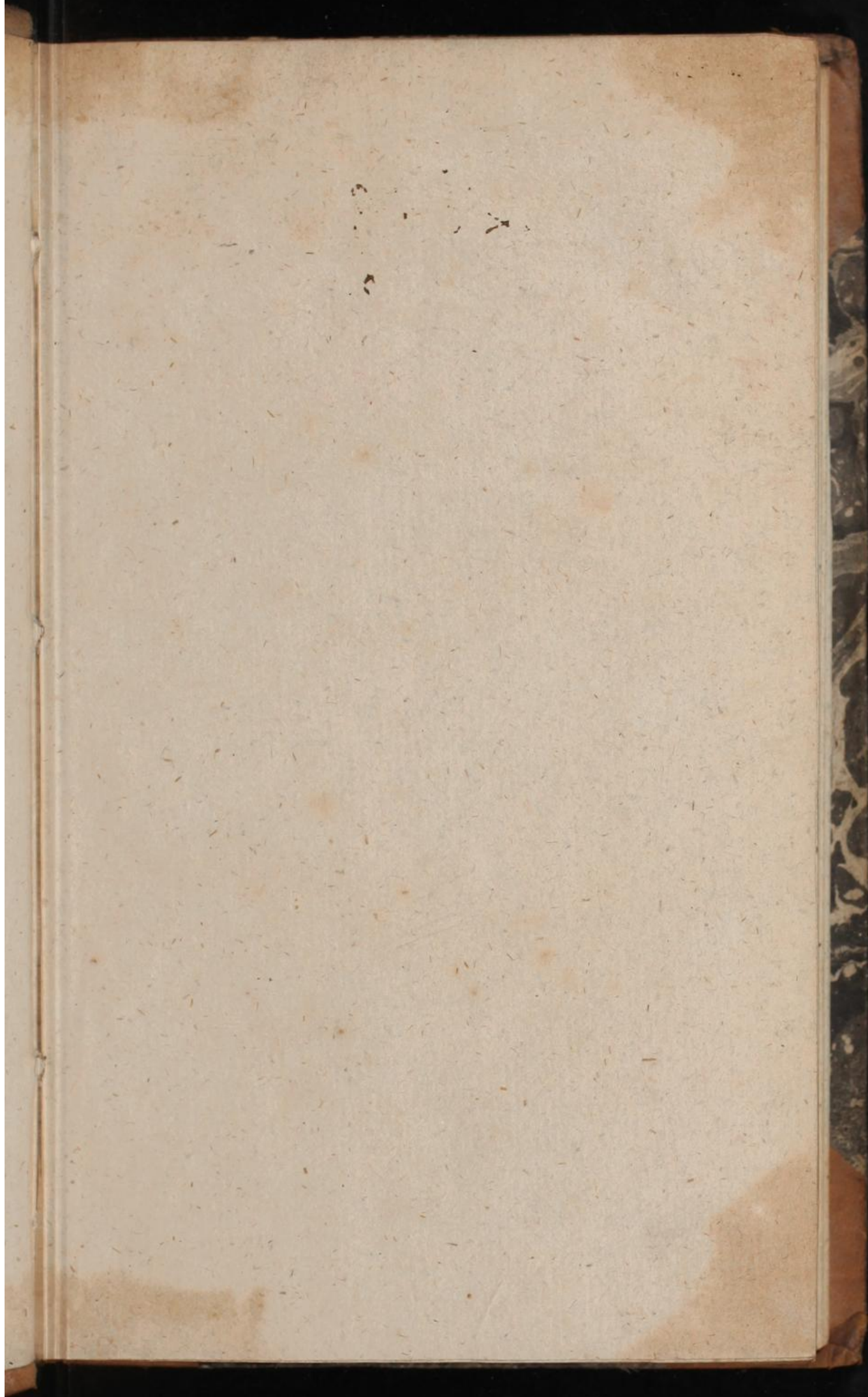


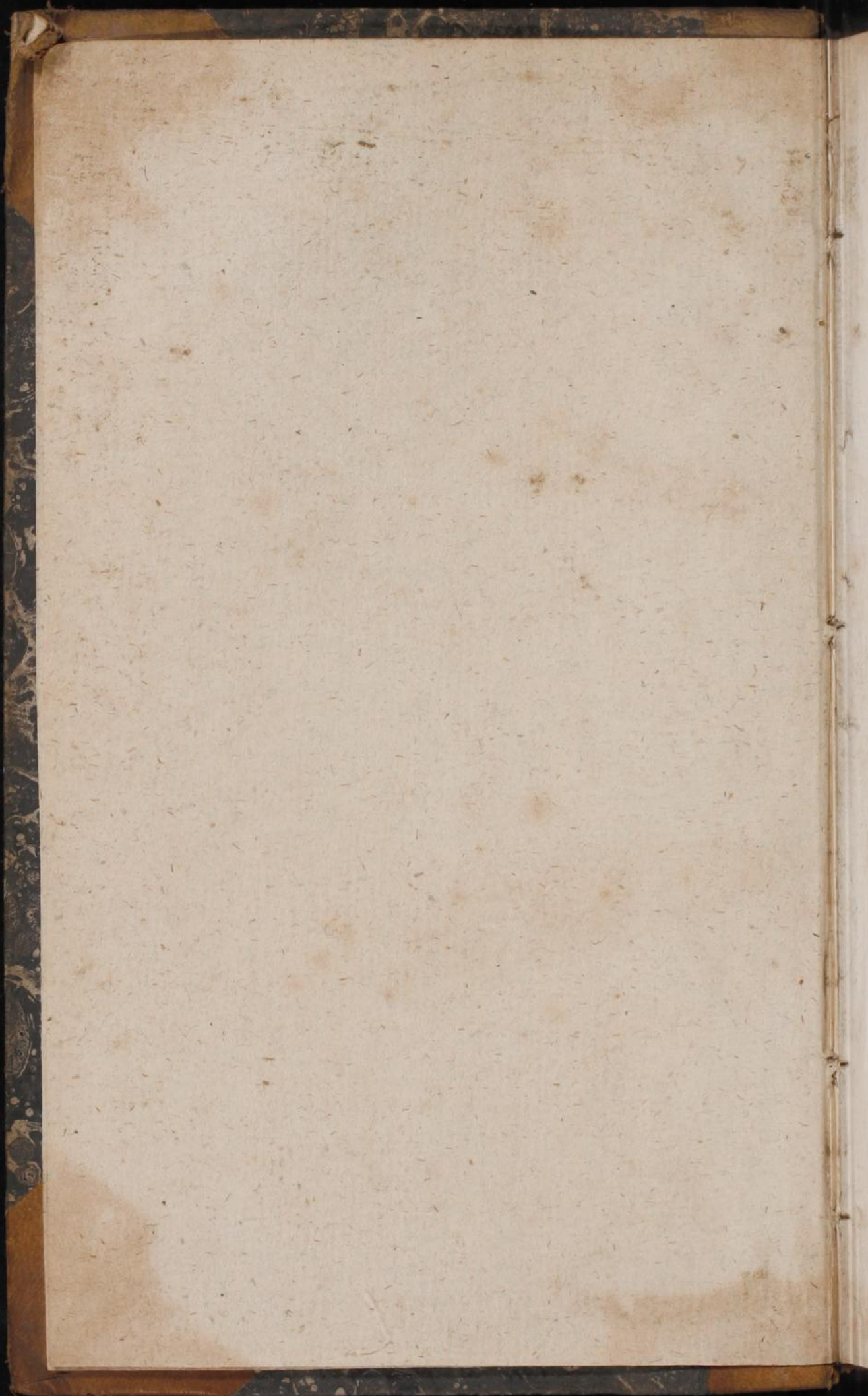
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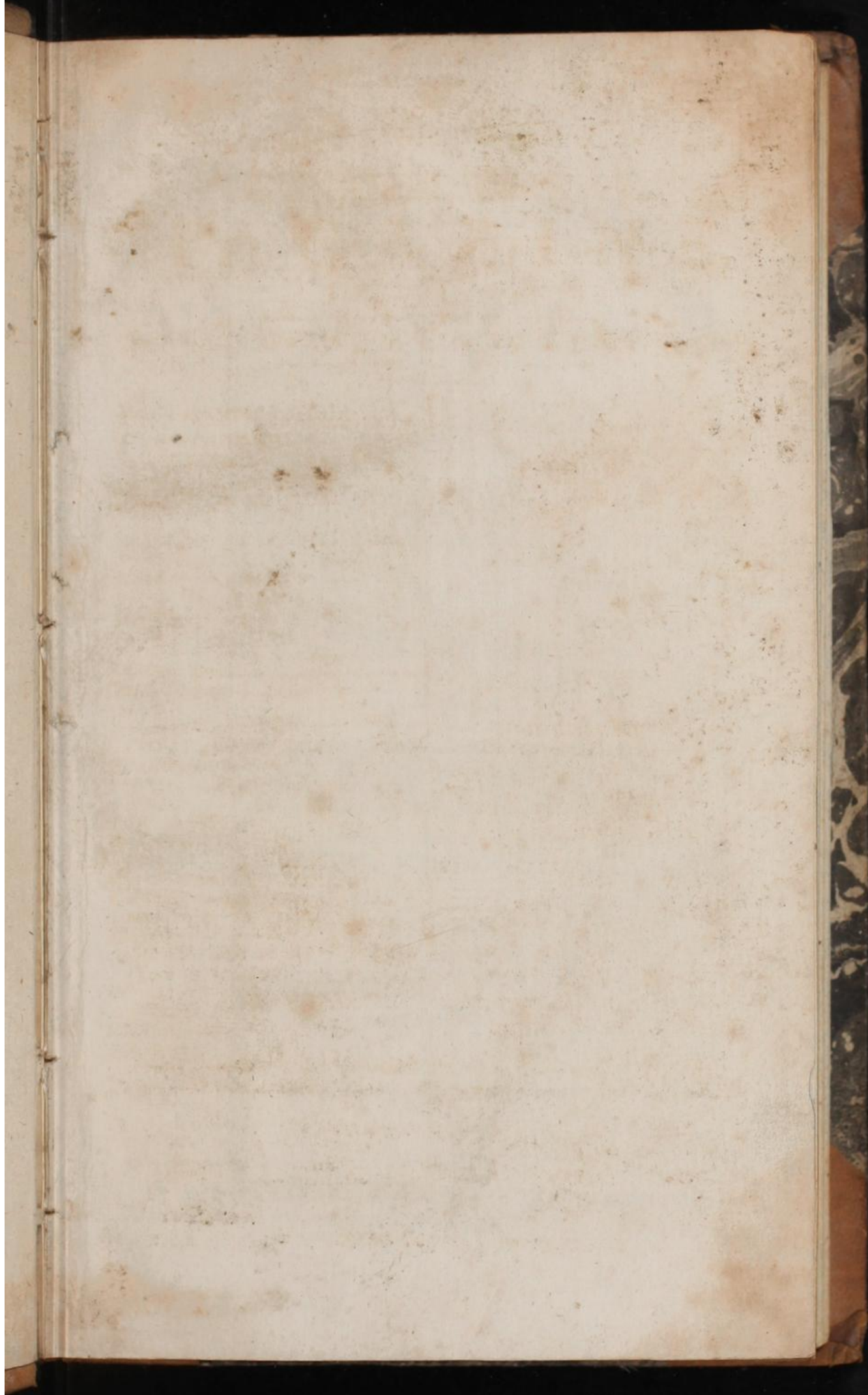
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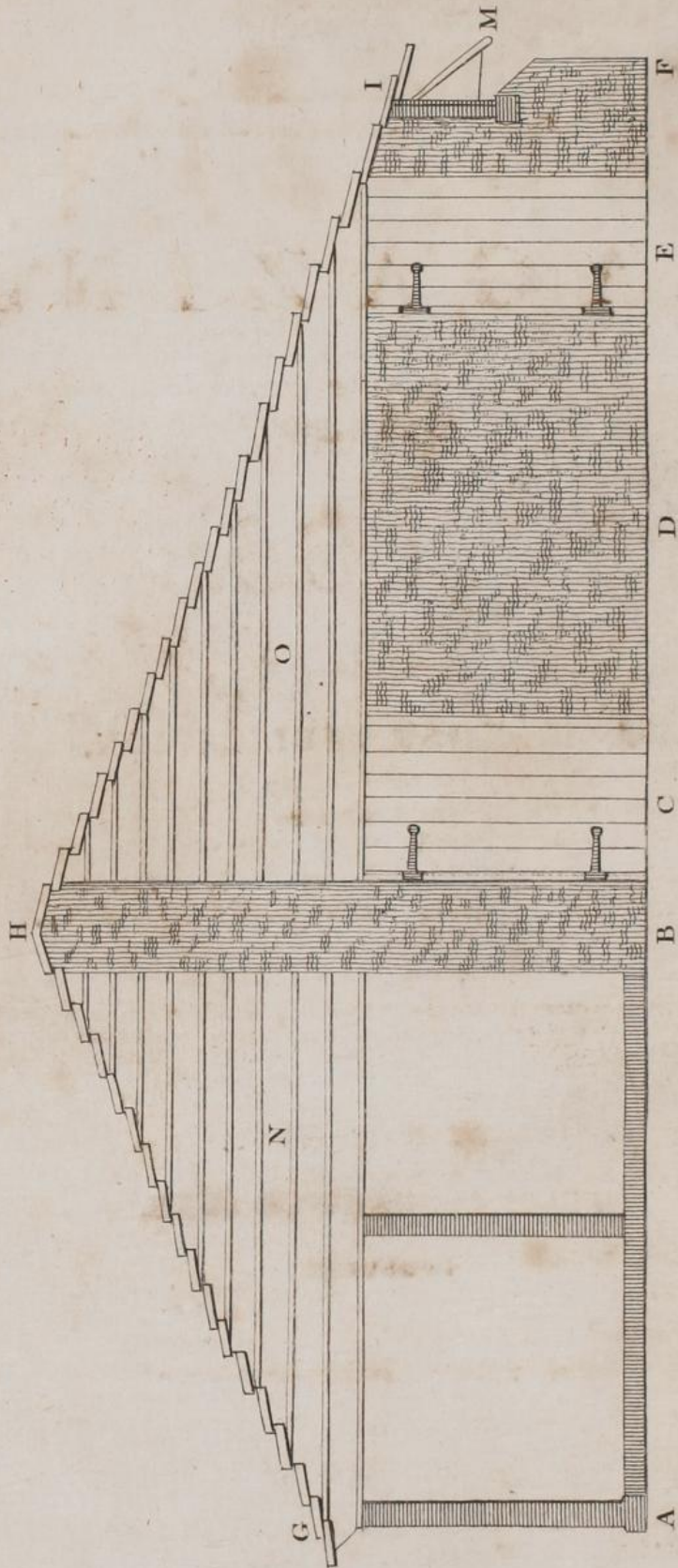
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Elevation of one of the Ends of the Feeding House for Cattle,
erected at Hafod, by Tho. & Johnes Esqrs.



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THE
AGRICULTURAL
MAGAZINE,

FOR
1803.



A MONTHLY PUBLICATION,

DEVOTED TO

Farmers, and to Rural Affairs.

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

VOL. VIII.

FROM JANUARY TO JUNE,

INCLUSIVE.

LONDON:

PRINTED AND PUBLISHED BY VAUGHAN GRIFFITHS,
PATERNOSTER-ROW.

THE
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RATAPORTER-ROD.

PREFACE.

IN this Volume, it will be seen, that we have put in execution a plan which we have had some time in contemplation, that of confining ourselves to one subject, and to a subject which is surely worthy of a distinct and appropriate publication. Our Magazine will in future be restricted to the admission of such matter as is purely Agricultural. And in the adoption of this plan, we are very happy to find that we have not only consulted the requests of some of our Correspondents and of our own judgment, but the pleasure of most of our readers, and our own interest likewise. We were apprehensive that the execution of this design might be attended with the loss of all our commercial readers; but this has not been the result, for the number of our readers is increased instead of suffering diminution. A perseverance, therefore, in a plan which is evidently agreeable to the taste of those whom it is our duty above all things to strive to please, may be expected by them, and with such exertions as may merit a continuance of their approbation.

