenants, is himself checked from any spirit of improvement upon such contingent property." In the eastern part of Wicklow they are very little advanced in manufactures.

Labour is ten-pence per day for men, from November 1, to May 1; for the remainder of the year one shilling. From six-pence half-penny to five-pence per day, for boys and girls, according to their age and strength. Farmers generally diet their day labourers, and give them six-pence per day in money; seldom employing them for a constancy, but as seed time, and harvest, require their assistance. But although these are the wages established by the customs of the country, men, who undertake works by task, can earn, at various seasons of the year, from 1s. 6d. to near 3s. per day,

Food is chiefly potatoes during eight or nine months of the year. For the remainder oaten meal, and occasionally household wheaten bread. The usual price of potatoes, when purchased, was formerly from 2s. 6d. to 3s. per cwt. in the summer months, from June to

August. The labourers sometimes have ground annexed to their houses, from half an acre to five; seldom so much; many have no land with their houses, but rent a little, wherever they can get it sufficiently convenient to their place of residence.

The most considerable proprietors and improvers in this part of the country are, Lords Powercourt and Meath, General Cunningham, and Mr. Archer.

In the western district both agriculture and manufactures are flourishing. A great and successful patron of both is Mr. Orr. In some parts of this district, however, the country is not recovered from the devastation of the rebellion.

Obstacles to improvement here are the want of manures. Lime is not only dear, but difficult to be had. The only place, where it is to be bought, is Wicklow; and although it sells for 2s. 8d. a bushel, a sufficient quantity is not to be procured, and many farmers are obliged to go to Carlow for lime, a distance of thirty miles. The best remedy would be, the improvement of the harbours of Wicklow and Arklow; by which means lime stone could be brought from Howth, and culm from Wales, at a moderate expence, and making a canal to communicate with the collieries and lime stone quarries of Kilkenny and Carlow. The great object, however, to accelerate the improvement of this country, is to form a navigable communication with the lime stone and collieries of the countries of Carlow and Kilkenny, in which some measures are likely to be proceeded upon without delay, and is likely to be carried into effect in the best manner. Marle is successfully applied in this district.

We regret that the author has introduced into his statistical survey of this county a considerable mass of matter relative to other counties and kingdoms. We also regret the length of his preliminary dissertations prefixed to every section; as both his disposition to quote and philosophize, interrupt the account of Wicklow, which it is the professed object of his work to exhibit. We farther regret that his didactic precepts rest too exclusively upon his own authority without being supported by argument.

In many parts of the volume, indeed, we have to wade through a vast quantity of foreign matter in order to meet with insolated spots concerning the subject in hand. This defect we observe more frequently in the latter than in the former part of the work. Indeed we must say that if the work were confined to its professed purpose, to pertinent and useful illustrations of its actual subjects, it might be compressed into a much smaller space.

We shall not now enquire whether such a profusion of general remark may result from the overflowing fullness of learning; disquisitions on extraneous subjects may proceed from extent and multiplicity of knowledge, or may proceed from the affectation of knowledge, not actually possessed. But whencesoever this arises they darken instead of enlightening the relevant question: For instance, on the subject of turnips occupying about twenty pages, the author thinks it necessary to inform us, that turnips fatten cattle, with several other of their benefits, not peculiar to the county of Wicklow. From these general remarks, he proceeds over the channel to give an account of their culture in South Devon, thence he strides to Middlesex, returns again to Devon; crosses over to China, moves back

to the South of Scotland, goes on to the North, moves back to Roxboroughshire. In the twenty pages we have five lines about Wicklow, stating not what is, but ought to be the mode. This labyrinth of digressions is very inconsistent with the purposes of a statistical account.

We shall say no more of his digressions, making by far the greater part of his book, but adhere to its professed object, which may well be called its parenthetical matter.

Respecting pasture. Wicklow is by nature admirably adapted for grafs, but very little improved; it is susceptible of improvement, by a mode which the author informs us, he (this author) had the honour to propose to a royal personage, by paring and burning, and laying down with two green crops.

The breed of cattle degenerating, might be improved by crossing the breeds. The farmers here are not yet skilled in laying down arable land into grafs.

Haymakers ought to come to the field provided with a fork and a rake of their own. The hay ought to be first strewed on the ground, then turned, then collected into rows, and then put into grafs cocks; afterwards, as the weather admits, formed into stacks. This didactic treatise intended for Wicklow has the farther advantage, that it not only will answer any other country, but actually has answered in most other countries.

From this practice of hay-making, occupying ten pages, our author proceeds to dairies. The information conveyed on this subject is (we doubt not) extremely correct, because what we might easily conceive to be true, though we were not informed of the subject. If a ewe has lost her lamb, she is suckled by others. If a ewe has more milk than will suckle her own, other lambs are held to receive the surplus. The fatted lambs are sent to market, but the lean are not. A breed of sheep depends very much upon the rams.\* A young ram ought to be *trused* (so our author phrases it) with fifty or sixty females, but a full grown tup may have a hundred and twenty. This is the amount of his information on breeding cattle. Our author's sections on the size of farms, leases, and farm houses, containing about twelve pages, include one half page, belonging to Wicklow, from which we learn that the mode of letting leases, adopted by Earl Fitzwilliam, has improved his part of the country. On the nature of fences we have some relative statistical information. The amount of which is, that live hedges are begun, but that fencing in general is very much neglected. Paring and burning, and irrigation, are frequently practised.

The expenses of a labourer and a family are estimated at about twenty five pounds per annum. His earnings at about twenty one pounds. The deficiency is generally made up by the donations of his employers. Spirits are almost totally abolished, and ale substituted. There is no artificial navigation in this county. Their fisheries might be rendered extremely productive by constructing harbours. There is a disposition in the nobility and gentry to promote

\* A person of the name of John Lanne Buchannan, who wrote a statistical account of the Hebrides, mentions, among things *worthy of remark*, that in these Isles the lads and the lasses often met together in solitary places, and that the consequences were perceived nine months after.

education, and habits of industry, so that on the whole there is a prospect that the state of the county will soon be considerably meliorated.

On the whole this account is not without merit and utility, though it would be much more valuable if the author stuck closely to his text. Agricultural reports of counties, in the very nature of their subjects, point out unity of design and definiteness both of narrative and disquisition. The object being ascertainment of facts, with a view to improvement, the most important ought to be selected, and so arranged as to exhibit connection and tendency. To such an exhibition, massive compilations of heterogenous materials, are obviously inimical. In every species of historical exercise there are two classes of writers extremely useful in their respective departments; firstly industrious observing, and accurate collectors and recorders of curious and useful facts, who neither affect philosophy nor eloquence; but having common sense and judgment, narrate important truths. Secondly, writers combining with a detailed knowledge of the subject, powers, and habits of philosophic contemplation, of correct, luminous, and eloquent composition. To the second and higher class the first and lower ministers. But there is a kind of *middle men* who will not content themselves with mere matter of fact, and without materials and powers, must, forsooth, be philosophers. From these proceed such a voluminous variety of extraneous, idle, and useless dissertations, as swell the manufacture of book-making. If such men will write let them keep to mere matter of fact and narrative; if they do so, they may be useful. Many men are fit for collecting and communicating information who are unfit for delivering instruction.

II. *Review of the Statutes and Ordinances of Assize, which have been established in England from the fourth Year of King John, 1202, to the Thirty-seventh of his present Majesty.* By G. ATWOOD, Esq. F. R. S. Quarto. Egerton, 1801, 56 pages.

The object of this work is to illustrate and support in a particular article, Adam Smith's doctrine of a free trade. As (says the author) the prices of provisions, and other articles of consumption, when freely brought to market, are known to find their proper level, both in respect to money and to each other, depending only on the abundance or deficiency of supply compared with the demand, whenever restraints have been imposed by law for fixing market prices according to any other standard, experience has shewn that regulations of this nature, instead of producing the salutary consequences expected from them, have, in almost every instance, occasioned greater evils than those they were intended to remedy. The author, generally allowing this principle, admits that it is liable to some exceptions. One of these is the assize upon bread, which fixes the price of that article at a certain proportion to depend not on the general principle of argument between buyer and seller, but on the value of the material. Our author however does not enter into any philosophical view of the profit that a seller of bread ought to have, he merely states the fact of profit upon that article as it has existed, and presents a history of assize. The documents for the truth of which are to be found in acts of Parliament.

In the earliest establishment of an assize, our author observes, it appears to have been intended that the compensation to the Baker,

for expences and profit, should consist partly in a sum of money, and partly in a certain portion of common bread. Our author quotes statutes to this effect so early as the reign of King John, and traces the laws to the reign of James and Charles, and with much nicety of calculation states the weights and prices. The accuracy of the calculation, from documents we are unable to judge of ourselves, but knowing the arithmetical and algebraical powers of the author, we make no doubt that he is correct, therefore, without following him into his details on that subject, we shall proceed to his results.—The following observations, as far as consists with our knowledge, are just.

Of late years, the manufacture of flour seems to have been entirely at the discretion of the mealmen, who have been in the habit of preparing it in such a manner that the different kinds of bread intended by the statutes of assize, cannot be made from it. The advantageous market for the coarser flours, and the high prices they bear in respect to fine flour, make it of less consequence, as to intrinsic value, whether bread is made wholly from fine or from a mixture of the fine with the coarser flour. But the principal advantage derived to the manufacturer from the increased quantity of bread, the consequence of mixing the coarser flour with the fine, is the profit allowed by the assize; for the same assize is applied to bread that is made wholly from fine flour, and from that which is in some degree mixed.

Our author proceeds to a historical account, and comparison of the allowances granted by successive ordinances of assize, for manufacturing corn into bread.

Mr. Atwood considers the comparative advantages of assize of bread. For five centuries the price of bread had depended on the price of wheat. The statute of Queen Anne enjoins the Magistrates to have respect to the price of meal or flour in fixing the assize. Our author thinks it would be more advantageous to the consumer and the public if the price of wheat were solely to regulate the price of bread. In that case the consumer would only have to pay the profits and wages of the baker whereas he has to pay therewith the profits of the mealman.

By the present system though the baker has been authorized to receive the allowance of twelve shillings for baking a quarter of corn, including the expences of preparing flour; yet those expences are now, and have been for many years, defrayed by the mealman; who, on the other hand, receives the profits arising from the sale of the bran and refuse, which the former regulations of assize made a part of the baker's profit.

On the contrary the system of assizing bread by the price of wheat would have been completely efficient for producing a plentiful supply of flour. The baker might chuse whether it would be more to his advantage to purchase corn at market, and to send it to the next mills, where it might be ground and converted into flour, or to purchase the flour ready manufactured from a mealman. In this case, as in all similar dealings, each party would endeavour to make the most advantageous bargain in his power; from which competition alone it may reasonably be expected, that the price of flour, considered as a market commodity, would find its true level of price.

II. *Communications of the Board of Agriculture Concluded from our last.*

The seventh Essay is the production of Mr. Thomas Davis, of Longleat, in Wiltshire. The essayist, from the various laws to prevent tillage land from being converted into pasture, during the sixteenth and seventeenth centuries, infers the disposition to this conversion. He enumerates causes which increased the consumption of the produce of grass-land, since the reformation. The first is the increased demand for butcher's meat, from the abolition of fish days. The price of those productions, has certainly increased, in a much greater proportion than that of corn, (particularly wheat), and it may fairly be presumed that they would have borne a much higher price, and of course more tillage-land would have been converted to grass at this time, had not the introduction of artificial grasses, turnips, and other green crops, raised on tillage lands, not only supplied the uses of grass-land, but enabled the landholders to supply the markets with fresh meat, during the whole of the winter, in a manner which it was not possible to have done by grass and hay alone.

Wheat has increased but little in price since the seventeenth century, till very lately; of course the rent of wheat land has not advanced in proportion to that of other lands. The productions of grass land being in their nature perishable, vary in price according to the crops of the year; and as the supply of those articles depends, almost entirely, on the produce of the kingdom, unassisted by importation, the price has always kept pace with the produce, and the grounds has suffered but little injury from a defective crop. Wheat, on the contrary, will keep uninjured for some years. The deficiency of one crop has been supplied from the surplus of former years, and whenever it was dearer here than in other countries, importations from abroad have again reduced the price to its level.