Our exertions, however, will be of little avail if they are not aided by the attentive and kind communications of those who wish well to the cause.

The contents of this Volume will be found not only interesting, but very important to every husbandman who wishes to advance either in science, or practice.

The turnip culture, which is the ground work of the agriculture of many districts, has received peculiar attention in this Volume. Stock, particularly sheep, has as usual been very judiciously brought before us, by several skilful breeders, both in their long and short, coarse and fine, attire. And the quality of South Down mutton has been discussed, particularly by Dr. Wilkinson, in a way that demands admiration. The Drill-system and Irrigation have here received much illucidation, and likewise the properties of the Dairy.

A course of crops, peculiarly to our taste, "of two green crops to one corn crop," has been exhibited, in its effects, in a very favourable point of view, by a well known writer, Mr. Middleton. This subject will be found further treated in our next Volume.

To such of our readers as have not in their possession the works themselves, we beg leave to recommend an attentive perusal of the extracts which we have given from Dr. Darwin's Phytologia, and from Dr. Hunter's Georgical Essays, and likewise to the able Speech of Lord Carrington.

Our Agricultural Report will be found comprehensive, but not complete, till we shall receive communications from the Secretary of every Agricultural Society in the Kingdom.

E.

The following new premiums for the ensuing year were approved and adopted, viz :

I. For the most valuable fleece of clothing wool in proportion to its weight from any ram bred in Great Britain—ditto from any ewe.

II. For the best piece of Navy Blue Broadcloth manufactured from Lamb's wool of British growth.

III. For an improved method of sweeping chimnies.

IV. For the best essay on the utility of iron rail-ways compared with navigable canals.

V. For improvement in the species of wheat.

VI. For raising the greatest crop of autumnal turnips according to the Northumberland culture.

VII. The same for a spring crop.

VIII. For a series of experiments to determine the comparative profit between the small and the larger sorts of stock animals.

IX. For stocking the greatest number of pools with the common leech.

X. For exhibiting the best lot of shearling sheep (wool and carcase together,) the produce of a Spanish ram with English ewes, not less than four dips.

XI. For the greatest number and most profitable sort of sheep, in proportion to the size of the farm.

A few ewe sheep in lamb by the Spanish ram are to be disposed of by Mr. Bartley, secretary to the society.

The Essex Agricultural Society held their meeting at Chelmsford, on the 12th of January ; particulars of which will be given in our next.

At the annual meeting of the Agricultural Society of West Derby, Lancashire, the following rewards were adjudged :

To Mr. Thomas Rimmer, of Lathom, for rearing calves, silver cup value five guineas.—To Mr. Peter Robinson, of Bold, for improving high roads, a silver cup value five guineas.—To Mr. Edward Rogerfon, of Fazakerly, for improving high roads, a silver cup value five guineas.—To Mr. James Blundell, of Knowsley, for inclosing wastes, a silver cup value seven guineas.—To J. J. Atherton, esquire, of Walton, for draining, a silver cup value seven guineas.—To Mr. Richard Weston, Halewood, for marling moors, a silver cup value seven guineas.—To Mr. John Rimmer, Lydiate, for marling, a silver cup value seven guineas.—To George Eaton, of Finch-house, for ploughing, three guineas.—To Thomas Parke, esquire, of Highfield, for compost, a silver cup value five guineas.—To William Fairclough, of Dalton, for irrigating, a silver cup value seven guineas.—To Edmund Heathcote, of Ormskirk, for cutting furrows, a silver cup value seven guineas.—To William Boardman, of Newton, for a harrow, a silver cup value seven guineas.—To Joshua Lee, of Whiston, for a paring plough, two guineas.—To Ann Cochthead, of Lydiate, for potatoes, a silver cup value five guineas.—To Michael Hughes, esquire, for laying down land, a silver cup value five guineas.—To Thomas Parke, esquire, of Highfield, for planting hedges, a silver cup value seven guineas.—To Mr. Peter Robinson, of Bold, for plashing fences, a silver cup value five guineas.—To Mr. Peter Robinson, of Torvock Hall, for shewing a bull, one guinea.—To Mr. James Baines, of Ince Blundell, ditto, one guinea.—To Mr. Thomas Cave, of Halfall, ditto, one guinea.—To James Scott, of Knowsley, for bringing up children without parochial relief, ten guineas.—To Thomas Gore of Ormskirk, for ditto, ten guineas.—To Peter Webster, of Woolton, for ditto, six guineas.—To Arthur Young, esquire, F. R. S. for proposing new rewards, a silver cup value seven guineas.

The following rewards were offered for the present year :

Class I. No. 1. For a map of the hundred, dividing the same into its parishes and townships, and delineating the waste grounds and springs, rivulets, roads and peculiarities of surface, a compensation to be stipulated, and an honorary reward.

No. 2. For a topographical description of the hundred of West Derby, an honorary reward, and fifty guineas.—And for a description of any township in the hundred, a suitable reward.—No. 3. For the best essay on certain detailed subjects, an honorary reward.—No. 4. For the next best essay, an honorary reward.

Class II. To the surveyor of the high road in any township of the hundred, who shall have made the greatest improvement in the high roads, proportioned to the means, a silver cup value seven guineas.

N. B. It is recommended to surveyors of roads and others, to have the thistles and weeds growing on the sides of the ways carefully cut down and destroyed. Particular attention will be paid to this, in adjudging the reward.

Class III. No. 1. For inclosing and improving, in the best and most effectual manner, waste and uninclosed land not less than ten acres, a silver cup value seven guineas.—No. 2. For effectually draining, reclaiming, and inclosing wet, spongy, clay or morass ground, not less than 40 acres, a silver cup value seven guineas.—No. 3. For regaining of land from the sea or rivers, and securing the same from the effects of the tide, not less than 20 acres, a silver cup value seven guineas.—No. 4. For securing the greatest length of shore or bank of the sea, proportioned to the force of the stream and depth of the bank, so as to prevent the earth from being washed away, a silver cup value seven guineas.

Class IV. No. 1. For draining the greatest quantity of inclosed ground, not less than 25 acres after the best and most approved method, a silver cup value seven guineas.—No. 2. For draining in the most effectual manner with stone or brick, the greatest quantity of land, not less than ten acres, a silver cup value five guineas.—No. 3. For draining the greatest quantity of land with sods, in the best and most effectual manner, not less than 20 acres, a silver cup value three guineas.—No. 4. For marling in the most approved and judicious manner, the greatest number of acres of moor, moss or heath, not less than 30 acres, a silver cup value ten guineas.—No. 5. For marling the greatest quantity of land, not less than 20 acres, a silver cup value seven guineas.—No. 6. To the best ploughman who shall between the 1st of May 1802, and the 1st of May 1803 plough in the best and most approved manner, with any plough that goes with a pair of horses only, the greatest number of acres, not less than ten, five guineas.—No. 7. To the ploughman who shall plough within the same time, and in the same manner, but without a driver, the greatest number of acres, not less than ten, five guineas.

Class V. For raising the greatest quantity of good compost, and therewith covering the greatest number of acres in proportion to the farm, such farm not being less than 30 acres, a silver cup value five guineas.—No. 2. For laying in the most judicious manner, a quantity of peat-earth, with a sufficient mixture of lime, pot-ash, soaper's waste, dung, dung water, &c. on not less than ten acres of pasture land, a silver cup value five guineas.—No. 3. For improving the greatest quantity of meadow or pasture land, not usually overflowed in time of flood, by throwing water over it in the most equal and judicious manner, the quantity of land improved not being less than five acres, a silver cup value seven guineas.—No. 4. For improving the greatest quantity of land not less than ten acres, by sowing and ploughing in any green crop, a silver cup value seven guineas.

Class VI. No. 1. For inventing or improving any implement of husbandry, that shall on trial, be found the most useful in saving labour or expence; simplicity and cheapness of construction being deemed essential parts of its merit, a silver cup value seven guineas.

N. B. The society wishes to direct the public attention, to simplicity in the construction of harnesses.

No. 2. For producing to the society at their July meeting, a one horse cart, which shall be most approved for the strength, lightness and cheapness of its construction, and for its general fitness for use, both in the fields, and on the roads, a silver cup value five guineas.—No. 3. To the owner and

occupier of any farm, who in proportion to its size, and the usual number of draught horses worked on it, not being less than three, shall employ the greatest number of such single horse carts in his husbandry business, a silver cup value five guineas.—No. 4. To the tenant and occupier of any farm, who in proportion to its size, and the usual number of draught horses worked on it, shall employ the greatest number of such single horse carts in his husbandry business, a silver cup value five guineas.—No. 5. For discovering the cheapest and most productive compost for grass land, a silver cup value five guineas.—No. 6. For making the best experiment upon any of the different native grasses, each species being kept distinct, and there being not less than three kinds of grass sowed, and each kind occupying not less than half an acre, a silver cup value ten guineas.—No. 7. For making and reporting to the society, the most satisfactory experiments to ascertain the advantages of summer soiling-horses, cattle or hogs, with green food, in stables, houses, sheds or littered yards, compared with feeding the same in the common manner, a silver cup value seven guineas.—

N. B. The account must specify the number of horses, cattle or hogs fed and soiled, the effect on such stock, the quantity of food eaten, and the land fed, with the quantity of litter used, and the dung, and the value of the dung made.

Class VII. No. 1. For raising the best crop of drilling turnips, to be thoroughly cleaned from weeds, equally thinned and well hoed, at least twice, not less than six acres, a silver cup value five guineas.—No. 2. For raising the best crop of carrots, thoroughly cleaned from weeds, and equally thinned, not less than two acres, a silver cup value five guineas.—No. 3. For raising the best crop of cabbages, to be planted in rows or ridges, and not less than four acres, a silver cup value five guineas.—No. 4. For raising the greatest quantity of potatoes of the best quality from the same land, in the same year, not less than two acres, a silver cup value five guineas.—No. 5. For raising the best crop of drilled beans, hoed at least twice, and weeded with the hand, not less than four acres, a silver cup value five guineas.—No. 6. For laying down the greatest quantity of land not less than twelve acres, for pasture in the best manner, and cleaned from weeds, and sowed with white clover or grass seeds, a silver cup value five guineas.—No. 7. To the person occupying a farm, not less than eighty acres, who shall have the same in the best general state of cultivation, and in the neatest and most exact order as to fences, drains, farm yard, and cleanliness from weeds, a silver cup value five guineas.—No. 8. To the person occupying a farm not less than forty acres, who shall have the same in the foregoing state of cultivation and order, a silver cup value five guineas.—N. B. It is recommended that in the month of May, all the weeds growing on the land, should be cut about an inch below the surface of the soil; and that in August following, the second growth of such weeds should be mowed or cut down; and that the hedges and ditches of the adjoining lands should also be kept free from weeds.

Class VIII. No. 1. For the completest farm yard in every respect, annexed to a farm not less than 40 acres, with all proper conveniences for cattle, pigs, &c. and so contrived as to obtain the greatest quantity of manure, and to preserve in proper reservoirs the greatest quantity of dung-water, either for floating meadows or pastures, or carrying off in water-carts, or for mixing with weeds, soil or lime for compost, a silver cup value seven guineas.—No. 2. For planting in the most approved manner, the greatest quantity of land in one or more plantations, not less than one acre, with standard fruit-trees, as an orchard and fencing, and preserving the same effectually, a silver cup value five guineas.—No. 3. For planting in the most approved manner, the greatest quantity of land in one or more plantations, not less than five acres, with forest-trees, and fencing and preserving the same effectually in order to produce timber, a silver cup value seven guineas.—No. 4. For planting after the most approved manner, and preserving in the best condition the greatest quantity of white thorn or holly hedges, not less than 100 perches,

of eight yards to the perch, a silver cup value seven guineas.—N. B. A tenant planting half this quantity is admitted to claim—No. 5. For plashing and laying in the greatest length of fence of living wood, in the best and most approved manner, not less than 100 perches, of eight yards to the perch, a silver cup value five guineas.

Class IX. No. 1. To the person residing within the hundred, who shall shew to the society at the July meeting, the best long-horned bull, not less than three years old, seven guineas.—No. 2. To the person residing within the hundred, who shall shew to the society at their July meeting, the best long-horned heifer, bred in the hundred, not less than two years old, five guineas.—No. 3. To the person who shall shew to the society at their July meeting, the best stallion, for the general purposes of husbandry, seven guineas.—No. 4. To the person who shall shew to the society at their July meeting, the best boar, not more than three years old, two guineas.—N. B. The certificates must be delivered, that the bulls, heifers, stallions, and boars, have been the property of the respective claimants six months, and that the bulls, stallions, and boars have been generally used the preceding season, within the limits of the hundred of West Derby.

Class X. No. 1. For erecting the greatest number of cottages for labourers in husbandry, of the best construction, and having each four separate apartments, and quantity of land allotted to each, not less than forty perches, a silver cup value seven guineas.—No. 2. To the labourer in husbandry renting under 10*l.* per annum, by whom the greatest number of legitimate children shall have been brought up, without relief from any parish or township, ten guineas.—No. 3. To such labourer in husbandry, by whom the second greatest number of legitimate children shall have been so brought up, six guineas.—No. 4. To such labourer in husbandry, by whom the third greatest number of legitimate children shall have been so brought up, four guineas.—No. 5. To the male servant in husbandry, who has the most meritoriously served the longest time in one place, five guineas.—No. 6. To the male servant in husbandry, who has the most meritoriously lived the next longest time in one place, three guineas.—No. 7. To the female servant in husbandry, who has the most meritoriously served the longest time in one place, five guineas.—No. 8. To the female servant in husbandry, who has the most meritoriously served the next longest time in one place, three guineas.

Concluding Premiums.—To the person who shall suggest to the Society, any thing which may have escaped its attention, and which will promote the public good as connected with the views of this Society, and according to its present establishment, a piece of plate.

N. B. All the quantities are to be measured according to the statute measure; and are not to include hedges, pits, &c. but are to be land actually improved, or bearing crop.

And whenever the claims of owners or tenants appear to have equal merit, the claims of tenants will have the preference.

Commercial Affairs.

A FRENCH journal presents the following state of Commerce at Paris, for the last month. The state of commerce for the last month has not been brilliant; the prices of the different articles of merchandize remain much the same; brandies are rather fallen in price; coffees remain the same; and Orleans refined sugars are beginning to look up a little, notwithstanding foreigners endeavour as much as possible to injure that trade. They have raised the price of their raw sugars, and then offer their refined sugars at prices so low, that the French refiners cannot stand the competition. The speculators calmly watch this unequal contest, and wait till fresh importations put an end to those great fluctuations in price, so ruinous to individuals. As for chocolate there is none at market: it has all been carried to Spain. The cotton of Georgia and Louisiana is now beginning to be preferred to that of the Levant.

THE
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FEBRUARY 1803.

[VOL. VIII.]

DR. DARWIN'S DRILL PLOUGH,

AND

MR. SWANWICK'S SEED BOX.

(WITH A PLATE)

Copied from Dr. Darwin's Phytologia, with permission.