The kingdom at present does not produce bread-corn sufficient for the consumption of its inhabitants. The most obvious causes of the present deficiency are, first, the great quantity of land, particularly strong wheat land, laid down into grass within the last twenty years, and that for the best of all reasons, viz that the price of wheat has not advanced in proportion to the price of every other production of land. Secondly, the great proportion of defective crops, or bad harvests (not less than six in the nine years ending with 1799) which has gradually decreased, and now entirely exhausted the whole stock, and left us under the pressure of a defective crops in 1800, to the chance of a foreign supply to avert famine. Thirdly, a population rapidly increasing.

The author undertakes to prove that land would yield a higher rent in tillage than in a state of meadow or pasture.

The most important point to be considered, is the lands best fitted for tillage and grass respectively. Land intended for grass should be such in which it will spontaneously thrive and flourish. No land will make a good meadow, unless it is deep enough to admit the roots of grasses to run down out of the reach of the summer's heat, and that it be retentive enough to hold water just so long as to produce fermentation, with such an absorbent under stratum as will drain it, before putrefaction takes place; and if it is not so by nature, and cannot be made so by art, plowing will make it worse.

Clay land in general is not fit for convertible husbandry. It is

more valuable as grass land: if too wet, it may be drained much better in a state of pasture than in tillage: its great fault is, that the soil is too retentive of water, and plowing will make it more so, especially if (as is frequently the case), the top soil is not deep enough for the plough, and the raw clay is brought up from beneath. The expence of cultivating it, and its natural tendency to absorb manure when in a state of tillage, are much drawbacks upon its produce, that lands of this description have not increased in value in any proportion with light lands, in the last fifty years. Loams are the most proper for convertible husbandry, and may, not only without injury, but generally with benefit, be changed from grass to tillage, and again from tillage to grass. The great object is not to keep it in tillage too long, and while in tillage, not to have two crops of corn in succession; to use fossil manure where it can be got, and where it cannot, to manure as high as possible with dung when the land is laid down to grass. And, including warrens and heaths should never be kept in permanent pasture, unless particular local circumstances, such as vicinity to a great town, or a mansion house, make grass land profitable or eligible.

The use of fossil manure, either lime, chalk, clay, or marle, is the *sine qua non* of sand husbandry. Plowing alone will make light sands lighter. Fossil manure must be applied as an alternative, to fix the staples of the land, and bear up the subsequent manures, and keep vegetation near the surface. Chalk lands are in general unfavourable to natural grasses, and particularly where the chalk lies near the surface. They are so retentive of water in the winter, and so very porous and pervious to the sun's rays in summer, that it is the work of an age to make a good pasture from land which has been once in tillage, and sometimes absolutely impossible. Land which only produces aquatic plants, can never produce edible grasses, until the latter are sown, and the former destroyed. This can only be done in a state of tillage. But when the object is once attained, lands of this description are in general best to remain permanently in grass; and when drained and improved, will frequently make the best meadow. Several appendices illustrate a detail in the author's principles.

The eighth Essay comes from the pen of the Rev. Mr. Arthur Young. After some preliminary observations, this writer, in his first chapter considers circumstances foreign, to the qualities of the soil, that lead to pasturage or tillage. The principal of these are, the respective prices of the products of grass and arable land; and speculations on those prices. Mr. Young agrees with Mr. Davis in deeming the price of grass productions increased in proportion far beyond corn. For the last thirty years grass has been gaining on tillage. The price of wheat, though recently very high, has not changed grass into arable land, because men speculate on future prices. Wheat will probably fall to so low a price, as not to compensate the conversion of grass land into arable, caused by the late high price. The legislature should, by a revision of the corn laws, secure the landlord from the apprehensions of future prices being too low to compensate the farmer for his expences, and himself for permitting tillage.

The second chapter considers the quantity of human food from grass and arable land, with respective expences, and entirely agrees

with Dr. Walker and other preceding Essayists, that arable land is extremely superior to grass in the productiveness of human food. The third chapter considers different natures of soil as to the propriety or impropriety of conversion. Here, judicious as his observations are, we shall not follow him, as his ground has been pre-occupied in the former Essay. Our author now proceeds to the modes of breaking up grass lands. This subject resolves itself into the following considerations: 1, Previous draining. 2d, Paring and burning. 3d, Depth of ploughing. 4th, Ridges. 5th, Course of crops. Concerning draining, he recommends Mr. Elkington's system. The respectable authority of Mr. Young sanctions Mr. Dalton's praises of paring and burning. He considers this practice in its operation upon different soils, especially loam, in which this mode has been chiefly blamed; and having argued strongly in its favour, mentions its success in a case which he tried upon his own farm by which he raised the value of the soil from five shillings to twenty, per acre.

Depth of ploughing must be varied, according to the soil, and other circumstances, but old grass is to be ploughed shallower than land actually in tillage. Mr. Duckett's skim coulter plough, Mr. Young considers as one of the best implements ever invented. It is most effectual, and applicable to a great variety of purposes; but to none more than breaking up old grass land. On that most important subject, the courses of crops, before he enters upon detail, he lays down general principles, that some crops exhaust land much more than others; that some, notwithstanding they exhaust, return, by being consumed on the farm, as much as, or more than, they drew from the soil in their growth; that some admit of profitable tillage and clearings, while growing; and consequently clean, instead of rendering the land foul with weeds; while others, not admitting such tillage, and being exhausters, if continued in succession, will deteriorate the land and fill it with weeds. Practice tells us, that by a due arrangement of these crops in courses, land of almost any description may be kept perpetually clean, and in heart. He recommends courses respectively adapted to different species of soil, and in both precepts and examples, combines experience, skill, and judgement, with very accurate analysis and detail. The result is extremely satisfactory to the promoters of tillage. From this subject he proceeds to the conversion of arable into grass lands. The covenants of leases, and the rules by which increases of rent ought to be estimated. This concluding chapter exhibits the result. A higher average of the price of corn Mr. Young seems to think necessary from the increased profitableness of grass lands, expences of tillage, and depreciation of money. The best subjects of conversion into tillage are waste lands, and not those wherein grass-lands are advantageously employed at present. Our author strenuously recommends the cultivation of potatoes. If any method could be devised to oblige or induce landlords to establish this system, in such a manner as would enable the country poor to support themselves, for only half the year without dependance on bread, the advantage would be almost incalculable. Wheat always yields the worst crops in wet summers, potatoes the best. The produce of one would tend to

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supply the deficiency of the other, in years when such deficiency might press heavily. Mr. Young in the whole is rather unfriendly to the tillage of grass-land now profitably employed.

The Reverend Edward Cartwright in the ninth essay endeavours to combine the advantages of tillage and pasturage, and proposes to extend the cultivation of corn on strong lands without diminishing their value, or lessening the production of animal food. His observations applying only to strong lands, are as far as they are concerned of a different tendency from Mr. Young's. He considers the action and re-action of grass and tillage as increasing the productiveness and profitableness of both. In this performance there are many excellent observations, the substance of which we should present to the reader were they not anticipated by preceding essays. Mr. Cartwright agrees with the greater number of the other Essayists in strongly inculcating the conversion of grass-lands into tillage.

Mr. Goring, of Western, assumes a general principle, that land cannot after undergoing tillage be returned into grass without suffering an injury, and on that assumption, instead of, considering the positive and comparative efficacy of different means, the question proposed by the Board, at the instance of the Lords, he reprobates the end which is not the subject proposed for discussion. In this Essay, though short, much of the matter is irrelative: religion, politics, mythology, and other subjects, on which information and exhortation were not required by the Peers, nor by the Board, are mingled together, in a confusion which is neither beautiful nor to the purpose.

Dr. Campbell, of Lancaster, adhering to the subject, gives an account of various experiments, by which the objects of the enquiry were successfully attained. Dr. Wilkinson concurs in Dr. Campbell's opinion, that such a conversion may be productive, and like him very judiciously explains the means. Without, however, entering into particular details, we may observe that both these writers concur with the former essayists whose particular processes we have already mentioned. Mr. Boys, of Betsfanger, more particularly coincides with Mr. Davis as to the modes most expedient in the several kinds of soil. Mr. Greenall, of Eccleston, near Lancaster, prefixes to his didactic remarks a statement of his own modes and a debtor and creditor account of the proceeds. In his Essay the observations on manures and the course of crops deserve considerable attention.

On the whole, this is a very valuable collection, and amidst considerable diversity of opinion, by far the greater number agree in thinking that not only waste lands, but strong and profitable grass lands, may be beneficially converted into tillage, and in that state meliorated and rendered fitter for profitable productiveness when again returned into grass. Such a result, so auspicious to our prospects of increased human food, coming from so eminent authorities, must be extremely satisfactory to agricultural, political and moral patriots.

IV. *An Essay, or practical Enquiry concerning the hanging and fastening of Gates and Wickets, with Plates.* By Thomas N. Parker, Esq. M. A. Lackington. 1801. 60 pages.

A gate, when suspended by hinges, is a lever of the second kind, in which the weight is placed between the power and the fulcrum

When the hooks or pivots upon which a gate is hung are precisely in the same perpendicular line with each other, the gate will be at rest wherever it may be placed. The smallest variation of the hooks from their perpendicular line, will attach to a gate so suspended, one determinate line of rest, and no other. When a gate is in its line of rest, or in its opposite line of equilibrium, the two hooks by which it is suspended, and the centre of the gate's gravitation, will be found to be in one and the same vertical plane. Plates illustrate these principles; several propositions demonstrate the proper situation of gates. The post of a wing gate should be placed edgewise. In a turnpike gate the upper and lower hinges of the swing gate should have their places reversed, or exchanged, which would adapt them very well for this purpose; for when the gate was fastened, it would be quite upright set, and the bars horizontal; but, upon unlocking it, it would fall open either to the right or left, with the same power as a common swing gate, would shut of itself, and remain open till it were brought back to its place, and shut by the same force as would open a common swing gate; which would be a great convenience to travellers. In hanging a gate, the thimbles should be first put on and adjusted; after which, support the gate against the hanging post, and mark out the place for the upper hook. Having completed the upper hinge, the gate should now be wedged up in its proper position, with some pieces of wood, brick, or stone, as may be nearest at hand, proving it to be upright by the plumb line. All road gates and gate posts should be painted white, otherwise they will be frequently broken in dark nights by horses and carriages being run against them. The last chapter recommends Mr. Samuel Lawrence, of Shipnal, Shropshire, as an expert maker of strong and commodious gates.

## HISTORY.

### National Transactions.

**T**HE TURKISH DOMINIONS in Asia, Africa, and Europe, remain still under a government without systematic energy or wisdom, driven to tyranny from weakness, to impotent cruelty from want of foresight, and perpetually harrassed by the breaking out of one rebellion, as it suppresses another.

Paswan Oglou is still in arms against his Sovereign. And, several other Pachas are said either openly to imitate his example, or to encourage him by their secret correspondence, or where faithful, to make the court purchase their loyalty at their own price.

The officer who was lately Reis Effendi, or Secretary of State, has been sent to Egypt, with authority, as we are informed, to settle the government of that country in a more submissive dependance on the Porte, than it could be maintained in, for many years before the French invasion. It is probably the wish of the Divan, for ever to disembody the Mammeluke militia; to punish with death, those turbulent Beys who eagerly revolted, at the first, to the French, but afterwards abandoned them when their fortunes seemed desperate; and to leave no force in Egypt, that shall not be immediately and implicitly subject to the Pacha intrusted with the government of that province. Captain Rhode, a Swedish Engineer, has accompanied the Reis Effendi, to

inspect the harbours and fortifications, and to give directions for their reparation and improvement.

The Turkish Government has refused, or at least hesitates and delays, to accept and ratify the Treaty of Peace, which was, some time since, negotiated with the French Government, by its Ambassador at Paris.

Disputes, seemingly inextinguishable without the suppression of their liberties, had arisen between the Nobles and the Plebeians in the Republic of the Seven Isles. The Powers which guaranteed its independence have, therefore, abandoned it to the controul of the Turks.—And, the Turkish Government has authoritatively interposed to terminate the dissensions among the islanders.

A Treaty of Peace has been concluded between the French Government and the Regency of TUNIS; consisting of Hamouda Pacha Bey, the Chief Ruler, and of his Divan. By this treaty, those formerly subsisting between Tunis and France, are renewed. France procures, at the same time, the privilege of being, in future, more highly favoured than any other foreign nation in the Tunisian dominions. The duties on French goods imported into Tunis, and upon Tunisian goods imported into France, are mutually fixed at 3 per cent. It is agreed, that whenever war shall again arise between the two Powers, the French Consul shall be allowed three months of safe protection after its commencement, during which he may retire, unmolested, out of the territories of Tunis. This treaty was concluded and signed at Tunis, on the 23d of February last.

The States of Tunis, Algiers, and Tripoli, have declared war against the Dutch Republic. Admiral de Winter has, however, sailed with a fleet,—to pay the arrear of the subsidies, the delay of which has alone excited those States to hostility against the Dutch,—and then to renew with them, the former treaties of amity.

We do not know, that any very important public transactions have recently taken place in ITALY.

The Pope, by lending his aid to reconcile the French Clergy to the Republic, seems to have secured to himself, as a temporal Prince, the protection of the Consular Government.

The burthen of the contribution for the subsistence of the French troops in the Cisalpine Republic, has been lately diminished by orders from the First Consul. It was, formerly, 2,750,000 livres a month. From the 21st of March to the 21st of April, it was, by the new regulation, to be only 1,800,000 livres; and for the month next ensuing after the 21st of April, it was to be but 1,600,000 livres.

The Government of the *Genoese* or *Ligurian* Republic, is to resume nearly its ancient form. Its Chief Magistrate will have still the title of Doge.

The French General Rusca has embarked with a thousand troops, to take possession of the island of *Elba*.

The Queen of *Etruria* is, again pregnant.

It is, again, reported that the King of *Naples* will speedily resign his crown to his eldest son.

From PORTUGAL we have not lately received any interesting information; save that of an English frigate having infringed the rules established to prevent the introduction of the plague, before the fort of Belem at Lisbon; and having, in consequence of this, suffered an injury in the persons of her Captain and some of his seamen, which was, at first, not unlikely to excite the warmest resentment.

The King and Queen of SPAIN will, it is said, make a Summer-journey from their capital to Barcelona, there to meet the King and Queen of Naples.

Two marriages are shortly to take place between the children of these two Royal Families. Not fewer than 160 bridges, small and perhaps but temporary, are to be constructed over the rivers and brooks on the way between Madrid and Barcelona. A body of 20,000 troops will be encamped near Barcelona, at the time when their Majesties visit that city.

The most remarkable event that has lately taken place in FRANCE was the conclusion of the Definitive Treaty between Great Britain on the one part, and France, Spain, and Holland on the other, at Amiens, on the 25th of March last. By this Treaty, Peace and Amity are renewed between the contracting powers; the prisoners of war are to be mutually set at liberty, upon the discharge of their respective debts, and the payment of the sums disbursed for their subsistence by the Governments of the countries in which they were prisoners;—of the British conquests during the war, only the islands of Trinidad and Ceylon are reserved to the conquerors; the port of the Cape of Good Hope, restored to the Dutch, is to be in future free to the British and the French under the same duties which shall be paid by the Dutch themselves;—the river Arawari is to be the future boundary between Portuguese and French Guiana—but of that river the northern bank from its source to its mouth the most distant from Cape North, is to be the property of France;—Malta is to be evacuated by the British troops, within three months after the mutual exchange of the ratified copies of the Treaty; the British and French are to be equally excluded from establishments of knighthood in the Isle,—its ports are to be henceforth free to all nations except the States of Barbary,—there is to be a Maltese Knighthood supported by the customs and territorial revenues,—the forts are, upon their evacuation by the British to be provisionally garrisoned by 2000 Neapolitan troops;—the rights of fishery on the coasts of Newfoundland and the adjacent isles, and in the gulph of St. Lawrence, are to remain the same as they were before the war, with liberty to the French fishermen of Newfoundland and of the isles of Miquelon and St. Pierre, to cut wood in the Bays of Fortune and Despair, for the term of one year from the date of the ratification of the treaty. The treaty has been, since, formally ratified at Paris.

The Catholic religion is again the national profession and worship of France; Prelates, who take the oaths of fidelity to the Consular Government are installed in the different Cathedrals. The Pope has given his sanction to the new establishment; and a Papal Nuncio is now resident at Paris, who immediately administers the Papal power over the French Church, with the permission of the First Consul. A grand and ceremonious service of religion was, on account of this great event, lately celebrated in the Church of Our Lady, at Paris. The Chief Consul was present: and his sword was solemnly consecrated. At Paris, the seat of the Atheists, the *Esprits Forts*, the busy, the speculative, and the gay, to whom religion is a matter of scorn or indifference,—the re-establishment of the Roman Catholic worship is not received with any high satisfaction; but, throughout the provinces, it is an occasion of extraordinary joy to the people in general. The Protestants of the Confession of Augsburgh, are to enjoy the right of publicly professing their faith, and celebrating their forms of worship, under the protection of the Government. The stipend allowed by the Government to each of the Archbishops of the national religion, is 6351. sterling a year; that to the Bishops, for each 4161. 13s. 4d. a year; that to every curate or parochial rector of the first class, 621. 10s. a year; and that to the parochial clergy of the second, to each, 411. 13s. 4d. yearly.

The DUTCH Government represents that Republic to have gained little less by the improvement of its colonial settlements of Surinam, Demerara, and Essequibo, while these were in the hands of the British, than it loses in the final cession of the island of Ceylon. It promises to the people, that a

compensation for the Dutch ships which, when the war broke out, were detained in British harbours, shall still be earnestly claimed at the British Court. It boasts, that the flag of the Republic is no longer to strike at sea to that of Britain. And it gratifies the wishes of the enemies of the House of Orange, by an assurance, that the losses of that House will be, *bona fide*, compensated by France alone, without expence to the Dutch Republic, or any future danger to its liberties. This is the substance of a paper which was, by the authority of the Government, issued to satisfy the minds of the people when the conditions of the Definitive Treaty were made public at the Hague.

Mr. Jansson has been appointed to the Government of the Colony at the Cape of Good Hope. He is to be accompanied by a Mr. Milt, who goes out under a particular commission, to settle certain arrangements. A body of troops go out under his command. It was expected, that he would sail for his Government, immediately after the ratification of the Definitive Treaty.

SWITZERLAND remains, as yet, without a permanent settlement for its future political constitution and government. The primary assemblies are, in general, dissatisfied with the conduct of their present rulers, and with the influence usurped over their country by France. They dread, lest the late Grand Duke of Tuscany, or perhaps the Prince of Orange, should be destined to obtain a compensation for his losses, in the whole, or in a part of the Swiss territories.

In the BELGIAN Provinces of the French Republic, many of the officers lately employed in collecting the public revenues, have been convicted of peculation, and dismissed from their employments with infamy.

The Scheldt has been declared free from the restraints under which its navigation was so long held by the Dutch. And it is expected, that the city of *Antwerp* may, again, rise to its ancient commercial greatness.

The State of GERMANY is now, comparatively, calm.

The Duke of *Brunswick* has ordered, that the fortifications of his capital be demolished; an order which has, probably, nothing else in view, but the improvement and enlargement of the city.

The Danes at *Allona*, celebrated the 2d of April, as the anniversary of the great victory gained by their fellow-countrymen, on the 2d of April, 1801, over the British Fleet, before Copenhagen. May such be the only victories in which it shall ever be allowed to the foes of Britain to rejoice!

At *Vienna*, the Archduke Charles of Austria is still in a feeble and uncertain state of health. The Hungarian States are to assemble immediately in a Diet, in which it is believed, that a new Constitution will be adopted for the regulation of the future political state of that kingdom. The States are expected then to demand an union of the newly acquired Dalmatian territories of Austria with its Hungarian dominions.

The King of Prussia has a body of troops ready in Silesia to take possession, it is supposed, of such territories as shall be finally assigned to him, in indemnity.

The King of SWEDEN has been lately augmenting his troops, and repairing his fortresses. The Swedish Court has finally signified its full and cordial accession to the Convention between Great Britain and Russia.

In GREAT BRITAIN, the public attention has been fixed, during the last month, on the business of the Treaty of Peace, as the most interesting of all the transactions of the Government. The news of its ratification have

been at last received. Its conditions do not appear to be, in general, regarded, among us, with discontent.

Measures are taken for the reduction of the national force, naval and military, to that diminished number which is likely to be necessary to the security of these kingdoms in times of peace.

The death of Lord Kenyon has made room for the elevation of the late Attorney-General, Sir Edward Law, to the office of Chief Justice of the Court of King's Bench. He has been at the same time, exalted to the Peerage, with the title of Lord Ellenborough.

The sum of nearly 28,000,000 sterling was found to be necessary for the public expenditure in the government of the empire, during the progress of the present year. Of that, nearly £.3,000,000, would arise from sources which were already open. £.25,000,000 was to be raised by a loan. The transaction was, by the minister, proposed to the money-dealers. Seven different offers were made. That which offered to advance the sum wanted, on the conditions the least unfavourable to government, was by Smith, Payne, and Smith, bankers. Their proposals were accepted, of course, by the Chancellor of the Exchequer. They advance, therefore, the whole £.25,000,000, at, for every 100*l.* of this loan, an allowance of 5*l.* 3 per cent. consolidated stock, 6*l.* reduced 3 per cent. stock, and 6*l.* 19*s.* 3*d.* deferred stock, on which the payment of interest by government will not, till the year 1808, commence. This loan is to be advanced in instalments by the lenders, at fixed terms, as the year proceeds. The new stock created by it, in 3 per cent. consol. reduced and deferred, is £.30,351,375. Exchequer bills have been, also, funded, or added to the national debt, to the amount of 11,133,062*l.* 10*s.* The interest of £.56,445,000 was charged on the income-tax, which government, meeting the wishes of the people, agreed to repeal. The total sum, therefore, for the interest of which provision was to be made by new taxes, came to be not less than 97,934,437*l.* 10*s.*

After taking the necessary previous steps, the Chancellor of the Exchequer founded upon the facts above mentioned, a motion for the supplies of the present year. He proposed that motion to the *House of Commons*, on Monday, the 5th of April. The necessity of the loan was evinced by his estimate of the probable expenditure. The total interest to be paid by new taxes was £.3,211,202. An additional duty of 1*s.* ½*d.* upon every bushel of malt, of 1½*d.* upon every pound of hops, — of 2*s.* on every barrel of strong beer, with, for the present year, an allowance of 6*d.* per barrel to the common brewer, were the chief of the new taxes which he offered: he estimated its produce at £.2,000,000 sterling. He proposed an addition to the assessed taxes, to the amount of about one-third of their whole sum; and estimated its produce at about £.1,000,000. The only other tax which he proposed, was a new duty of five per cent. *ad valorem* upon imports and exports; of which he took the produce, also, at £.1,000,000. The gross produce of these taxes is, therefore, valued at £.4,000,000 a sum exceeding the amount of the interest which they are intended to pay. The motion for these taxes, was duly entertained. The bills for them are, in progress through the forms of the House; and will, with some slight modifications, be passed into laws.

The subject of the discharge of the debts upon the civil list, amounting to the sum of 893,968*l.* 6*s.* 2*d.* sterling has excited some debate in both Houses of Parliament; and some of the Peers have even entered on the Journals of the Lords, a protest against the measure. But, the contest is over; and money is to be granted for the payment of those debts.

On the occasion of the close of the war, and the disbanding of the volunteer corps, with the reduction of the army and the navy, the Commons have voted their thanks to those bodies for their services to their country since the war began.

Sir William Scott has brought into the House of Commons, a bill to alter and modify to the utility of the present time, the laws which relate to the non-

residence of the Clergy. It is favourably entertained, and is in its progress through the forms of discussion.

Lord Grenville has, already, in the House of Lords intimated his intention to censure what he, then, understood to be the terms of the Definitive Treaty, whenever these shall be communicated from His Majesty, to that house.

On account of the state of the exchange and of trade between Britain and foreign countries, a bill has been brought into Parliament, and is passing into a law, which restrains the Bank of England from making payments in specie, for one year after the Ratification of the Definitive Treaty.