CONSTRUCTION of the carriage part. Fig. 1. *aa* are the shafts for the horse, which are fixed to the centre of the axle tree by a simple universal joint *z*, whence, if the horse swerve from a straight line, or is purposely made to pass obliquely to avoid treading on the rows of corn in hoeing, the person who guides the plough behind may keep the coulter of the plough or hoe in any line he pleases, which is thus performed with much simpler mechanism than that used in Mr. Cook's patent plough for the same purpose, which has many joints, like a parallel rule. *bb* are the horns or shafts behind for the person who guides the drill, coulter, or hoes; they are fixed to the axle-tree before, and have a cross piece about six inches from it at *gg*, for the purpose of supporting the seed box, described below. Behind this, about a foot distant from it, is another cross piece at *cc*, called the coulter beam, which is fifty inches long, six inches wide, and two inches thick; it is perforated with two sets of square holes, six in each set, to receive the coulters in drill ploughing, and the hoes in horse hoeing. The six light square holes are nine inches from each other, and are to receive the coulters or hoes in the cultivation of wheat, the rows of which are designed to be nine inches from each other; and the six dark square holes are placed seven inches from each other to receive the coulters or hoes for the cultivation of barley, the rows of which are designed to be but seven inches distant from each other. Besides these, there are six round holes through this coulter beam at one part of it, and six iron circular staples fixed into the edge of the other part of it; these are to receive the ends of the tin flues which cross each other, and convey the seed from the bottom of the seed box into the drills or furrows, when the coulters are disposed in the square perforations before them. These coulters or hoes, the person who guides the machine can raise out of the ground in turning at the ends of the lands, or in passing to or from the field, and can suspend them so raised on the iron springs *dd*, which, at the same

time, so fixes the shafts to the axle-tree, that the wheels will then follow in the same line with the horse. *ee* are wheels of four feet in diameter, the nave of one of which has on it a cast iron wheel at *ff*, for the purpose of turning the axis of the seed box, which has a similar wheel of one-fourth its diameter, whence the axis of the seed box revolves four times to one revolution of the wheel.

Construction of the seed box. This consists of boards about an inch in thickness, is forty-eight inches long within, twelve inches deep, twelve inches wide at top, and six inches wide at bottom; it is divided into six cells, in which the corn is to be put, as represented in Fig. 2. and should also have a cover with hinges to keep out the rain, and is to be placed in part over and in part before the axle-tree of the carriage at *gg*, Fig. 1. Beneath the bottom of the seed box passes a wooden cylinder at *hh*, Fig. 2. with excavations in its periphery to receive the grain from the six cells of the seed box *l, m, n, o, p, q*, and to deliver it into the six oblique flues *ii*, which are made of tin, and cross each other, as represented in the plate. The use of the seed flues thus intersecting each other is to increase the length of the inclined surface on which the seed descends, that if six or eight grains be delivered together, they might separate by their friction in descending, as not to be sown together in one point, which might be liable to produce tussocks of corn. As these seed flues cross each other before they pass through the coulter-beam at *cc*, Fig. 1. it was necessary to make three of the round holes of the coulter-beam at one end backwarder than those at the other, and on that account to use iron staples or rings at one end instead of perforations, as at *ww*, Fig. 1. These tin flues deliver the seed at the time of sowing into the small furrows or drills, which are made by the coulters before them. These seed flues have a joint at *zz*, where one part of the tin tubes slides into the other part, and they by this means can be occasionally shortened or lengthened to accommodate them to the coulters when placed at seven inches distance for sowing barley, or at nine for sowing wheat. At the bottom of this seed box are six holes, one in each cell, to deliver the corn into the excavations of the cylinder which revolves beneath them. These holes are furnished on the descending side as the cylinder revolves with a strong brush of bristles about three-fourths of an inch long, which press hard on the tin cylinder: on the ascending side of the revolving cylinder, the holes at the bottom of the seed box are furnished with a piece of strong shoe-sole leather which rubs upon the ascending side of the cylinder. By these means the corn, whether beans or wheat, is nicely

delivered as the axis revolves, without any of them being cut or bruised.

Construction of the iron axis and wooden cylinder beneath the seed box. An iron bar is first made about four feet six inches in length and an inch square, which ought to weigh about fifteen pounds. This bar is covered with wood so as to make a cylinder four feet long and two inches in diameter, as at *kk*, Fig. 3. The use of the iron bar in the centre of the wood is to prevent it from warping, which is a matter of great consequence. This wooden cylinder passes beneath the bottom of the seed box, and has a cast iron cog-wheel at one end of its axis, as at *rr*, which is one-fourth of the diameter of the correspondent cast iron wheel, which is fixed on the nave of the carriage wheel, as at *ff*, Fig. 1. so that the axis of the seed box revolves four times during every revolution of the wheels of the carriage. In the periphery of this wooden cylinder are excavated four lines of holes, six in each line, as at *n, n, n, n, n, n*; a second line of excavation is made opposite to these on the other side of the cylinder, and two other lines of excavations between these; so that there are in all twenty-four excavations in the wooden part of this axis beneath the seed box, which excavations receive the corn from the seed cells as the axis revolves and deliver it into the flues shewn in Fig. 2. *ooii*. The size of these excavations in the wooden cylinder to receive the seed are an inch long, half an inch wide, and three-eighths of an inch deep; which are too large for any seeds at present employed in large quantities except beans, but have a method to contract them to any dimensions required, by moving the tin cylinder over the wooden one, as explained below.

Construction of the tin-cylinder. *AB* at Fig. 4. represents a cylinder of tin an inch longer within than the wooden cylinder on the iron axis at Fig. 3. and is of two inches diameter within, so as exactly to receive the wooden cylinder, which may slide about an inch backwards or forwards within it. *CD*, are two square tin sockets fixed on the ends of the tin cylinder to fit on the square part of the iron axis which passes through the wooden cylinder at *ll* Fig. 3. on which they slide one inch backwards or forwards. The following directions in making the holes in this tin cylinder, and those in the wooden cylinder which are to correspond with them, must be nicely attended to,---*First*, when the tin cylinder is soldered longitudinally, and one end of it soldered on as at *A*, six holes through it must be made longitudinally, on four opposite sides to it; each hole must be exactly half an inch wide, and five-eighths of an inch long; the length to be parallel to the length of the cylinder. The

center of the first of these holes must be five inches distant from the closed end A; the center of the second hole must be eight inches distant from the center of the first; and so on till six holes are made longitudinally along the cylinder. Then another such line of six similar holes is to be made on the opposite side of the cylinder, and then two other such lines between the former, in all twenty-four; and the size of all these holes must be nicely observed, as well as their distances.---*Secondly*, the wooden cylinder fixed on the axis is now to be introduced into the tin cylinder, but not quite to the end of it, but so as to leave exactly one inch of void space at the closed end A, and then the size of all these apertures through the tin cylinder, each of which is exactly *half an inch wide and five eighths of an inch long* are to be nicely marked with a fine point on the wooden cylinder, which must not previously have any excavations made in it.—*Thirdly*, the twenty-four holes, thus marked on the wooden cylinder, are now to be excavated exactly *three eighths of an inch deep*, but with an addition also of *three eighths of an inch* at that end of every one of them which is next to A, so that when the wooden cylinder is again replaced in the tin cylinder as before, with one inch of void space at the closed extremity of it; the excavations in the wooden cylinder will be three eighths of an inch longer than the perforations in the tin cylinder over them. These excavations in the wooden cylinder must, also, be rather narrower at the bottom than at the top, to prevent, with certainty, any of the grain from sticking in them as they revolve.—*Fourthly*, a screw of iron about three inches long, with a square head to receive a screw-driver, is to pass through the end A of the tin cylinder on one side of the axis; as at, x. Fig. 4. The screw part of this is to lie in a hollow groove of the wooden cylinder, and to be received in a nut or female screw, which is fixed to the wooden cylinder.—The head part of the screw, which passes through the end A of the tin cylinder at, x. must have a shoulder within the tin cylinder, that it may not come forwards through the end of it; and a brass ring must be put over the square end of the screw on the outside of the tin cylinder, with a pin through that square end of the screw to hold on the brass ring. Thus when the square head of the screw is turned by a screw-driver, it gradually moves the tin cylinder backwards and forwards, one inch on the wooden one, so as either to press the end A of the tin cylinder into contact with the end of the wooden cylinder within it, or to remove it one inch from it, and leave a void space at the end A.—*Fifthly*, the ends of all the holes of the tin cylinder, which are next to the end A, are now to be

enlarged, by slitting the tin *three eighths of an inch* towards A, on each side of the hole; and then that part of the tin, included between these two slits, which will be *half an inch wide*, and *three eighths of an inch* lengthways, in respect to the cylinder, is not to be cut out; but to be bent down into the excavations of the wooden cylinder beneath, so as to lie against the end of the excavation, which is next to A; but these projecting bits of tin before they are bent down into the excavations of the wooden cylinder, must be filed a little less at the projecting end, which is to be bent down, than at the other end; as the excavations of the wooden cylinder are to be rather narrower at the bottom than at top, and these pieces of tin when bent down must exactly fit them.—*Lastly*, when all these holes through the tin cylinder are thus enlarged, and the bits of tin filed rather narrower at the projecting ends, and then bent down into the excavations of the wooden cylinder, the other end of the tin cylinder with its square socket may be soldered on. And now when the end of the tin cylinder, at A, is pressed forwards upon the wooden cylinder towards B, by turning the screw at x, above described; every excavation of the wooden cylinder will be gradually lessened, and finally quite closed; by which easy means they may be adapted to receive and deliver seeds of any size, from horse beans and peas, to wheat, barley, and turnip seed, with the greatest accuracy, so as to sow four, five, or six pecks on an acre, or more or less, as the agricultor pleases, by only turning the screw a few revolutions one way or the other.

Observations. 1. In the construction of the tin and wooden cylinders beneath the seed box, another small improvement may be necessary in sowing very small seeds, which is thus:—as the screw of the end, or A; is turned so as to contract all the excavations of the wooden cylinder—the surface of the wooden cylinder, for one inch from the end of each excavation, towards the end B, Fig. 4. will become bare without being covered by the tin cylinder; and on these bare parts of the wooden cylinder, which will be one inch long and half an inch wide, some small seeds may chance to stick and evade the brushes, which should prevent them from passing as the cylinders revolve—to prevent this, when the wooden cylinder is so placed within the tin cylinder, that all the holes are quite open, let a piece of the tin cylinder about an inch and an half long, and half an inch wide be cut out from the extremity of each hole next to the end B; and let this piece of tin cylinder thus cut out, be fixed by a few sprigs on the wooden cylinder, exactly in the same place which it covered before it was cut out of the tin one; by which contrivance, when the tin

cylinder is afterwards pushed forwards by turning the screw at its end, so as to contract the excavations of the wooden cylinder beneath, the bare parts of the wooden cylinder will exist an inch and an half from the extremities of the excavations next to the end B; and thus will not pass under the brushes, and in consequence no small seeds can lodge in them.

2. Some kind of iron staple should be fixed at each end of the seed box on the outside, which when the hinder part of the carriage is raised up by the person who guides it, might catch hold of the two iron springs, at *dd*. Fig. 1. for the purpose of suspending the coulter out of the ground, and connecting the hinder part of the machine with the shafts before; that in turning at the ends of the lands, or in passing from or to the field, the wheels may not swerve at the joint Z, at the centre of the axle tree, but may follow in the same line with the shafts.

3. The seed-box must also be supported on upright iron pins passing through iron staples, with a lever under the end of it, next to the wheel *rr*. Fig. 3. for the purpose of easily lifting that end of the seed-box, about an inch high, to raise the teeth of the iron cog-wheel on its axis, out of the teeth of the correspondent iron wheel on the nave of the carriage wheel.

4. The construction of the coulter which make the drills, and of the rakes which again fill them, after the seed is deposited; and also of the hoes are not here delineated, as they are similar to those so often described or used by Mr. Tull and his followers.

When the holes in the wooden cylinder are completely open, they are a proper size for sowing horse beans or peas: when they are completely closed, there will remain a small niche at the end of the excavation in the wooden cylinder next to B, Fig. 4. for turnep seed or other small seeds.

For wheat, barley, and oats, a wooden wedge should be made of the exact shape of the hole, which the director of the plough requires; who will occasionally insert it into the holes, when he turns the screw at the end of the cylinder, to enlarge or to lessen them, to these exact dimensions.

These wedges should be written upon, with white paint, wheat, barley, oats, &c. which will much facilitate the adapting the size of the excavations to each kind of grain, and may be altered, to suit larger or less seeds.

In some drill ploughs, as in Mr. Cook's, there is additional machinery to mark a line as the plough proceeds, in which the wheel nearest the last sown furrow may be directed at a proper distance from it and parallel to it: but in sowing wheat, or peas and beans, this may be done by making the

wheels, as they run upon the ground, to be exactly fifty-four inches from each other; and then at the time of sowing, to guide the wheel next to the part last sown exactly in the rut which was last made, by which guide the rows will all of them be exactly nine inches distance from each other.

The simplicity of this drill plough consists, first, in its having only a seed box, and not both a hopper and a seed box, as in the Rev. Mr. Cook's patent drill plough.—*Secondly*, the flues which conduct the seed from the bottom of the seed box into the drill furrows, are not disjointed about the middle of them to permit the lower part to move to the right or left when the horse swerves from the line in which the coulter pass, as in Mr. Cook's patent drill plough, which is done in this machine by the simple universal joint at z, Fig. 1.—*Thirdly*, in this machine the horns or shafts behind, between which the person walks who guides the coulters, are fixed both to the coulters beam and to the axle tree; whereas, in Mr. Cook's patent plough, there are all of them moveable joints like a parallel rule, for the purpose of counteracting the swerving of the horse, which is also done in this machine at the universal joint z.—*Fourthly*, the altering the dimensions of the holes in the axis of the seed box by only turning a screw, so as to adapt them to all kinds of seeds which are usually sown on fields.—*Fifthly*, the strong brushes of bristles, which sweep over the excavations of the cylinders beneath the seed box, strickle them with such exactness, that no supernumerary seeds escapes, and yet none of them are in the least bruised or broken.—*Lastly*, it should be observed, that the less expence in the construction, the less propensity to be out of repair, and the greater ease of understanding the management of this machine, correspond with its greater simplicity, and will, it is hoped, facilitate the use of the drill in husbandry.

Mr. Swanwick's Seed Box.

The seed box is forty-eight inches long within, is divided into six cells for the purpose of sowing six rows of seeds at the same time. At the bottom of each cell is a hole aa, Fig. 5. for the seed to pass through into the seed flues, as in the machine before described: but in this there is no revolving axis, but a wooden bar BB, Fig. 7. about two inches broad, and about four feet eight inches long, and *exactly* three-eighths of an inch thick. Through this bar there are six perforations, e, e, e, &c. which are each of them exactly one inch long and half an inch wide; and three eighths of an inch deep, which is the thickness of the bar. The centres of these holes are exactly eight inches distant from each other, correspondent to the holes at the bottom of the seed box, over which it is made to slide backwards and forwards

in a groove; by this sliding motion it passes under stiff brushes, which are placed over it on each end of the holes at the bottom of the seed box, and strickle off the grain as the holes in the sliding bar pass under them, which thus measure out the quantity with considerable accuracy.

In order to increase or diminish the quantity of grain delivered, the slide is covered with a case of tin CC, Fig. 8. which has six perforations, exactly corresponding with the holes in the slider; but instead of the bit of tin being cut out the whole length of the hole, part of it is left at the end i, Fig. 10. equal to the thickness of the slider, and is bent down as at b, after the slider is put into the case, like the tin cylinder in the preceding machine. This case is moveable about one inch backward and forward by turning the finger screw s, 8. and 9. and thus the holes are made larger or less to suit various sorts of grain, or different quantities of the same sort, exactly as in the preceding wooden and tin cylinder. The slider is moved forwards by a bent iron pin h attached to it, which passes into a serpentine groove Y, Fig. 9. fixed to the nave of the wheel; and backwards by a steel spring at the other end of the seed box, which is not represented in the plate.

Fig. 9. is a bird's eye view of the parts before described. EE, the seed box divided into cells by the partitions dd, &c. ccc the slider with a part of the apertures seen just appearing from under the brushes, X the axis of the wheel.