A motion in the House of Commons, by Sir Francis Burdett, on the 12th of April, for an enquiry into the conduct of the late ministers, was vigorously opposed by Lord Temple and others; and was, by a majority of 246 to 39, rejected.

A bill has been brought into Parliament, the object of which is to augment the Militia for England, Scotland, and Ireland, to a standing body of 100,000 men; of whom a part are to be immediately embodied, while the rest are to be held in a state of readiness in which they may be, at any time, called out, within a fortnight.

A considerable proportion of judicial business has engaged the attention of the House of Peers, during last month. It was brought chiefly by appeals from the decisions of the Court of Session in Scotland.

Many bills for High Roads and Canals, continue to be brought into the House of Commons.

On the 15th of April, the royal assent was given by commission, to a bill for the loan of 25 millions, a bill for raising the proposed additional assessed duties, a bill for regulating the corn trade between Great Britain and Ireland, a bill for regulating the collection of the Irish revenue, and to twenty-nine other bills, relating only to matters of private interest; all which thus finally acquired the force of law.

St. DOMINGO is still a theatre of war. On the 7th of January last General Leclerc, having landed his troops, and possessed himself of those places on the coast which Toussaint had abandoned, began to advance after that negro chief, into the interior country. The divisions of Toussaint's troops only annoyed the French in their approach; here and there, made head for a short time against them; then retreated among impenetrable woods and defiles, in which the French could not injure them. Still, however, the French advanced, till, in the space of fifteen days, they had gained possession of a considerable portion of the disputed part of the isle, and had in almost every rencounter, put to flight, the forces of Toussaint. The Southern plantations are preserved from the Rebels; and the whole Spanish part of the isle is in the power of the troops of the French Republic.—These are the accounts which have been made public, in consequence of the last receipt of dispatches from St. Domingo, by the French Government. It is, however, believed, that the difficulties opposing Leclerc's ultimate success, are much greater than they have been represented; and that large reinforcements are, therefore, to be, with as little delay as possible, sent out from France to his aid.

Since the preceding paragraph was written, we have seen a new dispatch from St. Domingo to the French Government; which intimates, that an embassy of peace has been, in vain, sent to conciliate a pacification with Toussaint; that this chief distrusts every profession that can be made to him; that he possesses the means of laying waste the country where the French army should be subsisted; and that he and the chiefs commanding under him, are not to be persuaded to refrain from the use of this terrible mode of self-defence. It is, indeed, evident from what is related of his rejection of the overtures which have been made to him, that he must expect, with the fullest confidence, to triumph over the invasion by the climate, by devastation,

by stratagems, and by the desperate valour of his troops: He retires that the French may follow to where they must inevitably perish.

In *Guadeloupe*, PELAGIE is still master of the military force, and by consequence, of the whole government of the isle. He has not displaced all the former civil officers; but, his administration is in open defiance of the orders and authority of the First Consul. We know not that any French force has hitherto attempted to enter the isle and suppress his rebellion.

From the *ANGLO-AMERICAN STATES* we have not lately been informed of any very great and interesting events. The Southern States have, indeed, been much alarmed by the detection of a general conspiracy among their slaves to rise in rebellion, destroy the families of their masters, and erect another *Negro and Mulattoe Government*, in imitation of the present insurgents in *St. Domingo* and *Guadeloupe*.

## Commercial Affairs.

FROM an official paper by the French Minister for the Internal Department of the Affairs of that Government, we learn, that in the French year ending in September 1800,

The value of the Imports of the French Trade was	-	£. Sterling.	13,500,000
Of the Exports	-		11,300,000
		Balance	£2,200,000
In the year ending in September 1801, the Imports were	-		17,370,000
Exports	-		12,716,000
		Balance	£4,654,000
Value of Prizes captured, this year, from the Enemy	-		670,000
Total clear balance against France	-		£3,984,000

On the 20th of April, the *Tiers Consolidé* funded debt of the French Government, bearing an interest of 6 per cent. was at 56 livres and 18 sols per cent. The Bank Stock was on the same day at 1157½ livres per 1000. The Exchange with London yielded 20s. and 1½d. for every pound sterling to be paid in the British metropolis.

On Monday, April 26, the Stock of the Bank of England was at 194¼ per cent. the 3 per cents. red. at 79¾ per cent. the 3 per cents. consols at 76¾ per cent. the Omnium of the Loan, at a premium of 3¾ per cent.

The usual prompt payments have not been made on the Loan for the present year.

It was settled on Monday, April 26, that the bidding for the Lottery of the present year should take place on Thursday, the 29th, at ten o'clock A. M. There is to be an alteration in the arrangement of this Lottery.

The Loan for the public expenditure in the Government of Ireland, in the course of the present year, will be negotiated in Ireland, on or about the 6th of May, by Isaac Corry, Chancellor of the Irish Exchequer.

The following is the order in which the instalments of the Irish Loan are to be paid.

May 6th, deposit	. . . . .	£.	60,000
15th,	. . . . .		100,000
Amount carried forward	. . . . .		£160,000

	Brought over	£.160,000
June 16th,	.	150,000
July 20th,	.	150,000
August 20th,	.	225,000
September 27th,	.	225,000
October 23d,	.	150,000
November 27th,	.	225,000
December 30th,	.	225,000
	Total	£.1,500,000

It is believed, that the new duty on freight and tonnage, unless modified differently from the first proposal, will prove extremely hurtful to the coasting and to the carrying trade of this country. In truth, every effort ought to be now made to render freighting on board British and Irish ships cheaper, if possible, than it is on board the ships of any foreign nation.

Upwards of thirty boats have been lately stopped in the river Tyne for being too long in proportion to their breadth, and for not having taken out licences, according to law.

The privilege of *not having the name painted on the stern*, allowed to square-rigged vessels during war, has ceased by the conclusion of the peace.— Any such ships, which shall hereafter be found without the name painted on them agreeably to law, will be subject to a fine of 100*l.* sterling, each.

The Dutch trade to the Cape of Good Hope, is no longer to be exclusively monopolized by the East India Company of that republic, but is to be in future free to all the subjects of the state.

An African trading company has been instituted at the Austrian sea-port-town of Trieste. The company is fitting out a ship which will, on the 1st of June, sail from that port for the river of Sierra Leone, with a cargo of hardware, lead, tobacco, brandy, linen, woollen cloths, glass, &c. all Austrian products or manufactures.

The Bank of Ireland, as well as that of England, is restricted, for another year, from making payments in specie.

Whale-bone which was, once, when stays and hoops were generally worn, sold even at the high price of 500*l.* sterling a ton, does not now bring more than 60*l.* for the same quantity.

The number of bankruptcies has not become more considerable in April, than was the number for March. This fact is encouraging in regard to the state of our manufactures and traffic.

The total amount of our permanent taxes, was, in the beginning of the year 1793, not more than 12,358,158*l.* 2*s.* 11½*d.* sterling. They have been since that period, augmented to above 25,000,000*l.* including the addition of the present year.

The national debt was, on the first of February last 538,365,205*l.* 1*s.* 0½*d.* sterling.

The late Parliament-House in Dublin has been purchased by the proprietors of the Royal Irish Bank, for the sum of 40,000*l.* together with an yearly ground rent of 240*l.* sterling.

The last merchant fleet which sailed for Jamaica, consisting of not fewer than two hundred ships, had arrived at that isle in February last.

*Argol, ashes, and corn*, of all sorts, have fallen rapidly in price, in the latter part of the month.

*Mocha coffee*, and that which has, in the market, the name of *fine*, have fallen in price. Other sorts of this commodity are, now, dearer than in the end of last month.

All sorts of *cotton* fall in price; though one might have expected this material of our manufactures to rise from about this time till the next great importation from the West Indies.

Most of our *gums*, the produce of Asia and Africa, have lately risen in price. Petersburg *flax* still remains at the price of 68*l.* per ton. That of Riga and Narva has fallen from 67*l.* to 65*l.* per ton. Clean *hemp* from Petersburg is now at 46*l.* per ton, and higher than in the end of last month. Other sorts of hemp are now lower than they were, last month.

*Sugars* seem to begin to rise in price. And their prices will probably continue to rise, till new supplies shall have been received from the West Indies. The present war with the Blacks and Mulattoes in the French West India isles must tend to enhance the price especially of the clayed sugars of St. Domingo.

The prices of *indigos*, that article of such importance to our woollen manufactures, have risen since the end of March. The state of the prices of this dyeing stuff must always depend much on the East India Company's sales and on the arrivals of cargoes from the West Indies.

British *iron* in bars, was, on the 23d of March at 18*l.* per ton, in the London market. On the 23d of April, it had risen to 22*l.* a ton. British pig-iron has risen, in the same interval, from 5*l.* 10*s.* to 7*l.* 10*s.* a ton. *Old sable iron* which was a month since at the price of 24*l.* 10*s.* for the same quantity, is now at 28*l.* The quantity of iron used in all our manufactures becomes continually greater. So, the prices of the metal will not be diminished, nor will the working of our iron-mines be discouraged, by that event which calls us to convert our swords to plough-shares, and our spears into pruning-hooks.

The price of manufactured copper has lately risen from 1*s.* 5*d.* to 1*s.* 6*d.* per lib.

The prices of *hides*, and of *leather* have, also, risen. The raw hide of Buenos Ayres is now at 8½*d.* per lib. The dressed hide is at 1*s.* 5*d.* or 6*d.* a lib.

The price of *madder* has fallen greatly. That of the Dutch crop is at four guineas the cwt. It was a month since, as high as 5*l.* per cwt.

*Mohair yarn* and *Smyrna wool* have lately become dearer.

The rates of *insurance* to almost all ports on the Mediterranean have fallen, in the course of April and since the ratification of the peace.

The price of *silver* has, also, fallen in London. New dollars were, on the 23d of March, at 5*s.* 8*d.* per oz. They are now at 5*s.* 7*d.* only. The price of *silver in bars* has, within the same interval, fallen from 5*s.* 11½*d.* to 5*s.* 9½*d.*

In our intercourse with the Continent, the *Course of Exchange* is almost every where somewhat more in favour of this country than it was in the month of March. Our vast remittances to foreign countries for public purposes have ceased. Our exports in trade continue or are increased. And hence there is or will speedily be a balance to be remitted from most of the other emporia in Europe to the English capital. The exchange with Dublin is also in our favour; and 1*s.* only must be paid in London for 1*s.* 0½*d.* to be received in Ireland.

Among the imports into the port of London, in the week ending on the 23d of April, were 1850 burr-stones for mills from France, 107,250 oranges from St. Michael's, 35,000 lib. of Spanish wool from Seville, 1032 cwt. of hams from Holland, a large quantity of American cotton, 2000 lib. of strong tanned leather from France, 35,000 lib. of tobacco from Jamaica, 2,195 lib. of snuff from Holland, 57,713 gallons of wine from Oporto, a good deal of linen and linen-yarn from Hamburgh, 597,500 quills and 34 cwt. of honey from Holland.

We expect with some impatience, the news from the Easter fairs in Germany.

The quantity of gum-senegal annually consumed in Europe, is about 2,000,000 lb. Of this about 600,000 lib. are imported by the British from the road of Portendic on the Senegal coast. The rest, about 1,400,000 lib. is brought by the French from their settlements on isles in the river of Senegal. Iron, brandy, glass, toys, sweet-meats, linen and woollen cloths, hams, cheese, and salted beef, are the commodities which the French give in exchange to the natives of three tribes of wandering Moors by whom they are supplied with this gum.

Before the Revolution, France employed, in its colonial trade, 180,000 tons of shipping. Between the years 1763 and 1778, the returns in produce from the French colonies, consisting of sugar, coffee, indigo, cacao, and cotton, amounted to the annual value of about 6,400,000*l.* sterling. Of these one-half was consumed in France, the other half exported to other parts of Europe. In 1788, the tonnage employed in the French colonial trade had been augmented to 696 vessels, and 204,058 tons burthen. The imports rose, in that year, to the value of about 7,000,000*l.* sterling.

The negroes introduced by the French and others into St. Domingo, in

1784,	were	25,025
1785	--	21,762
1786	--	27,732
1787	--	30,839
1788	--	29,506
1789	--	27,212

In 5 years 162,076 negroes.

## Agriculture.

**T**HE month of April has not been, throughout its course, so favourable as could be wished to the vegetation of the springing articles of crop. Wheat, oats, and even barley are, now, however, in a state of forwardness in which they cannot be considerably injured by any thing except blights and withering drought. We have experienced in April, some blasts of cold east winds, and chilling rains, with some unexpected falls of sleet: and the promise of the fruit-trees has been, in different places, somewhat diminished. But, the hopes of the year have not been farther damaged. Garden-plants in general, as our markets evince, are sufficiently forward. This month might have been more favourable to the lambs, whose tenderness must have been, in many places, but ill-fitted to endure its severer blasts. The green, or young geese, unless where carefully fed with leaves of lettuce, raddish-tops, &c. have not fared well, in all parts of the country during April. Even in the wilder and more northern parts, the potatoes have been, every where planted. Those of the early varieties already spring luxuriantly. The meadows and grass fields, in most of those parts of the country which we have had opportunity to visit, are already cleared of stones and other nuisances, have the fences renewed, and offer a fine promise of grass. Calves and young cattle in general, are thriving. Where fallowing without green crops is still used,—and there are, no doubt situations, in which it may be adviseable,—April is the month in which it is begun. It goes on, also, in May. In the more northern parts, the fences are not yet, every where repaired: and there is much labour of hedging, ditching, and building dry stone-walls for inclosures, now in progress. Those grounds which were too wet in March, have generally continued so in April. The leading of lime, marle, shells, sleet, and the filth from towns for manure proceeds now. This interval between the labours of sowing and harrowing, and those of weeding and hoeing, cannot be too diligently employed by the farmer: and we remark with pleasure, the attention with which, in the districts round London, those tasks for which it affords leisure are vigilantly forwarded. As most of the cattle which were in winter kept to meet the markets in spring are now sold off, and the stock renewed by the purchase of young cattle; many beasts of all sorts have come, last month, into the markets,—and the prices of meat, have, of late, fallen. In consequence of the renewed working of the distilleries, the number of pigs in the country is likely to be, this year, much more considerable than it was last year.

Plenty and cheapness of pork, hams, and bacon may, therefore, be confidently expected in the course of the present year. The making of cheese has been begun in the dairies: and since the beginning of April, we have had plenty of excellent summer cheese in the markets. The hops are in forwardness in Kent and the other districts in which they grow. We believe, that the buck-wheat has been got every where well into the ground on those sandy soils on which it thrives. April is the month for the morille-mushrooms in those parts of Essex and Cambridgeshire in which they grow. But we much doubt, that the April now ended may have proved too moist for them. The pea-hen has begun to lay, last month. Her eggs are, for delicacy of taste and flavour, preferable to those, even of the pheasant and the guinea-hen. April has been, by its moist weather, sufficiently favourable to the later sowings of madder.

We would earnestly recommend to those whose grounds are infested with thistles, to cut them, now, or pluck them up by the roots, if they have not already done so. By thus anticipating their running to seed, they may with little difficulty, effect, within a few seasons, the entire extirpation of those noxious weeds. With nettles, the same management should be used.

Pasture grounds infested with the crow-garlick and sauce-alone or Jack in the hedge, ought to be, now, carefully cleared of those plants; as they never fail to give a wild rank flavour to the milk.

Where orchards begin now to be infested with caterpillars, we would still recommend to the gardener, the old simple way of destroying these insects, as well as to obviate the mischiefs from blighting winds. Make heaps of damp straw to the windward of your trees. Set these on fire. Add wet straw to the heaps while they burn. The insects are too tender not to perish by the smoke.

The poles have, we presume, been, every where, set by this time, in the hop-hills, as the growth of the plants cannot but have required it. But, we would earnestly recommend that the tops of the poles should be inclined, with the greatest care, outward, that a free circulation of air may be admitted among the growing plants.

One of the labours which will prove the most profitable in the beginning of May, is to cleanse out the ponds and ditches, and to put the matter from them as manure, on lands of a soil which is barren from thinness.

The saffron-plant is a native of China. It was first introduced into Britain by Sir Waller Raleigh. Its first plantation was at the place named Saffron-Walden. It thrives only in a light loamy soil. The ground should be prepared for it, and it should be planted, in May.

In Denmark, it is usual to shear the sheep *twice in the year*. Upon a comparative trial of this mode with that of shearing once in the year, it was found that the sheep were weakened by being, in one year twice shorn; and that the wool thus obtained from them, was shorter than the whole year's growth of wool. But, on the other hand, the wool obtained by twice shearing, is greater in quantity, finer, more free from intermixture of coarse hairs, and not so much matted into tatlocks, as that of the whole year's growth. There is by consequence, a greater profit to the owner by shearing his sheep twice in the year than by shearing them once. The trial which gave these results, was made with the greatest care by a royal commission. Would it not be of consequence to repeat such a trial in a wool-country like England?

The Dublin Society has begun to institute surveys of the agriculture of Ireland, similar to those which were made of the different counties of Great Britain, by the Board of Agriculture under the auspices of Sir John Sinclair.

A number of Noblemen and Gentlemen, friends to the improvement of the arts of rural œconomy, and admirers of patriotic merit in an exalted station, have associated in subscribing a considerable sum of money to be expended in raising a public monument to the memory of the late Duke of Bedford.

His Grace, John, the present Duke of Bedford, has been elected an honorary member of the Board of Agriculture.

The Earl of Egremont, whose merits towards the rural œconomy of his country, were, before, very great, has lately sold or given away his fox-hounds, on account of the injury which he could not avoid perceiving, that the hunting unavoidably did to the labours and inclosures of the farmers in his neighbourhood. This example deserves every praise.

The *Festuca fluitans*, or *Flote Fescue*, is cultivated in wet grounds in Denmark, on account of the uses to which its seeds are capable of being put as a grain, for human subsistence. Their flour makes a pleasant bread; and the grain unground, is excellent for malt, for a material in the distilleries, for the fattening of pigs and poultry, &c. Ought not the culture of this plant, whether as a grain-bearing plant for the use of man, or as an article of forage to be here tried, in the marshes, for instance, of Lincolnshire? It grows spontaneously in wet ditches in this country.

In the county of Wicklow in Ireland, there abounds a *limestone-gravel*, little if at all, known in England, which proves, of all possible manures, the best for a deep clay soil.

*Peat-Earth* has been lately found to prove an excellent manure whether for clayey or calcareous soils. It may be, also, laid with great advantage, on any thin calcareous soil, where an additional depth of mould is wanted.

The common extent of the farms in the South of Ireland is from 150 to 300 acres; a very judicious distribution. The leases on some of the most considerable estates, are for three lives or for 31 years.

The price of labour in the South of Ireland is to men 10d a day, for the months from November 1, to May 1, and for the rest of the year 1s. a day.

The average produce of the acre of land in the county of Wicklow is 36 bushels of wheat, 58 bushels of oats, or 54 bushels of barley.

In the celebrated plains of Marathon in Attica, the olive-tree grows to the height even of the noblest walnut-trees. On the hills, its growth is less lofty, but its fruit richer and of finer flavour. It is cultivated, in Attica, with the plough and the hoe. In winter, the ground is plowed round the olive-tree. The hoe is used to work the earth about it, in Spring. In winter, the earth is heaped up round the trunk to keep it warm. In summer, the tree is cooled by an excavation round the trunk into which water is admitted. But, the oil of the wild olive is always of a better colour and flavour, than that of the olive-tree which grows under culture.

The Athenian mountain of Hymettus is still as famous for its bees, as it was more than 2000 years since. Twelve thousand bee-hives are kept upon it. Each bee-hive annually produces, on an average, 30 lib. of honey, and 2 lib. of wax. The total produce of Attica, in honey and wax, is, therefore, 360,000 lib of the former, and 24,000 lib. of the latter. Of these to the value of 2,400*l.* is consumed in Attica. About 20,400*l.* sterling is received for the honey and wax exported.

The best form of a sheep hitherto known, is that of the sheep in the flocks of Arcadia. They are in length usually from 30 to 36 inches, in height from 15 to 18 inches, in weight from 30 to 40 lib. The limbs are large, the back broad, the tail and the head large, the aspect vigorous and healthy. The legs are small, the eyes large and sunken, the temples projecting, the look animated and healthy, the wool thick, soft, and much curled. Why should we not make trial of this breed in England?

A good deal has been lately said of the necessity of relieving salt from the present duties upon it, in order, that it may be employed as a manure in agriculture. Should this accommodation not be obtained; the following substitute may be used with infinite advantage by all farmers who live not a farther distance than 20 miles from the sea. Be sure to place your dunghill in a water-proof basin of mason-work well cemented. Then, whether your preparation be only of dung and vegetables, of dung vegetables and

earth, or of dung, vegetables, lime, or marle, and peat-earth; over each stratum or layer of these materials two or three feet in thickness, pour some barrels of sea-water, such as may be sufficient thoroughly to moisten it; immediately after pouring the sea-water, lay over it a fresh stratum of dung or compost; and continue this practice, till within a week or two of the time when you are to carry your manure to the field. The sides of every heap of dung or turf should be carefully covered up with turfs. Manure of all sorts should be plowed down as soon as possible after it is carried out and spread on the fields.

Lord SOMERVILLE's recommendation of the Portuguese method of killing oxen and cattle of all sorts by piercing one of the junctions of the vertebræ, is now very generally adopted by the butchers of the country. And it is a method of slaughter so much more humane and so much easier than that which it supercedes, that the introduction of it, however easy that may have been, must ever do infinite honour to this patriotic nobleman.

His Lordship has more recently accomplished the invention of a double furrow plough of the greatest utility in certain operations of agriculture.

There are, in Norway, no fewer than six different provincial Societies for the improvement of rural œconomy and of the useful arts. Five of these were instituted before the year 1778. That of the latest institution had its origin in 1787. In association for œcumenical improvements, therefore, one of the rudest countries in Europe, appears to have anticipated the career of this sort of improvement in Great Britain.

The most populous manufacturing and commercial county in England, is that in which potatoes have been the longest and the most extensively cultivated. About 40 years since, the culture of potatoes was very considerable round Liverpool. It extended itself every year, more and more throughout Lancashire. The success of the different branches of industry now flourishing in that county has originated very much in the abundance which it possesses of potatoes for the subsistence of the labourer.

The greatest secret in the culture of potatoes, after their shoots have risen above the ground, consists in keeping them free from weeds, and preserving the earth *loose, moist, and fresh*, about the roots and under part of the stalk. You can scarce weed the drills too vigilantly, or move the earth too often with the plough or the hoe. One extra plowing of the earth towards the plants in the middle of the drill, and one extra plowing of the earth in alternation, from the middle of the drill, have been known, by the person who writes this, to make the crop one third greater than in adjacent fields, where these extra plowings were not used.

## *Manufactures and Useful Arts.*

### ON THE LIFE BOAT.

*To the Editor of the Commercial and Agricultural Magazine.*

SIR,

I AM happy to see by the public papers, that the invention of Life Boats, to preserve mariners from shipwreck, seems to meet the approbation and encouragement of several members in the House of Commons. Indeed, I have been much surpris'd that an invention of such public utility (more especially to the first commercial nation in the world,) should remain so long unrewarded.

How far the claims of the person may be allowed, who lately presented a petition to Parliament a public remuneration for his discovery is at present unknown; but, to me, I confess it appears rather improbable that it should possess either novelty or originality of invention. I am not led into this opinion hastily, as I perfectly well remember that a patent was taken out so long ago as the year 1785, by a Mr. Lionel Lukin, of Long-

Acre, for an improvement in the construction of boats and small vessels, for either sailing or rowing, which would neither overset in violent gales or gusts of wind, nor sink if they should by any accident be filled with water.

This, in all probability, was an original invention, and always appeared to me to deserve some public reward, as by the use of it alone thousands of our brave seamen might have been saved during the last sixteen years; and as a description of it would be, perhaps, entertaining to some of your readers, more especially to such as live on the sea-coast, and (what is of infinitely more consequence) may perhaps, through their exertions, be the means of saving the lives of many of our unfortunate fellow creatures from a watery grave, I trust you will not think it unworthy a place in your Magazine, and therefore I send it enclosed to you, in Mr. Lukin's own words.