Fig. 10. is a drawing of part of the tin case, and is intended to show more distinctly the construction of it.

Fig. 6. represents a side view of one of the six bridges lying over the holes at the bottom of the seed box, on each side of which the brushes are fixed, which strickle the holes when they are full of corn as the bar slides backwards and forwards.

The simplicity of this slider at the bottom of the seed box may be in some respects greater than that of wooden and tin cylinders in the former machine; as this has but six holes to measure out the corn, and the other has twenty-four: but, perhaps, in other respects, less so, as in this twelve brushes are used, one on each side of each of the six holes, whereas there are only six brushes rub upon the tin cylinder in the former machine. And the reciprocating motion of this slider must be quick, as it must act once every time the periphery of the wheel of the carriage has passed nine inches forward, which may not be so easy to execute as the cog wheel and uninterrupted movement of the axis and cylinder in the preceding machine.

REMARKS ON MR. CLOSE AND MR. AMOS'S ACCOUNT OF
PROFITS IN PURSUING THE DRILL SYSTEM, OR ROW
CULTURE.

To the Editor of the Agricultural Magazine.

SIR,

Fakenham, Feb. 9, 1803.

AT a season of the year when the severity of the weather causes almost every agricultural pursuit to be at a stand, even the most strenuous opposers of theory, who are satisfied with no arguments but those of downright practice, will perhaps allow the speculative agriculturist to make an experiment or two, by his fire-side, with such implements as he has within his reach, viz. pen, ink and paper.

Such is frequently my amusement, when confined at home: and the pleasure I receive from such sort of employment, has of late been much increased by the addition of "The New Farmer's Calendar" to my store of books on agricultural subjects. A more powerful advocate for the new system of tillage, I believe, could scarcely have been found, had the author been a little more guarded in his selection of experiments, to prove the superiority of his favourite system. At present, I fear, his zeal to display what he calls *Row-culture* in its best colours, has led him to quote examples from the Bath papers, rather too highly painted, and thereby has injured, more than served, the cause he would recommend.

By way of proof, let us try one or two of the cases which he has selected. At page 358, appears a paper, written by the Rev. Mr. Close, setting forth how great the saving may be, in the article of seed corn only, on 131 acres of land, where drilling takes place of the broadcast method of sowing. To place the comparison in the stronger light, Mr. Close has certainly taken a few liberties with regard to the quantity of seed, drilled or sown by hand, which the general practice throughout England does not warrant, however the actual experiment may have been made by Mr. Close himself. As for instance: the broadcast account is charged with seed peas at the highest possible rate of *four bushels* per acre, while the drill is modestly content with *one* only. Be the soil what it may, I contend that one bushel is too little, and I calculate thus: one pint contains 1600 peas; one bushel, therefore, has 102,400. Now, an acre of land contains 80 drills, each 242 yards long, at nine inches intervals, or 19,360 yards, to be sown with 102,400 peas, i. e. very little more than five in a yard: and if in drills, 12 inches asunder, there will then be but seven in a yard. A very sparing seed indeed. Nay, granting somewhat more than 1600 in a pint, as would be the case with

smaller kind of peas, the number in a yard would still prove too few. In like manner Mr. C. allots *three bushels* of seed wheat to an acre sown by hand; which quantity is very seldom used by any broadcast husbandman, ten pecks being a more usual allowance; and *é contra*, he asserts that his drills make *three pecks* sufficient for the same space of ground. I would ask Mr. C. why he charges the broadcast account with the same quantity of early peas per acre (viz. four bushels) as of the other kinds, when he drills *three pecks* only of the former sort, and *four* of the latter? Nor can I conceive how the drill should make three pecks suffice for an acre; for, by a similar calculation to the former, I find that nine inch intervals give not quite four, and even 12 inch intervals but (barely) five peas to a yard. But few readers, I fancy, will assent to Mr. C.'s assignment of one bushel only of oats or barley to an acre: (Mr. Amos, who is equally strenuous for drilling, does not attempt to get on less than 12 pecks of oats and seven of barley, as may be observed at page 349.) but every one must take notice, that Mr. C. loses no opportunity of saddling the unhappy broadcast account with the fullest quantities; all peas and oats at four bushels, and vetches at three bushels per acre; an allowance, I believe, never exceeded. From these premises the conclusion he draws is by no means surprising, viz. that on 131 acres of land under corn, the drill saves so considerable a sum as 100*l.* 4*s.* And if I also may be allowed to hazard a conclusion from the aforesaid premises, it would be this—That any plain, plodding Farmer of the old school, reading this statement, will lay down the book unconvinced, and more than ever resolved to pursue the *old* practice; and for this plain reason, because he every where finds the new system, and therefore concludes it can only be defended by extravagant and improbable assertions.—The experiments made by Mr. Amos are certainly no bad proofs of the advantage of drilling on various soils above broadcast sowing; but even here some things occur which are calculated to create a suspicion, that while the former stands full in favour, he seizes every occasion of placing the latter in too unfavourable a light. Take the first experiment here quoted. The land in preparation for drilling requires, by his account, but *five* harrowings, the other is put to the expence of *eight*. Mr. A. can horse-hoe an acre of land *twice* for 4*s.* and cannot get his broadcast acre hand-weeded for less than 5*s.* 6*d.* The produce of the drilled crop he estimates worth 2*s.* 3*d.* per bushel, the other it seems is so inferior in quality as not to be worth more at market than 2*s.* 2½*d.*; and thus is *squeezed* out a balance in favour of the former of 1*l.* 3*s.*

I shall pursue the examination no further, and only observe in general, that the same partiality is but too visible in almost

every example selected by late writers on agriculture. For my own part, being fully convinced of the superiority of the drill-culture above every other yet known, partly from my own very confined experience, but in a much greater degree from the repeated trials made by gentlemen in this neighbourhood, on whose assertions I can rely, I most heartily wish it the notice it merits, and therefore regret that any of its supporters should have recourse to *little arts* for swelling the amount of profit above its just limits. One fair comparative statement would do more towards converting a disciple of the old husbandry to the new method, than a multitude of examples, where partiality leads the proposer to add on the one side, or diminish on the other, as best suits his purpose of recommending and supporting his favourite system. I should here close a letter, already too long, but I am unwilling to take leave of the subject without adding a word of apology to a very worthy man, and respectable member of society, the Rev. Mr. Close, to whose unwearied exertions the republic of agriculture stands deeply indebted. If I have made use of any too free expression, I request that your readers will not construe it as implying the smallest doubt on my part of the accuracy of this gentleman's statement.

I only request leave to withhold my assent to the sufficiency of seed which Mr. Close has chosen to allot to his land, and in this opinion I am confident I shall not be singular.

I am, Sir, &c.

AGRICOLA NORFOLCIENSIS.

P. S. I have given fair trial to M'Dougale's hoe; on the lightest soil it is too hard labour even for men, much more for boys or girls to perform. I acknowledge that a drawing of this hoe, in the British Encyclopædia, gave me the first hint of the single-shared horse-hoe, which appears in a former Number of your Magazine, and which I again beg leave to recommend, the ensuing spring, to the trial of some of your readers; confident that if used either among beans, peas or wheat, is it superior in efficacy to any implement of the kind yet in use.

Erratum.—In the last Number, page 6, for *sowing seed*, read *saving seed*.

ON AN INSTRUMENT FOR SOWING SMALL SEEDS BROADCAST.

To the Editor of the Agricultural Magazine.

SIR,
YOUR valuable Correspondent, Agricola Norfolciensis, has in your 41st Number given us a clear and perfect description of a very simple, yet effectual machine for sowing

Turnip Seed in drills; such a machine is much wanted for those who pursue the drill system, because attended with little expence, and so little complicated in its construction, as to be easily made or repaired by any common workman. Notwithstanding the evident superiority of a drilled crop of turnips, over one broadcast; there are Farmers still to be found, who give the preference to the old method; and as it must have forcibly struck the observation of every agriculturist, that the method of sowing by hand such small seeds as turnips and clover, must be imperfect, it is matter of astonishment, that there has not yet been found a single mechanic in this kingdom, who has ever turned his attention to the construction of some simple cheap instrument for sowing these small seeds broadcast. A person at Dover, whose name I do not recollect, took out a patent for a sowing machine, to sow either in drills or broadcast, but although it might perhaps answer the purpose tolerably well, its price (11 or 12 guineas) deterred most common Farmers from purchasing it. On looking over Bordley's Notes on Husbandry and Rural Affairs,* I was agreeably surprised to find the very thing I had so long wished for, viz. a most simple cheap machine for sowing small seeds broadcast, with a degree of regularity unattainable by the best seedsman, but as any description of mine would fall far short of Mr. Bordley's, I send you a copy of it in his own words. "A box for sowing clover seed on wheat *beds*, (rather than ridges,) seven feet wide, including the water or opening furrow, was made of light half inch planks, for the sides, bottom, and partitions; it was seven feet long, five or six inches wide, that the seed lying thin might easily shift about and not press heavily on the outlet holes; it was three inches deep, and divided into seven parts, each division having two holes bored through the bottom half an inch diameter, and placed diagonally. The holes were singed with an hot iron rod to smooth them. Square pieces of strong writing paper were pasted over the holes on the inside of the box; an hole was burnt with coarse knitting needles through each paper, and trials were made with seed, gently shaken in the box over a floor, and the holes enlarged as far as might be occasion, for dropping a due quantity of seed. It was used for sowing turnip seed: the old papers being taken off and new ones pasted on, and then holes burnt suitable to clover seeds; at about a third of the distance from each end of the box, were fastened strong leather straps, by which the box was held, and a little agitated, in carrying it before the seedsman, in a direction crossing the *beds*, whilst the seedsman walked along them."

* Philadelphia, printed by Budd and Bartram, 1799.

The above instrument is calculated both as to price and simplicity of mechanism for the pockets of the poorest Farmer, and the capacity of the dullest mechanic, and I most sincerely wish Agricola Norfolciensis may introduce a drill, which will answer the end as well as this, and come proportionably at as low a price.

I am Sir, your humble servant,
A BERKSHIRE FARMER.

For the Agricultural Magazine.

ON EVERLASTING PEAS AS A FOOD FOR HORSES AND CATTLE. COMMUNICATED BY MR. RICHARD WESTON, SECRETARY TO THE LEICESTER AGRICULTURAL SOCIETY.

TARES and Vetches are plants of which horses are very fond, and are cultivated with great advantage for that purpose.

The everlasting peas belong to the same class of plants; are much more luxuriant in their growth, and yet are not cultivated, except for ornament.

These plants are well known, and may be found in the gardens of almost every village in the kingdom. The luxuriance of their growth is so great, that the narrow-leaved, *lathyrus, sylvestris*, grows to the height of five or six feet, the other, *lathyrus, latifolius*, to eight, ten, or more. They begin to vegetate early in the spring, and continue growing until severe frosts stop them.

Another peculiar advantage belonging to them, is, that they are *perennial-rooted plants*, and when once sown, improve in their vigor and growth, after the first year, and continue increasing for several successive ones, as may readily be proved by examining the gardens in which they are to be found, where seed may be had, and tried at first upon a small scale, with very little trouble and expence, and afterwards increased.

A rood of land, light and but poor in quality, was sowed with it, early in the spring; the land prepared as for barley. A slight furrow was drawn with a light plough, and the seed thinly dropped into it. Another was drawn at a foot distance, and the seed dropped in like manner.

An interval was then left at least two feet wide; then two more rows, till the whole was sown. The seed was afterwards covered by drawing a light harrow with wooden tines, backwards and forwards across the land.

When the plants came up and grew a little strong, they were thinned with a hoe, to a foot distance, that they might have room to spread and branch. The first year they made no great quantity of fodder, but since made ample amends.

The second spring, they came up very strong and vigorous,

branching out very much. A couple of horses were turned in to feed, who were very fond of it, eating it very greedily, though they were taken out of a good natural upland pasture.

The third year the land was almost entirely covered, and it yielded a great deal of food. For experiment a few rods were mowed just before it flowered, which made good hay, sweet without being sticky.

REMARKS.

This experiment is not described longer than the three first years.

Instead of destroying the plants by hoeing them where too thick, I would recommend them to be drawn out, and a fresh plantation made with them. In gardens, they are generally transplanted from the seed beds the second spring.

Instead of turning horses in to feed, I would prefer cutting them either with a scythe or sickle, and have them given to the horses. It would certainly by that method produce more fodder, and you could find how many times in the summer, they would bear cutting, and at what height is the most advantageous to cut them.

If the intervals be left three feet wide, instead of two, there would be room to plant in September and October a winter crop, when the peas cease growing, as boorecola, cabbage plants, &c. which would occupy the ground till March, at which time they begin to vegetate.

RICHARD WESTON.

ON FATTENING SHEEP.

The Editor hopes that the following accurate experiments on Fattening Sheep, made under the inspection of the intelligent Mr. Billingsly, of Ashwick Grove, Somerset, and by him communicated to the Bath and West of England Agricultural Society; will prove acceptable to his Readers, as the most profitable fattening stock is clearly and impartially pointed out.

TWO Farmers of eminent rank in the breeding line, one of whom was a warm partizan in behalf of the new Leicester, and the other of the Cotswold sheep, agreed to submit to the following experiment under my guidance and direction; namely, that two five tooth widders (sheep about 1½ year old) of their respective stocks, should be sent to my farm the ensuing January; that they should be kept together one whole year, be regularly folded every night, and in all respects treated alike. That they should be killed at the Society's annual meeting in December, and that a public testimony should be given of the merit or demerit of each.

A trial so far could not fail attracting the notice of all persons interested in the event, and a proposal was made and seconded, that other sorts of sheep to which any of the com-

pany might be partial, should be added for the purpose of ascertaining their respective merits.

Accordingly six sorts were sent, viz.

5 Leicester, from Mr. More, of Chalcote, Warwickshire.

5 Cotswold, from Mr. Pacey, of Northleach, Gloucestershire.

5 South Down, from Mr. Gale, of Stert, Wilts.

15 of the polled breed.

5 Dorset, from Mr. Hix, Castle Cary, Somerset.

5 Wilts, from Mr. Tinker, Chittern, Wilts.

5 Mendip, from Mr. Parsons, Blagdon, Somerset.

15 of the horned breed.

With a view of proceeding regularly and impartially in the experiment, the whole lot was weighed after twelve hours confinement without food, and the weighing was continued regularly every Month till the time of their death; the result will appear by the following account:

5 Leicester, their live weight January the 3d 1792, 664 lbs at 3*d.* amounted in value to 8*l.* 6*s.* 1½*d.* their consumption of food from April the 3d to April the 10th, consisted of cabbages 29 lbs. hay 91 lbs. from June 20th to June 27th; green vetches 840 lbs. from December 1st to December; cabbages 445 lbs. hay 35 lbs.—the weight of wool 39 lbs. 12 oz.—which at 9*d.* amounted to 1*l.* 9*s.* 10*d.* Their live weight December, 1792, 762 lbs. increase 97½ lbs. dead weight, carcase 426½ lbs. blood 30 lbs. entrails 50½ lbs. fat 51 lbs. heads, &c. 49½ lbs. skins 85½ lbs.—sold at 5*d.* per lb. for 8*l.* 17*s.* 11*d.*—the wool 1*l.* 9*s.* 10*d.* amounting to 10*l.* 7*s.* 9*d.* deducting the first cost, 8*l.* 6*s.* 1½*d.* the nett produce amounted to 2*l.* 1*s.* 7½*d.* These sheep were in the butcher's phrase good meat.