I am, Sir, yours,

T. P.

April 24, 1802

Description of an Improvement in the Construction of Boats and small Vessels, for either sailing or rowing, which will neither overset in violent gales or sudden gusts of wind, nor sink if they should by any accident be filled with water; for the invention of which a patent was granted to Mr. Lionel Lukin, of Long-Acre, Nov. 1785.

“To the outsides of boats and vessels of the common, or any other form, are projecting gunnels, sloping from the top of the common gunnel, in a faint curve towards the water, so as not to interrupt the oars in rowing, and from the extreme or projection (which may be greater or less according to the size and use the boat or vessel is intended for) returning to the side in a faint curve at a proper distance above the water line. These projecting gunnels may be made solid, of any light materials that will repel the water, or hollow and water tight, or of cork, and covered with thin wood, canvas, leather, tin, or any other light metal, mixture, or composition; these projections are very small at the stem and stern, and increase gradually to the dimensions required; they will effectually prevent the boat or vessel from being overset by sudden squalls or violent gales of wind, either in sailing or rowing, or by imprudent or unskilful management. In the inside, and at the sides (where the projecting gunnels are not necessary) and under the seats and thwarts, are inclosures and bulk-heads, made water tight, or filled with cork, or other light materials that will repel the water. The spaces between the timbers may, in like manner, be filled up; by this means the boat or vessel will be so much lighter than the body of water it must displace in sinking, that it will with safety carry more than its common burthen, though the remaining space should by any accident be filled with water. Under the bottom, along the centre of the keel, is affixed a false one of cast iron, or other metal, this will strengthen and protect the bottom from injury in many cases, and by being placed so much below the surface of the water, will act as ballast with more power than a much greater weight in the common situation, and is much more safe by being fixed in the proper place, and not liable to shift by any sudden motion of the boat or vessel.”

#### ANNIVERSARY OF THE SOCIETY OF ARTS, &c.

On the 7th of April the annual Dinner Meeting of the Members of the Society instituted for the encouragement of Arts, Manufactures, and Commerce, was held at the Crown and Anchor Tavern. His Grace the Duke of Norfolk, the President, was in the chair. The Stewards, who attended were the Right Hon. the Lord Mayor, Sir John William Anderson, Bart. J. G. Christian, Thomas Gillibrend, Robert Wissett, Thomas Bingley, Robert Sutton, J. K. Cook, John Middleton, Matthias Deane, Thomas Sparks, and John Hinchley, Esqrs. Beside many loyal toasts, the following sentiments were given.

Prosperity to the Society for the Encouragement of Arts, Manufactures, and Commerce.

May the British Empire long flourish under the protection of Peace.

The Legislature, and may their wisdom and virtue shield us from calamity, and guide us to happiness.

The memory of the gallant Officers and Men, who have fallen in the service of their country.

The memory of his Grace the Duke of Bedford, the Patron of Agriculture.

The memory of Alfred the Great, the Founder of our glorious Constitution.

May the horrors of war be only remembered as a warning to avoid its evils.

May Canal Navigation lead the way to the Cultivation of our Waste Lands, and improve the internal resources of this Empire.

The Union, &c.

Mr. Dignum, Mr. Inledon, Mr. Sedgwick, and other excellent vocal performers, contributed to the pleasures of the day.

The company, which was very respectable and numerous, did not break up till a late hour. A considerable number of Gentlemen were proposed as additional members, and the whole entertainment was conducted much to the honour of the Stewards, and with great general satisfaction.

#### ANNIVERSARY of the WESTMINSTER LITERARY SOCIETY.

The Noblemen and Gentlemen of that most useful and singular Institution, the Westminster Library, met at their anniversary Dinner for the present year, at the Thatched-House Tavern, in St. James's-Street, on Thursday, the 8th of April. Between one and two hundred persons were present. The evening was spent in elegant, cheerful, and temperate conviviality, perfectly becoming. The Earl of Moira, President of the Society, presided at the entertainment. In an eloquent and judicious speech, after dinner, he reminded the company of the purposes of the Institution, congratulated them on its success, and encouraged them to persevere in improving their establishment, and in availing themselves of its benefits. Mr. Fitzgerald, whose poetry has been accustomed justly to admiration, repeated two beautiful series of verses suitable to the occasion. Some good songs were sung. And several new members were, upon the nomination of former members, their friends, added to the number of the Society. Between the hours of eight and nine in the evening, the company broke up, and retired. It is proposed to raise a fund by a tonnage-subscription, for the erection, or purchase, of a new house for this Library, which is, in fact, the only great library open to the public upon easy, yet not indiscriminating terms of admission, in this metropolis.

Report of the yearly Account of the different Hospitals, under the care of the Right Hon. the Lord Mayor, Aldermen, and Common Council of the City of London, at Easter last, at Christ Church, Newgate-street.

##### Christ's Hospital.

Children put forth apprentices	194
Buried the last year	5
Children now under the care and charge of the Hospital	1187

##### St. Bartholomew's Hospital.

Admitted, cured, and discharged, in and out patients, last year	8837
Buried this year	326
Remaining under cure, in and out patients	657

##### St. Thomas's Hospital.

Admitted, cured, and discharged, in and out patients	7324
Buried	214
Remaining under cure, in and out patients	578

##### Bridewell Hospital.

Received as vagrants, by order of the Lord Mayor and Sitting Aldermen	420
Paupers passed to their native places	1515
Apprentices brought up in divers trades, &c. at the Hospital's expence	13

##### Bethlem Hospital.

Cured and discharged last year	202	Men incurables	55
Buried	22	Women under cure	58
Men under cure	72	incurables	52

LONDON PRICES OF GRAIN for *April, 1802.*MARK-LANE, *Monday, April 5.*

We have had a few fresh arrivals in since last Monday, which has caused Wheat to decline in price full 6s. per quarter since that day.—Barley, owing to a great deal at market, is about 1s. cheaper.—Malt is extremely dull in sale.—Fine Oats, if any thing, are rather dearer; but inferior sorts are very dull.—Peas and Beans are likewise very dull, and cheaper.—Flour is 5s. per sack lower.

*Price of Grain, on board Ship, as under :*

Wheat	56s to 65s	Fine	to 35s	White Peas	34s to 36s
Fine	to 77s	Malt	40s to 42s	Grey Peas	32s to 34s
Rye	30s to 35s	Fine	to 45s	Sm. Beans, new,	28s to 30s
Fine	to 38s	Oats	17 to 21s	Fine	to 33s
Barley	28s to 33s	Polands	to 22s	Ticks, new,	25s to 28s

*Monday, April 12.*—We have had a very thin supply of Wheat in since this day se'nnight, which has caused that article to advance full 5s. per quarter.—Rye is very dull.—Barley, owing to a good supply, chiefly of last week's stock, is 1s. per quarter lower, and Malt is cheaper.—Having but few fresh Oats at market, those of fine quality and for feed, are full 2s. dearer.—Both Tickle and Small Beans are very dull, and rather on the decline.—Flour nearly as last week, and a brisk sale.

Wheat	56s to 65s	Malt	34s to 44s	Fine ditto	to 35s
Fine	66s to 68s	Fine	to 46s	Grey Peas	30s to 32s
Superfine	to 72s	Oats	14s to 21s	Sm. Beans, new	28s to 30s
Rye	30s to 35s	Fine	to 23s	Fine	to 33s
Fine	to 40s	Ditto, for feed	25s	Ticks, new	25s to 30s
Barley	24s to 35s	White Peas	30s to 31s		

*Monday, April 19.*—We have had a tolerable good supply of Corn in for this day's market. Fine Wheat, early in the morning, fully obtained the prices quoted last week, but afterwards they were rather lower.—Barley and Malt had dull sale, nearly as last week.—Oats are about 6d. per quarter cheaper, owing to a good many at market.—In Peas or Beans, little or no alteration.—Flour the same as last week.

Wheat	56s to 65s	Barley	28s to 34s	Grey Peas	30s to 32s
Fine	66s to 68s	Malt	40s to 45s	Small Beans	28s to 30s
Superfine	73s	Oats	14s to 21s	Fine	to 32s
Rye	30s to 35s	Polands	to 22s	Ticks, new	25s to 28s
Fine	40s	White Peas	30s to 34s	Fine	29s

*Monday, April 26.*—We have a tolerable supply of Wheat in for this day's market, but there being few buyers, that article went off at a reduction of 8s. per quarter since this day se'nnight.—Barley is very dull, and full 1s. cheaper than last week.—Malt, owing to the new duty, keep up its price.—Having a good many Oat buyers, fresh Oats went off at 6d. per quarter advance.—Peas and Beans much the same as last week.—Flour is lower.

Wheat	50s to 56s	Barley	28s to 33s	Grey Peas	30s to 32s
Fine do.	60s	Malt	40s to 46s	Small Beans new	28s to 30s
Superfine	to 64s	Oats	14s to 21s	Fine	to 33s
Rye	35s	Fine	22s	Ticks, new,	25s to 30s
Fine	to 39s	White Peas	30s to 33s		

Prices of Hops, Meat, Seeds, Leather, Tallow, &c. for *Marsh*  
1802.

Price of Hops.	First Week		2d Week		3d Week		4th Week	
	s.	s.	s.	s.	s.	s.	s.	s.
<i>Bags.</i>								
Kent — —	7 to 100	90 to 108	90 to 108	80 to 100	80 to 100	80 to 105	80 to 98	
Suffex — —	70 to 95	90 to 98	84 to 100	80 to 86	75 to 90			
Essex — —	70 to 83	80 to 90						
<i>Pockets.</i>								
Kent — —	90 to 112	90 to 112	90 to 129	98 to 120				
Suffex — —	90 to 106	90 to 106	90 to 112	95 to 112				
Farnham — —	112 to 160	110 to 147	100 to 160	102 to 120				
<i>Seeds.</i>								
Red Clover (per cwt.)	35 to 96	35 to 96	50 to 84	42 to 80				
White Clover, ditto —	70 to 168	70 to 108	70 to 140	78 to 135				
Trefoil, ditto —	20 to 94	20 to 94	30 to 82	30 to 80				
Turnip, (per bushel) —	20 to 24	20 to 24	— to —	— to —				
Rye Grass, (per quarter)	16 to 32	16 to 32	— to —	— to —				
Cinque Foil, ditto —	56 to 70	56 to 70	— to —	— to —				
White Mustard Seed (p. b.)	10 to 14	10 to 14	— to —	— to —				
Brown do. —	10 to 40	10 to 14 6	— to —	— to —				
Canary Seed do. do. —	1 to 12	10 to 12	— to —	— to —				
Rape Seed, (per last) —	301 to 361	341 to 371	331 to 361	331 to 361				
<i>Meat at Smithfield,</i>								
To sink the offal, p. ft. 8lb.	s.d.	s.d.	s.d.	s.d.	s.d.	s.d.	s.d.	s.d.
Beef — —	4 8 to 5 8	4 8 to 6 0	4 0 to 5 4	4 4 to 5 8				
Mutton — —	6 0 to 7 0	5 8 to 7 0	5 0 to 6	5 4 to 6 6				
Veal — —	6 0 to 7 6	6 0 to 7 4	4 6 to 6 0	5 0 to 7 0				
Pork — —	5 4 to 6 8	5 0 to 6 6	4 8 to 6 0	4 8 to 6 4				
Lamb — —			6 0 to 8 0	7 0 to 8 6				
Head of Cattle—Beasts about	1,900	1,800	2,000	2,000				
Sheep and Lambs	6,000	5,500	5,000	5,000				
<i>Price of Leather.</i>	d.	d.	d.	d.	d.	d.	d.	d.
Butts, 50lb. to 56lb. each	17 to 19	18 to 21	16 to 17	16 to 18				
Ditto, 60lb. to 66lb. each	21 to 23	22 to 24	19 to 20	20 to 22				
Merchants Backs —	18 to 19	18 to 19	16 to 17	16½ to 18½				
Dressing Hides —	14 to 15	14 to 15	14 to 15	14 to 15				
Fine Coach Hides —	15 to 17	15 to 17	16 to 17	15 to 17				
Crop Hides for cutting	17 to 19	17 to 19	16 to 17	16½ to 18½				
Flat Ordinary —	14 to 16	14 to 16	14 to 16	14½ to 16½				
Calf Skins, 30 to 40lb. p. doz.	21 to 27	21 to 27	21 to 27	21 to 26				
Ditto, 50lb. to 70lb. do.	25 to 30	25 to 30	25 to 30	25 to 29				
Ditto, 70lb. to 80lb. do.	25 to 27	25 to 27	25 to 27	25 to 27				
Sm. Seals (Greenland)	30 to 36	30 to 36	30 to 36	30 to 37				
Large do.	51 to 71	51 to 71	100 to 140s	51 to 71				
Tanned Horse Hides	18s to 30s	18s to 30s	18s to 30s	18s to 30s				
Goat Skins per doz.	—s to —s	— to —	—s to —s	25s to 63s				
<i>Price of Tallow.</i>	s.	d.	s.	d.	s.	d.	s.	d.
St. James's Market —	4	3½	4	3	4	3	4	0
Clare Market — —	4	2½	4	2½	4	2½	4	0
Whitechapel Market —	4	1	4	1	4	1	4	0
Per stone of 8lb. Average	4	2½	4	2	4	2	4	0
Town Tallow — —	71	6	71	0	71	0	69	6
Russia ditto (Candles) —	67	0	67	0	66	67s	66	67s
Russia ditto (Soap) —	65	0	65	0	65	0	65	0
Melting Stuff — —	58	0	57 to 58s	57	58s	57	58s	
Ditto rough — —	42	0	40	0	40	0	40	0
Graves — — —	19	0	19	0	19	0	19	0
Good Dregs — — —	11	0	11	0	11	0	11	0
Yellow Soap — — —	74	0	74	0	74	0	74	0
Mottled ditto — — —	82	0	82	0	82	0	82	0
Curd ditto — — —	86	0	86	0	86	0	86	0
Candles, per dozen, —	11	0	11	0	11	0	11	6
Moulds — — —	12	0	12	0	12	0	12	6