5 Cotswold, their live weight January 3d, 1792, 697½ lbs. at 3*d.* amounted in value to 8*l.* 14*s.* 4½*d.* their consumption of food from April 3d, to April 10th, consisted of cabbages 29 lbs. hay 120 lbs. from June 20th, to June 27th; green vetches 1050 lbs. from December 1st, to December 8th; cabbages 615 lbs. hay 51 lbs. the weight of wool 36 lbs. 2 oz. which, at 12*d.* amounted to 1*l.* 16*s.* 0*d.* their live weight December 8th, 1792, 952½ lbs. increase 255 lbs. dead weight, carcase 534 lbs. blood 38½ lbs. entrails 70½ lbs. fat 66½ lbs. heads, &c. 57 lbs. skins 97 lbs. sold at 5*d.* per lb. for 11*l.* 2*s.* 6*d.* The wool 1*l.* 16*s.* amounting to 12*l.* 18*s.* 6*d.* deducting the first cost 8*l.* 14*s.* 4*d.* The nett produce amounted to 4*l.* 4*s.* 1½*d.* These were not so fat as the Leicester.

4 South Down, (one having died in April,) their live weight January 3d, 1792, 379 lbs. at 3*d.* amounted in value to 4*l.* 14*s.* 9*d.* their consumption of food from April 3d to April 10th, consisted of cabbages 29 lbs. hay 70 lbs. from June 20th to June 27th; green vetches 750 lbs. from December 1st to December 8th; cabbages 388 lbs. hay 41 lbs. The weight of wool 14 lbs. 8 oz. which, at 21*d.* amounted to 1*l.* 5*s.* 4*d.* their live weight December 8th, 1792, 522½ lbs. increase 143½ lbs. dead weight, carcase 307½ lbs. blood 20½ lbs. entrails 40½, fat 37½, head 34½, skins 51½ lbs. sold at 5*d.* per lb. for the wool 1*l.* 5*s.* 4*d.* amounting to 7*l.* 13*s.* 4*d.* deducting the first cost 4*l.* 14*s.* 9*d.* the nett produce amounted to 2*l.* 18*s.* 6*d.* These were good meat.

5 Wilts, their live weight January 3d, 1792, 559½ lbs. at 3*d.* amounted in value to 6*l.* 19*s.* 10*d.* their consumption of food, from April 3d to April 10th, consisted of cabbages 29 lbs, hay 125 lbs. from June 20th to June 27th; green vetches 1035 lbs. from December 1st to December 8th; cabbages 516 lbs. hay 42½ lbs. The weight of wool, 19 lbs. 8 oz. which, at 15*d.* amounted to 1*l.* 4*s.* 4*d.* their live weight December 8th 1792, 860 lbs. increase 300½ lbs. dead weight, carcase, 487 lbs. blood 34½ lbs. entrails 85½, fat 54½, heads 60½, skins 87½, sold at 4*d.* per lb. and something over, for 8*l.* 5*s.* 3*d.* the wool 1*l.* 4*s.* 4*d.* deducting the first cost 6*l.* 19*s.* 10*d.* the nett produce amounted to 2*l.* 9*s.* 9*d.* these were not half fat, and were on that account, sold at 1*d.* per lb. less.

5 Dorset, their live weight January 3d, 1792, 646 lbs. at 3*d.* amounted in value to 8*l.* 1*s.* 6*d.* their consumption of food from April 3d to April 10th, consisted of cabbages 29 lbs. hay 123 lbs. from June 20th to June 27th, 1050 from December 1st to December 8th; cabbages 526, hay 48½. The weight of wool 22 lbs. 12 oz. which, at 14*d.* amounted to 1*l.* 6*s.* 6*d.* their live weight December 8th, 1792, 921½ lbs. increase 229½ lbs. dead weight, carcase 573 lbs. blood 33½, entrails 70½, fat 75½, heads, &c. 60½, skins 92½, sold at 5*d.* per lb. for 11*l.* 3*s.* 9*d.* The wool 1*l.* 6*s.* 6*d.* deducting the first cost, 8*l.* 1*s.* 6*d.* The nett produce amounted to 4*l.* 8*s.* 9*d.* These were good meat.

5 Mendip, their live weight January 3d, 1792, 406½ lbs. at 3*d.* amounted in value to 5*l.* 1*s.* 7*d.* Their consumption of food from April 3d to April 10th, consisted of cabbages 29 lbs. hay 87½ lbs. from June 20th to June 27th; green vetches 870 lbs. from December 1st to December 8th; cabbages 417 lbs. hay 41 lbs. The weight of wool 19 lbs. 8 oz. which, at 15*d.* amounted to 1*l.* 14*s.* 4*d.* their live weight December 8th, 1792, 636 lbs. increase 229½ lbs. dead weight, carcase 570 lbs. blood 26½ lbs. entrails 53 lbs. fat 45 lbs. heads, &c. 45 lbs. skins 73½ lbs. sold at 5*d.* per lb. for 7*l.* 14*s.* 7*d.* the

wool *1l. 14s. 4d.* deducting the first cost, *5l. 1s. 7d.* The nett produce amounted to *3l. 17s. 4d.** These were but indifferent meat.

RECAPITULATION.

Dorset	-	5.	Sheep paid for 48 weeks	<i>4l. 8s. 9d.</i>	or nearly
			<i>4½d.</i>	per week per sheep.	
Glocester	-	5.	Sheep paid for 48 weeks	<i>4l. 4s. 1d.</i>	or nearly
			<i>4½d.</i>	per week per sheep.	
Mendip	-	5.	Sheep paid for 48 weeks	<i>3l. 17s. 4d.</i>	or nearly
			<i>4d.</i>	per week per sheep.	
South Down	5.	Sheep paid for 48 weeks	<i>2l. 18s. 7d.</i>	or nearly	
			<i>3¼d.</i>	per week per sheep.	
Wilts	-	5.	Sheep paid for 48 weeks	<i>2l. 9s. 9d.</i>	or nearly
			<i>2½d.</i>	per week per sheep.	
Leicester	-	5.	Sheep paid for 48 weeks	<i>2l. 1s. 7d.</i>	or nearly
			<i>2d.</i>	per week per sheep, and <i>1s. 7d.</i> over.	

For the Agricultural Magazine.

ON IMPLEMENTS OF HUSBANDRY.

We think ourselves happy in being able to present to the notice of our readers a Catalogue of the most improved Implements of Husbandry. As the author of the Farmer's Calendar has ever been indefatigable in collecting the best information on that head, and a new edition of that work being in contemplation, we thought it adviseable to wait for its publication, not doubting but it would prove highly satisfactory to our readers. Every instrument of the most modern invention down to October, 1802, is there noticed, and from the well known agricultural abilities of the author, we have no fear in vouching for the accuracy of description and properties ascribed by him to each. E.

THE THRESHING-MILL.

THAT greatest of all modern improvements, was invented in North Britain; the principle on which it acts, to clear the corn from the straw, is not that of beating, but swingling it as with flax, the operation being performed by a cylinder, which moves with an astonishing velocity. These machines are now very general in Scotland, even among the inferior classes of Farmers, being made of various dimensions, and wrought by one, two, or four horses, or by water; their price from *25l.* to *60l.* or upwards, when made to clean the corn, which requires more machinery and more room.

Mr. Moody, at Rischold, Lincolnshire, has a mill constructed by Parsemore, of Sheffield; cost *36l. 15s.* Mr. Young remarks, that all the machines he had before seen,

* Wrong calculation, instead of *3l. 17s. 4d.* the amount would be *4l. 7s. 4d.* at which rate the Mendip would be more profitable than the Gloucester. E.

threshed every kind of corn well, excepting barley. Here was, however, a favourable exception: the threshers declared in favour of the machine against themselves. The circumstance upon which the good threshing of barley depends, is the iron covering under which the beating wheel, having six beaters, moves; this in Mr. Moody's is fixed, but the beating wheel admits rising and lowering at pleasure; but a new improvement is to make the iron roof moveable, and the wheel fixed. This iron is so near the beaters that it rubs as well as strikes the grain out. Mr. Young advises a semicircular cast iron to close upon the beating wheel.

AN NEW PORTABLE THRESHING MACHINE is advertised by Lester (see our Number 39) price 30*l*. A singular advantage of this implement is reported lately in the *Annals of Agriculture*. A Farmer threshed and sold all his wheat on a declining market, saving at one stroke money enough to repay the cost of the machine.

PLOUGHS.—Lord Somerville's two ploughs (see Number 39) to be had of M'Dougale. The double or two furrow plough for light lands, and the single plough for strong soils, or for breaking of lea ground, I apprehend to be the most finished and complete tools of the present time.—The double plough is making its way rapidly, and is particularly well calculated for Berkshire, Essex, Norfolk, and indeed for particular parts of every district. It is best adapted to light and level soils, which are also most suitable to the drill culture. It has been properly observed, that they who determine to adhere to the old custom of driving a great number of horses at plough, should surely adopt the double one, and this seems to be really the case in the midland counties, five horses and one man with a double plough, for it requires no holder, will do as much work, in a tolerable level soil, as two ploughs with their complement of horses, men and boys.

The ploughs in Scotland were formerly long and heavy, but well enough calculated for the powerful draught of four and six horses: of late years Mr. Small, of Ford, has reduced and simplified them. The mould board, now a plate of cast iron, he has modified into such a form of curvature, as to make less resistance to the earth turned up, by which it requires less force to draw it than any other plough known in the country, whilst the furrow itself is gradually laid over to its proper position. This plough has no wheels. Price 40*s*. to 50*s*.

THE KENTISH TURN-WREST PLOUGH.—The beam of oak ten feet long, five inches deep, and four broad; behind is a foot four inches by three and an half, and three feet and a half long, on the tops the handles are placed; the foot is tenoned to the end of the beam, and mortised at the bottom to the end of the chep. Through the beam, at two feet five

inches distance from the foot, is a sheath of oak, seven inches wide, and one and a half thick, which is mortised into the chep in an oblique direction: so that the point of the share is twenty-two inches distant from the beam. The chep to which the share is fixed is five feet long, four inches wide, and five deep. The share is of hammered iron, weight about thirty-two pounds, twenty inches long, and from four inches and a half to seven wide at the point. The upper end of the beam rests on a carriage with two wheels, three feet two inches high. On the axle-tree is a gallows, on which is a sliding bolster to let up and down. Through the centre of the axle is a clasp iron, to which is fixed a strong chain, called a tow, that comes over the beam, so fixed as, by means of notches or a pin, called a cheek, to let the whole plough out a greater length from the axle, thereby letting it down to a greater depth. Price, with every kind of tackle fit for drawing, five guineas.

THE KENTISH PLOUGH is an implement of great strength, adapted to rocky and hilly countries, and to turn the soil to a great depth, and to lay the land quite flat, without any furrow or opening, a great advantage, no doubt, in a dry soil. But in my opinion the use of this huge machine is by far too common and indiscriminate in Kent, and the rejection of the Suffolk two horse whip-rein plough, well calculated for the occasional and even general use in some parts, was a proof of a very considerable fund of prejudice in the minds of the Farmers of that county. They have a foot plough, with a turn-wrest, for breaking up leys. Price 2*l.* 15*s.* Also a swing turn-wrest.

THE OLD HERTFORDSHIRE TWO-WHEEL PLOUGH, with its picked share, and those in common use in Berkshire and Hampshire, are powerful implements, calculated to turn up strong and stony soils: it would be a desirable improvement to lighten them, could that be effected without detracting from their power.

In Staffordshire, besides the two furrow plough, they also use the single wheel plough, finding it very convenient, as it requires no holder, but only a lad to drive the horses, and to turn the plough in and out at the end of the furrow. For the purpose of turning up turf, they make the addition to this plough of an iron plate, called a flay, firmly-screwing it to the coulter; this flay slices off the turf, and turns it into the furrow, where the plough immediately covers it with earth; from this single operation turf has at once the appearance of a fallow, and they say harrows nearly as well; it requires an extra horse.

THE LINCOLNSHIRE FEN PLOUGH; an account of which take in Mr. Young's words, who warrants it a most excellent tool. The mould-board of a good sweep; the throat, the segment of an ellipsis, and the form of the share of great merit,

always well steeled and sharpened with files the coulter a sharpened steel wheel, it much resembles the Dutch paring plough of the Cambridgeshire fens, deserves attention, and ought to be in the collection of *the Board*. To this plough Mr. Cartwright has affixed a bean drill of great simplicity for drilling upon the center of the proceeding furrow, while the next is turning, it answers well, and drills every year a great extent of land, nor does it require previous tillage upon a stubble.

A TRENCH PLOUGH has lately been introduced in Lancashire, by Mr. Duckitt, jun. It has a skim coulter, by which the surface, if foul, may be turned under, and fresh soil brought up from a depth of ten inches, three horses being employed.

THE MINER, another instrument has been lately introduced. This is a plough-share fixed in a strong beam without mould board, drawn by four or more horses; it follows in the furrow just made by the other plough, and without turning up the substratum, penetrates, and loosens the soil from eight to twelve inches deeper than the plough had before gone, which operation, besides draining the land, causes the water to carry along with it any noxious matter. The subsoil thus loosened, the roots of the plants have room to penetrate a full depth, and the soil itself is amended by being drained and opened to the influence of the air.

In Nottinghamshire, their common tool is the Dutch swing plough, (of which the Yorkshire plough is an improvement,) its bottom is from two to two feet and an half, with a pair of handles; a one wheeled plough is also used with two horses, and a one wheeled drill plough for turnips, much approved.

The late Mr. Chaplin, of Tathwell, Lincolnshire, introduced a one horse plough, which has been tried with success. It appears sufficient on light lands for all purposes, breaking up sward excepted, and makes great dispatch in turnip sowing. It succeeds also on strong land, which has been previously well worked. The drill part of the one wheeled drill plough might be easily adapted to this. These are made by Mr. Watkinson, at Wragby, Lincolnshire.

THE KENTISH NIDGET, called in the West a tormentor, is a horse-hoe, with triangular shares fixed horizontally at the extremities of tines which are driven into a three cornered wooden frame, in cross bars, at the corner, by which the implement is drawn, a wheel is fixed in order to give the coulters their proper depth.

SHIMS, or BROAD SHARES, for cleaning the surface of stubbles, particularly beans and peas to fit them for wheat or spring crops. In the Isle of Thanet, these are made straight and sharp, very strong, four feet in length, and are often hung behind a pair of cart wheels. Elsewhere they are made in the form of a crescent, or of a large prong, with three or

four broad flat tines, and drawn horizontally, with the points forward, which force their way among the flints and loose stones.

THE SCUFFLER OR CULTIVATOR. The teeth intersect as they are but twelve inches from each other, and by intersecting the distance is reduced to six inches, and then the breadth of the shares being full three inches, reduces the intermediate space to so small a dimension, that the whole of the ground is entirely broken up, and answers the purpose not only of ploughing, but harrowing likewise, without cutting the quick-grass roots in two, which is an advantage that ploughing has not. It likewise from the standing forward, and bend of the teeth, brings all the roots up to the surface, which is another advantage that cannot be had from the plough. The reduction of labor is another advantage that belongs to this instrument, as four horses and one man will do from six to seven acres per day, in sand land.

HAYWARD'S EXTIRPATOR. A Mr. Hayward, of Stoke Ash, has invented a machine for destroying weeds and clearing ploughed lands for seed, which, by the experience of four years, is found more effectual than any other instrument used for that purpose. The extirpator, or scalp plough, as it is generally termed, is drawn by two or three horses according to the quality of the land.

(To be continued.)

ON CHEESE MAKING.

To the Editor of the Agricultural Magazine.

SIR,

I AM much pleased to see a letter on Cheese-making, from your Correspondent Verax—having long been of his way of thinking, as to the possibility of making good cheese in every part of the kingdom, although my humble endeavours to persuade my neighbours into the same ideas, have, it must be confessed, been attended with but little success. Mr. Knight certainly lays too great stress on the pasture from which cheese is ordinarily made, and in my opinion, Verax seems to take too little account of it. There is not, however, the smallest room to doubt, but that good cheese may be made every where with proper attention.

The people of Herefordshire, like those of Wales, are so intolerably addicted to bad customs, that any thing like an attempt to improve them in any branch of rural economy, must prove abortive. I here beg leave to be understood, as speaking of the common Farmers. To Gentlemen of education and well known abilities, this cannot of course have the smallest allusion, and as a proof that men, however wrong their modes, are not easily to be turned from them, I beg

to mention an instance which fell immediately under my own eyes.

Having a few years ago purchased a farm in Wales, and deeming myself a tolerable proficient in the knowledge of managing a dairy, (having spent much of my time with a very capital Farmer in Gloucestershire,) I desired several of my neighbours to call in and see our process of cheese making; they came it is true, but I fear, more through curiosity than a wish to improve. They admired every particular part of the dairy management and utensils, seemed to hint at the *trouble of cleanliness*, and that cheeses so made, would spoil before they were *ready*; still, however, resolved to endeavour to overcome local prejudices, when the cheeses were fit to cut, I again asked the same men to call and taste them. They then shifted their ground. The cows were better than theirs, and their feed also, in short, amongst men of such cast, every attempt at improvement must be fertile, and unless my information be incorrect, these observations are equally applicable to the common Herefordshire Farmers.

When the cheese dairy system was first attempted in Wiltshire, it was deemed little short of folly by the whole county of Gloucester, and it was confidently alledged, that the cheese of Wilts could never enter into competition with theirs. The Wiltshire Farmers, well aware that the value of any article generally depended more on its name, than its good quality and intrinsic work, prudently contented themselves with calling their cheese *Gloucester*, and for many years, supplied the London markets with it under that name. Their manufacture was at first doubtless an imitation, and perhaps an humble one, but it is now in the opinion of good judges, at least equal, if not superior to that of the favourite district of Gloucestershire. The hundred of Berkley, in addition to the opinion of Verax, I beg to state, that of Mr. Davis of Long-leat, who in his excellent general View of the Agriculture of the county of Wilts, observes, that the system of making cheese as managed in North Wilts, would certainly be of the greatest service in many parts of the kingdom, if it could be introduced into them, and that *the production of good cheese in that district, from land totally dissimilar, shews that the goodness of the article does not depend so much on soils and situations, as is generally imagined*. I cannot say that I am aware of any material difference, either in their management of the dairy, or the process of cheese making, from that of the county of Gloucester; but at the same time, should feel myself obliged to any of your numerous Correspondents, who would favour us with a particular description of both, from *practice*.

I am, Sir, your obedient servant, T. POTTS.

For the Agricultural Magazine.

A METHOD OF PRESERVING TURNIPS FROM THE FLIES,
COMMUNICATED BY MR. WESTON, SECRETARY TO THE
LEICESTER AGRICULTURAL SOCIETY.

The following method having been communicated to me from Norfolk, a country particularly famous for cultivating Turnips, and as the season is now approaching for sowing them, it may be found useful to some persons who are willing to try it. R.W.

THE variety of experiments made use of during many years past, for preserving that excellent and useful plant the turnip, from the ravages of the fly, having proved in many places ineffectual, or at least inadequate to the purpose intended. I recommend the following, which for three successive years trial, I have found to answer in every respect, and my discovery was owing to the following accident.

A neighbouring Farmer not having a sufficient quantity of manure for all his turnip land, was under the necessity of sowing four acres unmanured. The effect was, that the turnips on the manured part of the land were mostly eaten off by the fly, while four acres unmanured escaped without injury.

Having a small farm which I occupy for my amusement, and being very anxious to promote improvements in agriculture, I determined the following season to make some experiments from the above hint.

Accordingly in the summer of 1797, I manured five acres well for turnips, and tilled three acres in the usual way without manure. Those which I manured were almost universally destroyed by the fly, in so much, that I was obliged to sow most of the land over again. The three acres which had no manure, were entirely free from any injury. I must indeed, confess, that when I came to draw them, they were not so large.

Not content with this single trial, I determined to repeat my experiment still further. Therefore, in the latter end of the following autumn, after having taken the haulm and seed off, I manured six acres of wheat stubble, which I intended for turnips the ensuing season. This done, I immediately ploughed it, leaving it to incorporate with the earth till the following summer, which had the desired effect; for the turnips which grew upon it, were as large as those on the land which had been manured.

The two successive years I repeated the experiment, which answered beyond my expectation. Hence I infer, that the fly is either ingendered in the new muck, (dung,) or inticed by it. But when this manure is laid on, in the autumn preceding, it loses all that noxious quality, and from what I have observed, retains all its nutritive one, though philoso-

phically speaking, they are liable to be in some degree exhaled by the heat of the sun.

Another material advantage occurring from autumnal manuring for turnips is, that all the seeds contained in the manure, and which of course are carried on the land with it, vegetate almost immediately, and are wholly killed by the severity of the winter. If a few remain, they can seldom avoid destruction from the plough.

This is a more effectual means of clearing lands of weeds, than has hitherto been used, and considerably lessens the labour of turnip hoers.

R. WESTON.

ON SAINFOIN, BY AN ESSEX FARMER, COMMUNICATED TO THE BATH AGRICULTURAL SOCIETY.

Extracted from the Bath Papers.

AS the roots of Sainfoin strike deep in chalky soil, this plant is not liable to be so much injured by drought as other grasses, whose fibres shoot horizontally, and lie near the surface. The quantity of hay produced, is greater and better in quality than any other. But there is one advantage attending this grass, which renders it superior to any other, and that arises from feeding it with milch cows. The prodigious increase of milk which it makes is astonishing, being nearly double that produced by any other food. The milk is also better, and yields more cream than any other. Sainfoin will always succeed well where the roots run deep; the worst of all soil for it is where there is a bed of cold wet clay, which the tender fibres cannot penetrate. This plant will make a greater increase of produce, by at least thirty times, than common grass on turf or poor land; where it meets with chalk or stone it will extend its roots through the cracks or chinks to a very great depth, in search of nourishment. The dryness is of more consequence than the richness of land, for Sainfoin; although, land that is both dry and rich, will always produce the largest crops.

It is very commonly sown broadcast, but is found to answer best in drills, especially if the land be made fine, by repeated ploughing, rolling, and harrowing. Much depends on the depth at which this seed is sown; if it be buried more than an inch deep, it will seldom grow, and if left uncovered, it will push out its roots above ground, and these will be killed by the air. March and the beginning of April are the best seasons for sowing it, as the severity of winter and the drought of summer, are equally unfavourable to the young plants.

For the Agricultural Magazine.

ON TYTHES AS ONE OF THE MOST OBVIOUS IMPEDIMENTS OF AGRICULTURE, AND ON MEANS PROPOSED FOR THEIR ABOLITION, EQUALLY ADVANTAGEOUS TO THE CLERGY AND LANDHOLDERS. BY THE REV. H. J. CLOSE, OF HORDLE, NEAR LYMINGTON, HANTS.*

THOUGH a Clergyman, and deriving the chief support for myself, a wife, and eight children, from the revenues of the church, yet I must candidly acknowledge, that tythes operate as a direct tax on the skill, the capital, and industry of the country; and I believe most of my brethren would rejoice could any mode of payment be devised which would secure to them and their successors, the same rank in society, which they now fill with so much credit to themselves, and with such advantage to the community. I am aware that this is a subject of the utmost importance, and that it will require the attention of the most skilful politician, to relieve the country from this oppressive tax, without injury to a most respectable and useful body of men. Indeed it is a subject which involves in it every thing which an Englishman or a Christian can hold dear. Our political and religious polity will be more firmly established, or shaken to the very foundations, as this question, whenever it may be agitated by the legislature, shall be well or ill conducted. Under these impressions, I should enter upon the subject with no small degree of agitation, were I not conscious that should the opinions of an obscure individual like myself prove erroneous, they will be disregarded by the good sense which in this enlightened æra of society pervades the nation.

The plan I am about to propose is simply this: let the tythes of the kingdom be valued, and each proprietor of land have the refusal of the tythes of his own property at the valuation. Should this business be well conducted, the interest of half, or at most, three fourths of the capital thus raised and vested in the public funds, would secure to the clergy the amount of their present incomes; and the remainder of the capital might be an accumulating fund to prevent the present incumbents, or their successors from suffering any injury by an advance on the necessary articles of life, and a consequent depreciation in the value of the circulating medium. Once in four or five years the average of the price of wheat, the staple and most necessary grain in the country, should be taken, and should it appear that an advance had taken place, the incomes of those who had disposed of their tithes

* See Communications to the Board of Agriculture, Vol. 3, Part 1.

should receive a proportionate addition. But as no power on earth should invade the property of any individual, or oblige him to dispose of it without his free consent; I would propose that the attempt to release the nation from this tax, should originate with the King's most excellent Majesty, who is ever ready to alleviate the distresses, and add to the comforts of his people. His Majesty, with the consent of the Imperial Parliament, may undoubtedly dispose of all the preferment in the patronage of the crown, and to induce the present incumbents to approve of such a measure, an addition to their incomes of fourteen or fifteen per cent. might be offered to all those who have received a composition in lieu of tythes, and whose agreements commenced previous to the year 1795, or these years of scarcity. To others the commissioners might make in writing, such offers as seemed in their judgment equitable, from which no deviation should be made. Suppose the incomes of the parochial clergy holding livings under the patronage of the crown to amount to 110,000*l.* a year; to this calculation, if it may be so termed, must be added at least one third, to come near the full value of the tythes arising from this preferment, independent of those belonging to the dignitaries which are not included. This would amount to upwards of 146,000*l.* per annum, and at only twenty-six years purchase, (though tythes are usually sold at thirty,) would raise the sum of 3,796,000*l.* which at only four per cent. would secure to the clergy holding such preferment their present incomes, and leave about 40,000*l.* as an accumulating fund. The effect this would have upon the public funds must be evident. His Majesty would not be deprived of his patronage: the clergy and their successors would be secure of holding their present rank in the scale of society, and the agricultural interest of our island would be exonerated from a burden which is a constant subject of complaint. Were this scheme adopted and put in practice, with the livings in the gift of the crown, and free liberty given to other patrons and incumbents to pursue the same plan, I am of opinion no such mode of payment as tythes would subsist in twenty years. Let a proportion of every man's farm be free from tythes, and he may crop the other part so as to make it the interest of every lay impropiator to sell at a fair price, and with the clergy there would be few who would make any objection should the plan proposed appear to them as it does to me, a very eligible one.

J. H. C.

ON THE GENERAL APPLICATION OF MANURES
TO LAND.

To the Editor of the Agricultural Magazine.

SIR,

IN applying manure to land several circumstances are necessary to be considered, such as the state or condition of the substances which are to be made use of, the nature of the soils on which they are to be laid, the kind of crop that is to be promoted by them, and the season in which they are to be put into or upon the ground.

It is well known that changes are continually taking place from the moment the materials of the dung heap are thrown together to the period in which they are reduced into a black earthy matter; and that in most of the stages through which they pass in this process of decomposition, such substances are formed as are capable of contributing to the nutrition and support of vegetable crops; it seems probable that in cases where manures are to be turned into the ground, and such crops cultivated as require a supply of nourishment for a considerable length of time, they should be employed in their long or more imperfectly reduced states, as by the heat which is evolved in the commencement of their dissolution, the process of early vegetation may be greatly promoted, and their gradual decomposition and decay, afterwards under the ground, afford a more durable and regular supply of nutrient materials, and thereby contribute more effectually to the growth of the crops; but that where they are to be buried in or applied to the surface of the soil, and intended merely for the benefit and support of such crops as are of short duration, or quickly arrive at their full growth, they may be more advantageously made use of after they have been more fully and completely reduced, as in this state the manure is, (in the case of grass lands,) not only capable of being spread out in a more regular and uniform manner, by which it becomes more evenly as well as more generally carried down to the roots of the plants by rains, but it is in the most suitable condition for allowing the young plants the means of springing up with facility, and at the same time, whether used upon or under the soil, of affording the crops that abundant supply of nourishment which is necessary to their speedy growth and great luxuriance, and by these means to contribute the most perfectly to the promotion of their increase.

Besides the above advantages, of long or imperfectly decayed manures, they have others that depend on the soil into which they are turned, and the nature of the crops that are sown or planted with them. Where they are employed in such stiff clayey or loamy grounds as have a great tendency

to become dry and hard, and thereby incapable of admitting the tender fibres of grains or other plants to spread or extend themselves, and draw in more abundant supplies of nourishment, they may be useful by keeping the earth around them in a more open and porous state from the slowness of their decomposition, and the gradual and continued manner in which the different elastic matters are let loose and united with the soil. Hence, when barley or such kinds of grain as require a rather light and open state of soil, and those bulbous or knobby rooted plants, such as potatoes, that require much room to shoot and extend themselves, are cultivated on such stiff soils, they are generally found to be the most productive where such long or imperfectly reduced manures have been made use of in the preparation of the land.

And as in the slow and gradual decomposition of the materials which are made use of for manures, when slightly deposited beneath the soil, there is much less waste of heat and those elastic matters which contribute so greatly to the support of vegetation, than where they are made to undergo the various processes of dissolution in large masses as in dung heaps, they may probably, sometimes on that account, be most advantageously employed in this state.

On this principle too, the ploughing down of fresh vegetable crops in many cases in their most succulent states, may be a more economical, as well as beneficial practice, especially in such light and dry kinds of soil as will more readily admit of their gradual putrefaction and decay, than to cut and take them off for the purpose of being by other means converted into manure. It seems, likewise, probable on the same grounds, that for the production of crops of bulbous rooted vegetables on the more stiff and tenacious soils, the matters made use of as manures, may be employed with the greatest advantage, when put into the earth before they have undergone any great degree of decay by means of putrefaction, as in this way there is no waste, the whole being ultimately converted and applied, though more slowly, to the support of the crops.

As to the season in which manures may be put into the soil or spread out upon its surface, with the greatest benefit and advantage, though in practice it must in some measure depend on the state of the land and the convenience of the farmer, it should, in cases where they are buried in the ground, be as nearly as possible to the periods in which the seeds, or the roots, which they are designed to support, are sown or placed in the earth; and in the latter case, or where they are to be laid upon the surface of the land, it ought probably to be just before the crops of grass or other vegetables begin naturally to spring or shoot forth.

By the practice of depositing and blending the manure with the soil nearly at the time the crops are put in, there is scarcely any waste of the fertilizing properties of such substances, which as they gradually proceed in their decomposition, and decay under the ground, must otherwise be the case, the roots of the plants not being in the most proper states for taking them up, and converting them to their support. Besides, in the stiff, loamy, and clayey soils, they have a tendency as has been remarked above, to produce a degree of lightness and friability that is suited to the early process of vegetation.

By the application of such manures as are employed in the way of top dressings in the spring, they are laid on in the most favourable period for affording their nutritious principles, and for their being imbibed by the roots of the plants, consequently become useful at the time they are most wanted for the promotion of the crops, and the great waste which must otherwise be caused, either by the excessive falls of rains and floods in the winter season, washing down much of the valuable properties into the adjoining rivers and ditches, or the evaporation of their more volatile or elastic matters, by means of the summer heats, is most effectually guarded against and prevented.

The common practice in some places of applying manure to grass lands in the latter end of summer or beginning of autumn, after the first crop of hay has been taken from the ground, and the after grass has begun to make shoots, is not by any means so favourable as that of early spring, as in the latter case, the generation of those materials that contribute to the support of vegetation, is greatly promoted by the constantly increasing heat of the vernal and summer months; whilst in the former, it is constantly checked and retarded by the increasing coldness of the autumn and winter seasons. Besides, the manure, by being spread out upon the surface of the land, under such circumstances, must be the cause of great loss, by contaminating the after grass, and rendering it incapable of being eaten off by cattle, or other kinds of live stock.

Where, however, a second crop of Hay is to be taken, it may sometimes be put on at such times with advantage to such crop, especially if the weather be not too hot, and the manure in a perfectly fine and reduced state.