	First Week		2d Week		3d Week		4th Week	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
<i>Raw Hides.</i>								
Best Heifers & Steers, pr ft.	3 4	3 6	3 4	3 6	3 4	3 6	3 4	3 6
Middling	2 8	2 10	2 8	2 10	2 8	2 10	2 8	2 10
Ordinary	2	2 6	2 4	2 6	2 4	2 6	2 4	2 6
Market Calf	9 0		9 0		9 0		9 0	
Eng. Horse	12s	16s	12s	16s	12s	16s	12s	16s
Lamb Skins	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Sheep Skins	4 0	9 0	5 0	10	4 0	9 0	4 0	9 0
<i>Prices of Hay and Straw.</i>								
St. James's—Hay	4 6	0	4 6	0	4 5	0	4 5	0
Straw	2 2	6	2 5	0	8 3	6	2 2	0
Whitech.—Hay	4 12	6	4 12	6	4 10	0	4 7	6
Clover	6 0	0	5 17	6	6	0	6 17	6
Straw	2 4	0	2 2	0	1 17	0	1 15	0
<i>Uxbridge.</i>								
Wheat per load	15l	17l	15l	18l	16l-19l	10s	15l	18l
Barley	38s	42s	34s	38s	34s	38s	34s	38s
Oats	22s	28s	21s	27s	22s	28s	22s	28s
White Beans	42s	46s	—s	—s	—s	—s	—s	—s
New ditto	32s	38s	32s	38s	32s	36s	32s	36s
Peas	40s	42s	40s	42s	40s	42s	40s	42s
<i>Newbury.</i>								
Wheat	58s	66s	58s	66s	46s	74s	48s	70s
Barley	28s	36s	28s	36s	25s	35s	28s	33s
Beans	35s	40s	35s	40s	32s	38s	32s	38s
Oats	14s	24s	17s	24s	19s	24s	14s	24s
Peas	35s	39s	34s	39s	35s	39s	35s	38s

BANKRUPTCIES AND DIVIDENDS,

Announced between the 20th of March 1802, and the 20th of April 1802.

(The Solicitors Names are between Parentheses.)

BANKRUPTCIES,

ANDREW, G. Sheffield, corn factor. (Allen and Exley, Furnival's inn)  
 Alger, J. late of Bathford, now of Walcot, Somerset, soap-maker. (Randolph, Bath)  
 Anderson, C. Newcastle, cheesemonger. (Nelson, Swallow street)  
 Anderson, J. Clare street, butcher. (Wilson, Moorfields)  
 Beeley, J. James street, Manchester square, plated patent fire iron maker. (Kiernan, Furnival's inn)  
 Bluet, G. West Smithfield, coffee house keeper. (John-Rone, Southampton court, Queen's square)  
 Brown, A. Seven Oaks, butcher. (Webb, St. Thomas's street, Southwark)  
 Brauchamp, R. and E. Lloyd, Kerby street, Hatton Garden, lacemen. (Done, Berkeley street, Clerkenwell)  
 Blinkhorn, W. and J. Musgrave, Foker lane, merchants and silk weavers. (Berry, Charlotte row, Mansion house)  
 Burrough, J. Chiswell street, hatter and haberdasher. (Daun and Telford, Threadneedle street)  
 Higgs, C. Liverpool, merchant, late of Dublin, scrivener. (Windie, Bartlett's buildings)  
 Bodenham, W. Sarcwbury, mercer, &c. (Roffler, Kirby street)  
 Bowles, W. and W. Hannah, Blackfriars road, oilmen. (Holloway, Chancery lane)  
 Brooke, F. W. Farrar, and R. Roff, Basinghall street, warehousemen. (Palmer and Tomlinson, Warrford court)  
 Britain, G. Bristol, grocer. (Lewn and James, Gray's inn)  
 Bodecker, A. W. Old Jewry, merchant. Crowder and Lavie, Frederick's place  
 Cumming, P. Union court, Broad street, merchant. (Palmer and Tomlinson, Warrford court)  
 Carter, R. Witham, linen draper. (Ludlow and Richardson, Monument yard)  
 Curtis, T. Frith street, painter and glazier. (Roffler, King street, Holborn)  
 Colshaw, C. Ashburn, Derby, grocer, and tea dealer. (Michell, Union court, Broad street)

Carruthers, J. Liverpool, joiner. Blackhook, Temple  
 Coxon, J. Queen street, Cheapside, merchant. (Surviving partner of R. Henderfon.) (Smith and Scott, Basinghall street)  
 Deacon, T. Queen's elm, Chelsea, carpenter. (Carter and Sheffield, Prefcot street)  
 Da Costa, Jacob Mendez, Thavie's inn, merchant. (Adams, Old Jewry)  
 Drake, R. and Ebenezer Goddard, Newgate street, wine merchants, &c. (Mills, Ely place)  
 De Mendez S. Wilton street, Finsbury square, merchant. (Wilton, Giroler's hall)  
 Davies, R. Park lane, fadler. (Swain and Stevens, Old Jewry)  
 Edwards, W. Short's buildings, Clerkenwell, bowstring manufacturer. (Henson, Mariot court, Bow street)  
 Entwistle, W. Entwistle, Lancaster, cotton manufacturer. (Haworth, Turton near Bolton)  
 Fenwick, E. Kingston on Hull, iron keeper. (Gale, Hull)  
 Farrow, T. Durham, grocer and cheesemonger. (Jopson, Lincoln's inn)  
 Gardner, F. Great St. Helens, under writer. (Robinson, Prefcot street)  
 Grainge, J. Uxbridge, broker. (Mills, Ely place)  
 Hodgson, C. and Alleston, Sunderland, linen drapers. (Spedding, Temple)  
 Hornby, N. Newcastle, woolen draper. (Wilson, Lincoln's inn fields)  
 Hall, J. Henfridge, late of Finsbury place, now of Cheapside, merchant. (Collins and Reynolds, spiral square)  
 Harford, J. Alford, inn keeper. (Roffler, Kirby street)  
 Hird, D. Linley, Huddersfield, cloth dresser. (Bartie, Chancery lane)  
 Hollyoch, W. Giles, Camberwell, butcher. (Warrant, Arundel street)  
 James, N. Liverpool, Factor. (Wilson and Bread, Union street, Southwark)  
 Johnson, D. St. Paul's Church yard, Frank maker. (Wilton, Giroler's inn)  
 James, N. and R. Black, Liverpool, merchants. (Windie, Bartlett's buildings)  
 Jewitt, W. South Lodge, Yorkshire, brandy merchant and feedman. (Wright and Reynolds, Temple)  
 King, J. Coventry, inn holder. (Sturd, Symonds's inn)

- Kirwan, B. late of Duke's court, Bow street, now of Royal row, Lambeth, victualler. (Ovenodon, Jermyn street)
- Lee, J. Church street, Lambeth, mariner. (Saward, Princes street, Rotherhithe)
- Lomas, R. Stockport, cotton spinner. (Cooper and Low, Southampton buildings)
- Lovell, W. H. Fetter lane, leather seller. (Ware, Gray's inn)
- Maitland, D. New Bridge street, merchant. (Walton, Girdler's hall)
- Mickelson, T. Lynn, taylor and woollen draper. (Davies, Lotherbury)
- Mourilyan, S. Deal, taylor and draper. (Gosobed, Brown, and Gosobed, Norfolk street, Strand)
- Moke, C. Bucklerbury, merchant. (Pike, Gray's inn)
- Moody, M. Wellockwith, Milborton, Nottinghamshire, ship builder. (Young, Carlisle street, Soho square)
- Moseley, J. and J. Rose, Birmingham, factors. (Alexander, Bedford row)
- Marront, J. Uxbridge, shop keeper. (Shaw, Clement's inn)
- M'Henry, B. Stratford on Avon, mercer. (Smart, Staple inn)
- Norton, J. Drury lane, victualler. (Earnshaw, Red cross street)
- Nesbit, J. E. Stewart, and J. Nesbit, jun. Aldermanbury, merchants. (Norris and Robinson, Lincoln's inn)
- Oddy, Joshua Jenphon, and John, St. Mary Axe, merchants. (Crowder and Lewrie, Frederick's inn)
- Footle, S. Hewish mills, Crewkerne, miller. (Palmer, Barnard's inn)
- Quinton, M. Bittel, taylor. (Gabel, Lincoln's inn)
- Rufe, J. Olton, Sothall, tanner. (Simcox, Birmingham)
- Ruffell, J. Moorfields, broker. (Huffey and England, Old Broad street)
- Staveley, L. Halifax, merchant. (Colthurst, Bedford row)
- Sing, T. Herden, Stockport, grocer. (Milne, Temple)
- Edward, P. and T. Pibon, Southampton, merchants. (North and Carry, Southampton)
- Tunnicliff, J. and M. Macclesfield, button and twill manufacturers. (Ellis, Currier street)
- Thompson, S. Liverpool, linen merchant. (Keasley, Temple)
- Taylor, W. Eltham, corn dealer. (Townsend and Ruffell, Southwark)
- Ward, T. Newcastle, merchant. (Jackson, Hatton Garden)
- Wright, J. Piccadilly, bookseller. (Dawson, Warwick street, Golden square)
- Wells, J. and W. late of Swallow street, but now of Noble street, mercers. (Gleason, Lotherbury)
- Wilkinson, S. and J. Burrow, High Wycombe and Great Marlow, bankers, and linen drapers. (Shelton, Sessions house)
- Webb, S. Melkham, carpenter. (Moule, King street, Holborn)
- Wood, R. Liverpool, merchant. (Griffiths, Lincoln's inn)
- Woolton, R. Timperley, inn keeper. (Cheshire and Walker, Manchester)
- Willings, L. Strand, butcher. (Mathews, Cable street, Holborn)
- Wade, T. Great St. Helens, drug merchant. (Ward, Deans, and Graves, Henrietta street, Covent Garden)
- DIVIDENDS ANNOUNCED.**
- Asheton, T. N. Liverpool, merchant, April 17
- Anderfon, G. Bury St. Edmunds, inn keeper, May 1
- Aliwood, T. Great Russell street, Bloomsbury, carver and gilder, May 4
- Alcorn, R. Hampton, blacksmith, May 12
- Armstrong, Sarah, Bath, icoomoner and brazier, May 11
- Bowers, E. and A. Reid, Bedford street, Covent Garden, May 1
- Bingrove, W. Abingdon, miller, April 19
- Erydon, J. Charing cross, printseller, April 27
- Elli, J. (Surviving Partner of B. Jordan, and R. Cullin), merchant, May 22
- Bowick, J. Jun. Mopwearmouth, butcher, April 23
- Batye, J. Wilson street, Moorfields, auctioneer, May 11
- Barford, J. Holborn bridge, linen draper, May 4
- Bland, W. Birmingham, grocer, May 3
- Blakey, G. mace & d, shop power, May 11
- Brandbury, S. Birmingham street, roper, May 8
- Boultun, D'Arcy, P. Morgan, J. Morgan, J. Gaspar Van-clover, and B. Stow, Cuper's bridge, merchants.— Separate Estates and Effects, May 15
- Bentley, C. and J. Dale, Norwich, warehousemen, May 8
- Eraby, J. Iglsich, linen draper, May 8
- Bamber, W. Churley, mullin manufacturer, May 12
- Chapchill, W. Somerton, Somerset, mauler, May 3
- Cobber, J. Stockport, and S. Collier, Manchester, cotton spinners, May 15
- Ditto and Ditto, the separate Estates, May 15
- Chapman, W. Devonshire street, ship insurance broker, May 8
- Croffdale, W. Liverpool, corn merchant, May 4
- Collet, J. Strand, oilman, &c, May 15
- Catey, G. Old Change, factor, May 11
- Clearfon, S. Strand, carver and gilder, June 5
- Drinkwater, P. Manchester, and T. Dakeyne, Darley-dale, corn factors, April 22
- Dormer, M. Curtain road, Shoreditch, soap maker, May 8
- Ellis, P. Liverpool, merchant, May 10
- Emmens, J. Abingdon, carrier, May 19
- Fitt, T. Swanika, haberdasher, May 22
- Fozard, J. sen. Letitia Fozard, and J. Fozard, jun. Park lane, table keepers, June 5
- Fox, G. Henrietta street, Covent Garden, taylor, May 4
- Frost, J. Hedon, tanner, May 5
- Fulwood, J. Barbican, pawn broker, May 8
- Gregory, J. Wolverhampton, soap maker, &c, May 4
- Gardner, T. C. Brentford, ironmonger, May 10
- Gregory, A. Tavistock street, Covent Garden, taylor, May 11
- Hook, J. and W. Turner, bridge foot, Westminster, coal merchant, April 17
- Harris, R. West street, Seven Dials, surviving Partner of B. C. Swabb, May 1
- Heston, G. Jun. Leeds, oil merchant, May 22
- Hartfinck, J. C. J. Hutchinson, and W. Playfair; Separate Estate of Hartfinck, April 30
- Onion, F. Jun. Croydon, miller, May 11
- Pace, R. H. Manchester, grocer, May 11
- Phillips, E. Foster lane, oilman, May 22
- Purcell, Edw. and T. Wingfield Purcell, New street, Fetter lane, gals dealers, May 25
- Rancker, B. Cary lane, velvet ribbon and fancy hat manufacturer, May 15
- Rawlston, W. St. John's street, Staffordshire warehouseman, May 12
- Phillips, J. Rose, innholder, April 29
- Rofs, C. St. Ann Westminster, cheesemonger, May 4
- Rackitraw, J. Heley on Thames, grocer, April 24
- Reynolds, W. Evesham, druggist, May 11
- Remington, I. Leeds, malter, &c, May 13
- Robertson, A. Castle court, Birchen lane, merchant, May 12
- Sharpleff, R. Arderton, shopkeeper, April 17
- Stear, Sarah, Leeds, linen draper, May 7
- Scott, J. and F. Roach, Cable street, Leicester fields, linen drapers, May 4
- Soul, T. and J. Reynolds, Manchester, woolstaplers, May 4
- Spencer, W. Saffron hill, victuallers, May 4
- Schultze, W. and P. Unger, Little Britain, merchants, May 2
- Spittle, P. Wednebury, gun lock maker, May 8
- Smith, T. Walworth, grocer, May 15
- Tipping, Ebenezer, Liverpool, soap boiler, April 20
- Tucker, J. and J. Exeter, merchants, April 19
- Tankard, J. and R. Birmingham, factors, April 23
- Thompson, R. Wood street, silk manufacturer, May 4
- Thorn, W. Deury lane, woollen draper, May 8
- Whitehead, W. Laceby, shop keeper, April 17
- Woodcock, W. St. Martin's lane, plumber, May 16
- Williams, H. Crickhowell, scrivener, April 22
- Wilson, P. Wardour street, victualler, May 15
- Whitaker, J. Doncaster, wine merchant, May 7
- Wilson, W. Nine Elms, Spanish leather drifter, May 4
- Wetherell, T. Sunderland, brazier, May 20
- Hartley, S. Graftington, mercer, May 11
- Heugh, S. Manchester, merchant, May 3
- Hamilton, J. Paternoster row, bookseller, May 8
- Heathcote, J. Liverpool, corn dealer, (Surviving Partner of J. Caton), May 10
- Hawkins, R. Kingston-on-Hull, cabin maker, May 18
- Irwin, J. Aldgate High street, inn keeper, April 30
- James Z. Clepton, baker, May 8
- James, R. Lyddone, Penryn, dealer, May 4
- King, J. South Kilworth, dealer, May 14
- Lewis D. and R. Potter, Mansion house street, linen draper, May 4
- Lunning, J. W. Laurence Poulney lane, merchant, May 1
- Lump, J. Bedale, shop keeper, April 30
- Lacey, S. Tooley street, oilman, May 4
- Lovell, A. A. Hanway street, Oxford Road, May 15
- Levy, M. Stamford street, Blackfriars Road, merchant, May 22
- Larard, F. Manchester, liquor merchant, May 12
- Mathak, R. Adwick upon street, corn trader, April 15
- Matherman, T. H. Bucklerbury, warehouseman, May 11
- Mason, J. Holborn, hofier, May 8
- Mills, J. Brook's green, Hammermith, linen draper, May 11
- Mac Cullom, J. Bristol, merchant, April 29
- Moore, Jane Elizabeth, Bermondsey street, leather dresser, May 1
- Maston, T. Birmingham, grocer, May 3
- Maclean, C. Cloth fair, woollen draper, May 4
- Makom, S. Old Broad street, broker, May 29
- Nutt, J. Leicester, grocer, May 14
- Oakes, R. Snow hill, cabinet maker, May 1
- Otman, E. Hackney, baker, May 3
- Offey, J. P. Kingland Road, brewer, May 4
- Owen, R. and W. Mardie, Roundchurch, coppermith, May 8



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

From the Returns received in the Week, ended APRIL 17, 1802.

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	68	6	42	0	34	4	23	2	32	9	36	9		
Surrey	68	0	38	0	34	8	22	4	33	6	37	6		
Hertford	61	2	46	6	32	10	22	8	36	9	36	4		
Bedford	67	0	49	2	38	11	19	9	31	4	36	8		
Huntingdon	65	10			35	2	16	0	29	1	35	1		
Northampton	69	4			32	10	17	0	36	0				
Rutland	74	0			33	9	16	6	36	0	57	5	59	4
Leicester	71	10			33	8	17	1	32	0	35	0	40	6
Nottingham	78	0	52	0	36	6	10	0	36	0				
Derby	75	4			42	8	20	6	41	8	40	0	30	2
Stafford	77	10			41	5	22	6			45	11	32	8
Salop	71	4	53	10	40	1	22	9			38	10	69	2
Hereford	62	11	44	8	33	4	21	10	39	1	36	1	71	2
Worcester	69	1	39	2	37	6	27	4	37	6	37	1		
Warwick	79	10			41	0	23	10	44	5	48	6	42	4
Wilts	59	8			33	4	21	8	39	8	39	0		
Berks	62	9			33	1	23	11	6	5	38	8		
Oxford	60	11			32	5	19	11	31	11	37	7		
Bucks	68	8			36	2	21	0	35	5	37	0		
Brecon	65	7	48	0	40	0	18	4			32	0	40	3
Montgomery	74	0			42	5	16	7			35	3	38	2
Radnor	69	0			36	2	20	7			34	6	64	1

Maritime Counties.

Essex	68	0	35	6	32	2	24	6	29	7	31	0		
Kent	66	2			34	8	24	4	32	6	34	0		
Suffex	62	6			36	6	24	4			36	0		
Suffolk	69	3	39	11	32	10	19	3	26	7	33	8		
Cambridge	63	7			30	7	14	0	29	0				
Norfolk	66	8	37	4	30	10	19	11	28	6	32	0		
Lincoln	69	3	32	0	33	0	15	9	29	4				
York	67	5	45	10	33	5	15	4	31	3	51	10	34	2
Durham	68	5					18	5						
Northumberland	61	8	46	0	31	9	17	0			36	0		
Cumberland	80	3	52	8	35	4	19	3					15	5
Westmorland	73	8	56	0	39	10	19	7					15	10
Lancaster	70	1			35	8	21	2	37	7			16	9
Chester	66	7					18	2					17	4
Flint					46	9								
Denbigh	79	10			47	3	17	1	38	5	25	8	35	7
Anglesea														
Carnarvon	70	0	42	0	38	0	19	0					36	6
Merioneth	77	4	52	0	44	0	22	8			68	0	35	0
Cardigan	64	0			30	0	12	0						
Pembroke	58	0			27	11	13	8						
Carmarthen	63	3			34	0	13	10						
Glamorgan	69	0			34	8	18	9						
Gloucester	67	2			35	5	20	4	29	6				
Somerset	64	11			32	7	19	5	35	0	24	0		
Monmouth	68	9			36	8	16	8	50	0				
Devon	64	10			30	1	20	8						
Cornwall	64	4			30	0	16	2						
Dorset	63	8			32	0	24	7						
Hants	60	11			33	0	22	1	43	9				

A TABLE of the Prices of STOCKS in April, 1802.

Days	Bank Stock.	3per Ct. Red.	3per Ct. Consols.	4per Ct. Consol.	5per Ct. Navy.	5per Ct. Loyalty	Long Ann.	Short Ann.	Imp. 3per Ct.	Imperial Ann.	Irish 5per Ct.	Ind. Stock	Excheg. Bills.	Eng. Tick	Consols for acct.
March 29			69 1/2	90 1/2	102 1/2				68 1/2	12 1/2	102 1/2			22	69 1/2
30			70 1/2	90 1/2	102 1/2				69 1/2	12 1/2	102 1/2		2 4 prem.	23	70 1/2
31			70 1/2	90 1/2	103 1/2				70 1/2	12 1/2	102 1/2			23	70 1/2
April 1			71 1/2	90 1/2	104 1/2				71 1/2	12 1/2	102 1/2			24	71 1/2
2			71 1/2	90 1/2	104 1/2				71 1/2	12 1/2	102 1/2			25	71 1/2
3			71 1/2	90 1/2	104 1/2				71 1/2	12 1/2	102 1/2		12 1/2 prem.	29	71 1/2
4			71 1/2	90 1/2	104 1/2				71 1/2	12 1/2	102 1/2			33	71 1/2
5		76 1/2	71 1/2	90 1/2	106 1/2		22	5 3-16	75 1/2	12 1/2	103 1/2			36	71 1/2
6		76 1/2	71 1/2	90 1/2	106 1/2		21 9-16	5 3-16	75 1/2	12 1/2	103 1/2			36	71 1/2
7		75 1/2	71 1/2	90 1/2	105 1/2		21 5-16	5 3-16	74 1/2	12 1/2	102 1/2			37	71 1/2
8		74 1/2	71 1/2	90 1/2	105 1/2		21 5-16	5 3-16	74 1/2	12 1/2	102 1/2			37	71 1/2
9		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
10		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
11		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
12		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
13		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
14		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
15		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
16		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
17		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
18		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
19		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
20		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
21		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
22		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
23		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
24		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
25		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
26		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2
27		74 1/2	71 1/2	90 1/2	104 1/2		21 5-16	5 3-16	75 1/2	12 1/2	102 1/2			37	71 1/2

T. BISH, STOCK-BROKER, Old State-Lottery Office, No. 4, Cornhill, London.