There can scarcely be a worse mode of using manures on grass lands than that which is practised in many parts of the country, of carting out the manure during the frost. While the frost lasts the land can derive no advantage from the manures, and where a thaw supervenes, it is evident that the wash from the melting snow, or from the rains which generally fall in such weather, must deprive the mass of every part that is soluble. The ground in the mean time

retains the frost for several days, and is therefore incapable of absorbing the wet which falls upon its surface; and even where the influence of the milder air has reached it; it can imbibe but little, being in general previously filled with water, and the quantity which flows over it, being too great for the soil, under any circumstances, to drink up. *

In favour of this destructive and wasteful practice, however much it may have been defended on the ground of the farmer's leisure or convenience, and the little injury done to the turf, or sward of the land, there can be only one reason alledged, which is, that manure when spread early in the winter, may protect the roots of grasses from the severity of frosts. This too is probably a mistaken notion, as it is known to every one that the common grasses are seldom injured by the severest frosts; and other kinds of grasses may probably not suffer less injury from the application of manure at such a season than from the severity of frosts.

On all these accounts, therefore, farmers should contrive as much as possible, to apply the manures, intended as top-dressings to grass lands, as early in the spring as it can be conveniently done, which may be easily managed on those that are dry; and on such as are inclined to be wet and poachy, it may probably be greatly facilitated by having small light carts constructed for the purpose, and placed on broad cylinders as wheels. By applying manures to grass lands at such periods, the trouble of the farmer will not only be rewarded by much larger crops of Hay, but also by a considerable increase in the quantity of the after-grass; besides his crops in both instances will be more forward than in the ordinary methods of putting them on either in the Autumn or Winter months, which in many cases is a circumstance of great importance.

In the application of manures to lands under tillage, as well as those in the state of grass, there are a few other circumstances that require the attention of cultivators; such as the depth they may be deposited in the soil, the modes of putting them upon the ground, and the most economical methods of employing them.

As the putrefaction and decay of animal and vegetable matters, whether above or beneath the ground, are greatly promoted by the free admission of air, and a suitable degree of moisture to them; it is evident they should not be buried so deep in the earth as that they may be prevented from readily receiving the aid of such causes in forwarding their decompositions; nor, as the process is known to be much retarded by the substances being rendered too dry, should they be placed so near the surface, or be so thinly covered as to permit the action of the sun and winds, before the

crops have risen to such heights, to prevent it from dissipating and carrying away their nutritious properties. The introduction of the manure to a middling depth, as three or four inches, would therefore on these accounts, as well as from its contributing more expeditiously and fully to the vegetation of the crops that may be put in with it, seem in general to be the most advantageous practice; but on the lighter and more friable soils; it may be advisable to plough it in to a greater depth than in such as are heavy and tenacious. In every case, however, whether the manure made use of be in a long or a more reduced state, it should be perfectly covered or ploughed into the earth. The practice of burying manures deep in the soil, has been defended by some, on the ground of its being the nature of elastic matters, to rise or force themselves towards the surface; but when they are placed at a considerable depth in the earth, as the process of decomposition is thereby stopped, or suffered to proceed in but a very slow and feeble manner, little or nothing escapes for the support of vegetation, or it is furnished in so very slow and sparing a way, as to be of scarcely any service to the immediate crops. Thus in the cultivation of such crops as are placed in rows or drills, where the manure is put in at a great depth, and covered pretty thickly with earth, on ploughing or digging them up at the end of many months, it may frequently be observed nearly in the same state as when first put into the ground. And the same thing is often noticed by gardeners, where long dung is placed in deep trenches, and covered to a considerable thickness with mould.

In order that manures may produce their effects in the most perfect manner, they should be spread over the surfaces of the grounds as evenly as possible, whether they be intended to be turned into the soil, or left upon its surface as top dressings. This may be greatly facilitated by placing the manures out at first, in very small heaps, as by such a mode, they may be spread over the ground with much greater ease and exactness; and on grass lands, much less injury will be done by the bottoms of the heaps.

On arable lands, manures should always be turned in, or otherwise covered, as soon as possible after they are spread out; for if this be neglected, much loss may be sustained, especially in hot seasons, by the quick evaporation that takes place in such cases. The best practice therefore, is not to carry out more from the dung-hill at a time, than can be conveniently spread upon and ploughed into the earth in a short time afterwards. In spreading manures employed as top dressings in grass lands; much advantage will be gained by breaking or reducing the clods or lumps into as fine a

state as possible, as by such means they are not only applied more perfectly, but washed by the rains much more readily to the roots of the grasses. The spring of the young grass is also less retarded, where the manures are rendered fine and powdery, than where they are left in a cloddy state.

Another economical mode of employing manure is, by placing it in the drills, formed for the reception of different crops, which are cultivated in rows, such as peas, beans, cabbages, potatoes, &c. by this method that part of the ground which is intended to bear the crop only is manured, the intervals or spaces between the rows not receiving any, from which, where the business of putting the manure into the drills is properly performed, a great saving must of course be made. According to the conclusions of the author of the "Experienced Farmer," the saving of manure in this way is so great, as to constitute one of the chief advantages of the drill system of husbandry. His calculation is that by drills being made two feet asunder, and each drill six inches wide at the bottom, there will be just one fourth part of the ground covered with manure. For as six inches multiplied by four, give two feet, which will be the distance from drill to drill, and as four multiplied by four make sixteen, it follows, that if the whole of the land had been covered with manure, sixteen loads would have been required, for what is as fully and beneficially performed by four, that is by one quarter of the quantity used by the old method of dressing, supposing it of the same thickness and quality; besides, from the manure being in this method of dressing kept closely together, and the seeds or plants placed immediately upon it, they must, he suspects, receive the advantage of the dressing in a more full and complete manner.

As it appears probable, that in the decay of different materials in the soil, all the nutritious matters as they are formed immediately, become useful for the purpose of vegetation, without any waste being sustained, as must always be more or less the case, where they are deposited together in heaps; it may be an economical practice, as has been already observed, in cases where the crops to be benefited by them, require a regular and lasting, but not large supply of nourishment, or where the ground is required to be kept in an open and rather light state, for a considerable length of time, to employ such manures in their less decomposed states, as by the ploughing down of green succulent vegetable crops, and the turning in of long strawy substances.

By adopting such means, the more perfectly formed manures of the farm, may be reserved for such crops of luxuriant vegetables, as demand more speedy and abundant supplies of nutrient matters.

In respect to the advantage of using one sort of manure in preference to another, it may be observed, that as animal matters are found in general, to undergo more speedily the process of putrefaction than those of the vegetable kind, and as in most instances they afford those mucilaginous and elastic principles, that contribute so largely to the support of vegetable life in greater proportions; such manures as are either wholly or in a great measure composed of them, must be the most beneficially employed where quick and abundant supplies of nourishment are required, as in the growth of all the more gross and luxuriant crops, whether of grain, plants, or grasses; and that as those vegetable substances which contain saccharine, farinaceous, oily, saline, or mucilaginous principles in the largest quantities, are ascertained from experience, to proceed the most readily into the state of dissolution or decay, and consequently to afford more fully and more expeditiously the nutrient food of new plants: where manures are principally formed from them, they should be preferred to such as have been made from the harder and more ligneous vegetable substances, that contain such properties in scarcely any or much smaller degrees, for all the purposes of agriculture.

And lastly, such substances as are found to contain those elementary materials, of which vegetables are principally constituted in their more soluble or loosely combined states, should be made use of in preference to those which possess them in slight proportions, or scarcely at all.

P.

For the Agricultural Magazine.

A CATALOGUE OF ENGLISH, IRISH, AND SCOTCH AUTHORS, ON AGRICULTURE, GARDENING, AND BOTANY, ARRANGED IN CHRONOLOGICAL ORDER, FROM THE YEAR 1480, TO 1700. BY MR. WESTON, SECRETARY TO THE LEICESTER AGRICULTURAL SOCIETY.

AS the study and practice of Agriculture, Gardening, and Botany, are so eagerly pursued at this time, throughout the united kingdoms; it cannot be either unuseful or unentertaining to the lovers of those sciences, to be made acquainted with the various authors, and to shew the progressive improvement, which they have arisen to, since the introduction of printing.

This cannot be ascertained with more propriety and certainty, than by exhibiting the various authors who have succeeded each other, arranged in chronological order.

These three subjects are so nearly allied, although distinct sciences, that it was necessary to arrange them altogether,

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and mark to which each belonged, and in many authors, two are joined together, as agriculture and gardening, and gardening and botany.

Agriculture is the mere culture of the ground with the plough.

Gardening is in a more improved manner, by the hands of a skilful gardener, and the more the farmer imitates the gardener, the more profitable it will be to him.

To assist in both these, botany must lend her aid, as it frequently assists the farmer to ascertain the difference of various plants, when the seeds of one is attempted to be substituted for another, as winter and spring tares, rape and cole-seed, and many others.

EXPLANATION OF THE ABBREVIATIONS.

Agr. refers to Agriculture.

Gar. ——— Gardening.

Bot. ——— Botany.

Nat. H ——— Natural History.

1480. Bryce, Hugh. *The Mimour of the Worlde*. Printed by Coxton, contains one hundred leaves. It treats "of the trees that ben in ynde, and of theyr fruyt." Gar.

1500. ———. *Propertees, and Medecynes for a Horse*. Wynken de Worde, 4to. Agr.

1500. Groshead, Bishop. *Treatise of Husbandrie*. Wynken de Worde, 4to. Translated from the French. Agr.

1510. Vaughan, R. *Water-works*, containing the manner of winter and summer drowning the meadow and pasture lands. Agr.

1516. ———. *The Grete Herbal*. Peter Treveris. Bot.

1521. Arnolde, ———. *The Customes of London, or Arnolde's Chronicle*. Folio. "The craffte of graffynge and plantynge and alteryng of fruyts, as well in colours as in taste." Gar.

1527. ———. *The Grete Harbal*, which gyveth parfyt knowledge and understanding of the boke lately printed by me Peter Treveris. Bot.

1527. Andrew, Laurence. *The vertuous booke of the distillation of all manner of waters, of the hearbes, with the ffigures of stillatories to that noble worke belonging: made rst in High Almayne, by Jerom Brunswicke, translated by L. A.* Bot.

1534. Fitz Herbert. *The book of Husbandry*, imprinted by Thomas Berthelet. Agr.

1538. Bense, Syr Rycharde. *The Maner of Measyrynge of all manner of lande as well woodlande, as of lande of the felde, newly invented and compyled by Syr Rycharde Bense, Chanon of Marton Abbaye, besyde London.* 4to. Agr.

1539. Fitz Herbert. The book of Surveying and Improvements. Small 8vo. 120 pages. Agr. Reprinted in 1799. Agr.

1539. ————. A Grete Herbal: a Table after the Latyn names of all Hearbes; a Table after the Englysh names of all Hearbes; the propertees and qualytees, &c. Londini in edifus, Thome Gibson. Bot.

1542. Macer's Herbal, translated out of Latyne, imprinted by me Richarde Wyer, Charynge-crosse. 8vo. Bot.

1544. Turner, Gulielmus. Anglus Historia de naturis Herbarum Coloniae, in 8vo. Bot.

1550. ————. The Boke of Haukyng, Huntynge, and Fyshyng, with all the propertees and medecynes that are necessary to be kepte. Imprinted by William Powell. 4to.

1551. Turner, M. D. William. A New Herbal, wherein are contained the names of herbes in Greke, Latyn, English, Duch, Frenche, and in the Poticaries and Herbaries latin, with the properties, degrees, and natural places of the same gathered. London: by Steven Mierdinan, in fol. with cuts from Fuschius. The 2d part, with a booke of the natures of the bathes. London: Arnold Birchman, 1562. A 3d Edition in 1568, fol. black letter. Bot.

1559. Morwyn, Peter. The Treasure of Euonymus, conteynge the wonderful hid secretes of nature. 4to. Bot.

1559. ————. The Kalendar of the Sheparden, imprinted by William Powell. fol. Agr.

1561. Hollybush, ————. The most excellent Homish Apothecarie, translated by Hollybush. fol. Bot.

1562. Bulleyne, ————. Bulwarke of Defence against all sickness, sorenes, and woundes that do dailie assulte mankinde, which bulwarke is kepte with Hillarius the gardynier, and Health the physician: with his boke of symples. Imprinted by John Kyngstone. fol. Bot.

1562. Tusser, ————. Five hundred Points of Husbandry. Black letter. 4to. This book is written in stanzas of four verses each, and is very obselete. It contains more verses than Virgil's Georgies. Agr. There are other editions in 1604, in 1672, in 8vo. also in 1710, and 1743, with notes and observations.

1562. Whetstone, ————. Rocke of Regarde, containing the castle of delight, the garden of unthriftinesse, the arbour of virtue, and the orchard of repentance.

1565 Moore, Philip. The Hope of Helthe, wherein is containd a goodlie regimete of life, and the virtues of sondrie herbes, doen by Philip Moore, imprinted by John Hyingstone. 12mo. Bot.

1566. Blundeville, Thomas. The fower chiefyst Offices belonging to Horsemanship. 4to. Agr.

1571. Mountain, Didymus. The Gardener's Labyrinth, shewing the physical virtues of each herb, with cuts, printed by Bynneman, black letter. 4to. 2d ed. 1608, and in fol. in 1652. Bot.

1572. ————. Remedies for Diseases in Horses. 4to. Imprinted by Thomas Purfoot. Agr.

1572. Mascall, Leonard. New Art of Planting and Grafting. 4to. and in 12mo. Gar.

1573. Moore, Philip. A Prognostication for Thirty-four Years, verie profitable for all men, specially for husbandmen. 12mo. Agr.

1574. Hyll, Thomas. Art of Gardening, black letter. 4to. Gar.

1574. ————. The Perfite Ordering with the marvellous Nature of Bees. Black letter. 4to. Agr.

1574. Scot, Reynolde. Perfect Platform of a Hop-Garden. 4to. 2d ed. 1576. Agr.—The first treatise written on that subject.

1575. Morwyng, Peter. The Treasure of Euonymus, containing the wonderful hid secretes of nature, translated out of Latyne, with wooden cuts of herbs. 4to. Bot.

1577. Leigh, ————. Profitable and commendable Science of Surveying Lands. 8vo. and in 4to. in 1578. Agr.

1578. Lyte, ————. Niewe Herbal, or History of Plantes, their straunge figures, fashions and shapes. Fol. By Gerarde Dewes. Another edit. by Edw. Griffin. Bot.

1578. Googe, Barnaby. The Whole Art of Husbandry, in four books. 4to. Black letter. Agr.—Translated from the Latin of Conrad Heresbach, a German. Gervase Markham reprinted this work in 1614, 4to. with insertions, intended chiefly to adapt German husbandry to the English climate.

The following authors are quoted by B. Googe, and said to have been cotemporaries with Fitz-Herbert, but their writings are very scarce, if preserved at all.

Sir Thomas Malbee

John Somer, Canon of Windsor

Henry Brockhull

H. King, D. D.

Henry Dennis

John Hache

Nicholas Yeersworb

Capt. Bingham

Thomas Wettenhall

Richard Deering

Mr. Franklyn

Richard Andrews

William Pratt

Philip Partridge

Henry Datforth.

1580. Frampton, John. Joyful Newes out of the new founde Worlde, with the vertues of herbes, trees, plantes, &c. also the portratures of the sayde hearbes verie aptlie described. Bot.—Englished from the Spanish of D. Monardus. Small 4to. "Delas Drogaas de las Indias." Printed in 3 parts, in 1569, 1571, and 1574.

1581. Frampton, John. *The Husbandlie Orderyng and Government of Poultrye.* 12mo. Agr.

1582. —————. *Boke of the Propertie of Hearbes and Flowers.* Bot.

1586. Hyll, Thomas. *The Profytable Arte of Gardening, now the third time set forthe.* 4to. Gar.

1586. Lupton, Thomas. *A Thousand notable Thinges of sundrie sortes, whereof some are wonderfull, some straunge, some pleasant, some dyvers necessarie, a great sort profitable, and many very pretious.* 4to. Bo. Ag.

1586. Lyte, ——. *New Herbal, or Hystory of Plantes, englisht by Lyte from Dodoens.* Imprinted by Ninian Newton. Black letter. Bot.

1588. —————. *Certain Causes gathered together, wherein is shewed the Decaye of England onlie, by the grete multitude of shepe, to the utter decaye of the house, mayntenance of men, dearth of corne, and other notable discommodities.* 12mo. Agr.

1538. —————. *The Good Huswife's Hande-Mayde.* 8vo. Agr.

1589. Hackluyt, ——. *Voyages, Travels, and Discoveries.* Black letter, fol. Nat. Hist.

1591. B——, J——. *The Book of Thrift.* 12mo.

1591. Cockaine, (Knight) Sir Thomas. *A Shorte Treatyse of Huntynge.* 4to. Agr.

1593. Platt, Sir Hugh. *Dyvers Soyles for manuring Pasture and Arable Land.* 4to. Agr.

1594. Plattes, Gabriel. *Jewell-house of Art and Nature.* 4to. Agr.

1595. Ward, William. *Secretes of the Reverend Maister Alexis of Piedmont, translated out of Frenche into Englishe, written originally in the Italian tongue.*

1596. —————. *Remedies against Famine,* 4to. Agr.

1596. Mascall, Leonard. *On Horses; the second book of his treatise on cattle.* Black letter, 4to. Agr.

1597. —————. *How to chuse, ride, traine and diet both Hunting Horses and Running Horses, with all the secretes thereunto belonging, discovered.* 4to. Agr.

1597. Gerard, John. *Herbal, with cuts, in fol. and in*
1599. Enlarged by Johnson in 1633. Bot.

1597. Lawson, William. *A New Orchard and Garden,* in 4to. Another edition in 1623. Gar.

1597. Langham, ——. *Garden of Health, containing the rare hidden virtues of all kinds of simples.* Black letter, 4to. Bot.

1599. Hackluyt, ——. *Voyages, Travels and Discoveries.* Black letter, 3 vols. fol. Nat. His.

1599. Churchy, G——. A New Book of Good Husbandry.

On Fish and Fish-ponds, translated from the Latin of Dubravius, De Piscinis et Piscium Naturis. Agr.

1599. M——, T——. The Silke-Wormes and their Flies, lively described in verse, by T. M. a country farmer and apprentice in physick, 4to. Agr.

1600. Platt, Sir Hugh. Paradise of Flora. 4to. Gar.

1600. ————. The true and admirable Art of Setting Corn. 4to. Agr.

1600. ————. Certain Experiments of Fish and Fruit. 4to. Gar.

1600. Surfleet, ————. The Countrie Farme, also a collection of hunting the Hart, Boare, Hare, Fox, Grey Coney; of Birds and Faulconrie, with cuts; from the French Maison Rustique of Charles Stephens. Agr.

1601. Holland, M. D. Philemon. Pliny's Natural History, translated from the Latin, in fol.; and written with only one pen. Nat. Hist.

1606. Ram, ————. Little Dodoen, or History of Plants, Black letter. Bot.

1606. Massie, or Maxie, ————. A Treatise on Drilling Corn, in 4to. Agr.

1606. Surfleet, ————. The Countrie Farme, in 4to. 2d. edition. Agr.

1607. Geffe, Nicholas. The perfect Use of Silk Worms, Englished by N. G. 4to. Agr.

1607. Norden, Sir John. The Surveyor's Dialogue, Black letter, in quarto. 2d. ed. 1618. 3d in 1738. Agr.

Some extracts may be seen in the Museum Rusticum.

1608. Mountain, Didymus. The Gardener's Labrinth, in two parts, quarto. Gar.

1609. Butler, ————. Feminine Monarchy, or Treatise on Bees, quarto. 2d. edit. 1637. Agr.

1610. Falkingham, ————. Survey, in quarto. Agr.

1611. ————. The Common's Complaints upon the general destruction and waste of Woods, and the Dearth of Victuals, with Remedies; in quarto. Agr.

1612. C——, R——. An Old Thrift newly revived, of planting and preserving of Timber and Fewel, in four parts, quarto. Agr.

1613. Standish, Arthur. Directions for the Planting of Timber and Firewood. Agr.

1614. Googe, Barnaby. Whole Art of Husbandry, quarto. reprinted by G. Markham, with additions. Agr.

1615. Manwood, ————. A Treatise of the Laws of the Forests, wherein is declared the original and beginning of Forests. Black letter, quarto. Agr.

1616. Rathbone Aaron. *The Surveyor*, in four books, fol. Agr.

1616. Surfleet and Markham. *The Countrie Farme*. 3d. edition, fol. Agr.

1618. Seldon, ——. *History of Tythes*, quarto. Agr.

1623. Markham, Gervase. *The Country Housewife's Garden*, quarto. Gar.

1623. Lawson, William. *A New Orchard and Garden*, quarto. Gar.

1624. Simson, Archibald. *Hieroglyphica insectorum vegetativorum, &c. quæ in sacris inveniuntur scripturis*. Edin. His. Gar.

1627. Mascall, ——. *Government of Cattle*, in three parts. Black letter, quarto. Agr.

1629. Parkinson, John. *Paradisi in sole: Paradisus Terrestris, or a Garden of pleasant Flowers*, in fol. 2d. ed. 1656. Gar.

1630 Plattes, Gabriel. *New cheap and delicate Fire of Cole-balles*, quarto. Agr.

1631. Digges, Leonard. *Tectonicon, or a Treatise of Surveying, with cuts*. Black letter. Agr.

1631. ———, ———. *The Shepherd's Calendar*, wooden cuts. Black letter, 2d. ed. fol. Agr.

1631. Austern Francis. *Observations on Sir Francis Bacon's Natural History, so far as it concerns Fruit Trees*; in quarto. Gar.

1631. Markham, Gervase. *Farewell to Husbandry*, in quarto. Agr.

Googe, Barnaby. *Whole Art of Husbandry, with cuts*. Black letter, quarto; another edition of B. Googe, reprinted by Markham. Agr.

1633. Johnson, Thomas. *Gerard's Herbal, greatly enlarged and improved*, fol. with wooden cuts. Bot.

1634. Johnson Thomas. *Mercurius Botanicus, sive plantarum gratiâ suscepti Itineris descriptio, cum earum nominibus latinis et anglicis*. 12mo. p. 84.

—————. *Pars altera*. 1641. p. 45. sive plantarum cambriæ descriptio. Bot.

The first catalogue contains above seven hundred plants, the second two hundred.

Gerrard's Herbal was republished by Mr. Johnson, with great additions and improvements.

1634. Levet, J——. *The Ordering of Bees*, quarto. Agr.

1635. Bate, J——. *The Mysteries of Nature and Art*, quarto. 2d ed.

1637. Butler, ———. *Feminine Monarchie, or Treatise on Bees*, quarto; 2d ed. Agr.

1637. Remnant, ——. A Treatise on Bees, quarto. Agr.
1637. Plattes, Gabriel. Discovery of Subterranean Treasures, viz. of all manner of Mines and Minerals, from the Gold to the Coal; with plain directions for the finding them, &c. quarto. Agr.
1639. De Gray, ——. Compleat Horseman and Farrier. Agr.
1640. Parkinson John. Theatrum Botanicum, or Theatre of Plants, in fol. Gar.
1644. Markham, Gervase. Masterpiece, quarto. Agr.
1644. Plattes, Gabriel. Mercurius Lætificans, 12 pages in quarto. Agr.
1645. Hall, Joseph. Essay on Timber Trees. Agr. An extract from this work may be seen in the Museum Rusticum. Agr.
1645. Weston, Sir Richard. Discourse on the Husbandry of Brabant and Flanders, 24 pages quarto. Agr.
- This Discourse has been looked on as a capital performance, and it is remarked in the Philosophical Transactions, that England has profited in agriculture, to the amount of many millions, by following the directions laid down in this little treatise.
- In another edition, in 1655, Hartlib has annexed Dr. Beatis's annotations to it.
1646. ———, ————. Brief Discoveries of Ways and Means for Manuring and Improving Land. Agr.
1648. Markham, Gervase. Way to get Wealth. Agr.
1. Cattle and Fowl.—2. Recreation for a Gentleman.—3. Cookery.—4. Enrichment of the Weald of Kent.—5. Enriching of Barren Ground.—6. Making of Orchards and Husbandry of Bees.
1649. Parkinson, John. Theatrum Botanicum, or Theatre of Plants, fol. Gar.
1649. Blythe, ——. English Improver, improved. 4to. Agr.
1649. Blythe, ——. Survey of Husbandry; discovering the best methods of improving of Land; fol. Agr.
1650. Howe, M. D. William. Phytologia Botanica, in 12mo. Bot.
- In 1665, he published the Stirpium Illustratione of Matthias Label, under his inspections, in quarto. Bot.
1650. Hartlib, Samuel. His Legacy; a second edition in 1651; a third in 1655.
1651. Hartlib, Samuel. Concerning the Defects and Remedies of English Husbandry, in quarto. Agr.
1651. Speed, Adam. The Reformed Husbandman, imparted to Hartlib, by Speed, quarto. Agr.

1652. Grew, Nehemiah. *The Anatomy of Plants.* 2d. ed. in 1682. fol. Bo.

1652. Mountain, Didymus. *The Gardener's Labyrinth, containing new and rare inventions, with cuts.* fol. Gar.

1652. Mascall, Leonard. *Art of Planting and Grafting.* Gar.

1653. Blythe, ——. *English Improver. Improved,* 3d ed. quarto. Agr.

1653. Mascall, Leonard. *On Cattle.* Black Letter, quarto. Agr.

1653. Plattes, Gabriel. *Jewel-house of Art and Nature,* quarto. Agr.

1653. Plattes, Gabriel. *Observations and Improvements in Husbandry, imparted to Sam. Hartlib, with twenty experiments.* 32 pages, quarto. Agr.

1654. ———, ———. *The Countryman's Recreation, or three books of Planting, Grafting, and Gardening,* quarto. Gar.

1654. ———, ———. *The Expert Gardener, with cuts.* Gar.

1654. Whitaker, ———. *The Blood of the Grapes.* 8vo. Gar.

1654. Cole, William. *Introduction to the Knowledge of Plants.* 12mo. Bot.

1654. Cole, William. *The Art of Simpling.* 12mo. Bot.

1656. Markham, Gervase. *English Housewife.* Agr.

1656. Plattes, Gabriel. *Practical Husbandry Improved, or a Discovery of Infinite Treasure,* quarto. Agr.

1656. Parkinson, John. *Garden of Pleasant Flowers,* in fol. cuts. 2d ed. Gar.

1656. Tradescant, John. *Museum Tradescantianum.*

Hortus Tradescantianus, 202 pages, in small 12mo.

1657. Hartlib, Samuel. *Commonwealth of Bees.* Agr.

1657. Austen, Francis. *On Fruit Trees,* quarto, Gar.

1657. Ligon, Richard. *A true and exact History of the Island of Barbadoes, also of the principal trees and plants there.* cuts. fol. Bot.

1658. Stephens and Brown. *Catalogus Horti Oxoniensis. Oxoniae,* 8vo. 2d ed. Gar.

1658. Platt, Sir Hugh. *Garden of Eden,* 8vo.

This is his *Flora's Paradise* (with a second original part) published by his kinsman Bellingham, with the title changed. Gar.

1658. Evelyn, Esq. F. R. S. John. *The French Gardener; instructing how to cultivate all sorts of Fruit-trees, and herbs for the Garden,* fol. Gar. A 3d edition of this work appeared in 1679, illustrated with sculptures.

As Mr. Evelyn was so great a contributor to the improve-

ment of gardening in England, his works are here inserted altogether in the order they were published.

1664. *Kalendarium Hortense*, or the Gardener's Almanac. Gar.

1664. *Sylva and Pomona*; a 2d edition in 1669; a 3d in 1679, and his last during his life time in 1705; a 4th in 1729, all in folio.

Dr. Hunter has reprinted it, about 1774, in quarto, with great additions and engravings.

In 1662, on establishing the Royal Society, he was appointed one of the first fellows and council, and published his *Sylva*, or Discourse on Forest-trees at their request.

1675. *Terra*, a Philosophical Discourse of Earth, relating to the culture and improvement of it for Vegetation, and the Propagation of Plants. Phil. Trans. afterwards in his works in fol. and in 8vo. and since in 12mo. Agr.

1693. *Treatise of Orange-trees*, translated from the French of La Quintinie. Gar.

1669. *Acetaria*, or a Discourse of Sallets, 12mo. Gar.

This was his last work, and he died in 1706, aged 85. He contributed largely, also to Houghton's Husbandry and Trade Improved.

Sylva; or a Discourse of Forest-trees, and the Propagation of Timber; to which is added *Pomona* concerning Fruit-trees, in relation to Cyder, the making and several ways of ordering it, &c.

1659. Duckett, Thomas. Proceedings concerning the Improvement of all Manner of Land, &c. Agr.

1659. Philpot, ———. Survey of Kent. fol. Agr.

1659. Speed, Adam. Adam out of Eden, 12mo. Gar.

1659. Lovel, ———. Complete Herbal. Oxford, 12mo. 2d edition, 1665. Bot.

1660. Gendre, ———. Right Manner of Ordering Fruit-trees, 8vo. Gar.

1660. Raius, Joannes. *Catalogus Plantarum in aureâ Cantabrigiæ*.

Catalogus Plantarum circa Cantabrigiam, nascentium, 8vo. appendix in 1663 and 1685. Bot.

Mr. Ray being so eminent an author, and having published so many works, they are all inserted together, as is done with Evelyn.

1669. Experiments about the Tapping of Trees, and the Ascent and Descent of their Sap. Phil. Tran. Bot.

1670. Catalogue of English Plants, 8vo. 2d. ed. 1677. Bot.

1673. Observations, Topographical, Moral, &c. made in foreign countries.

Catalogus Stirpium in exteris regionibus observatarum.
Bot.

1674. Discourse concerning Seeds, and the Specific Differences of Plants. Bot.

1682. Methodus Plantarum Nova, 8vo. Bot.

1686. Historia Plantarum Generalis. fol. Bot.—Second volume 1687, the third 1704.

1688. Fasciculus Stirpium, Britannicarum, 8vo. Bot.

1690. Synopsis Methodica Stirpium Britannicarum, in qua tum notæ Generum Characteristicæ traduntur, tum species singulæ breviter describuntur, 8vo. Bot.

1693. Methodica Animalium Quadrupedum, and then set about his Synopsis of Birds and Fishes; but this getting into the hands of the booksellers, lay suppressed many years, and was not published till after Mr. Rays death, in 1713, by Dr. Derham. Nat. Hist.

1691. The Wisdom of God manifested in the Works of the Creation, 8vo.

He assisted Mr. Willoughby, in his Observations upon Birds, which he reduced into order, and published after his death, in 1678, and his History of Fishes in 1685.

1660. Sharrock, ———. On the Propagation of Vegetables, by the concurrence of Art and Nature. Gar.

1661. Digby, ———. On Vegetation, 12mo. Gar.

1661. Grew, Nehemiah. On the Vegetation of Plants, 8vo. Gar.

1662. Atwell, George. The Faithful Surveyor. Cambridge, 4to. Agr.

1662. Dugdale, ———. The History of Imbanking and Draining of divers Fens and Marshes, both in foreign parts, and in this kingdom, and of the improvements here, extracted from records, manuscripts, and other authentic testimonies.

This work was exceeding scarce and sold at a very high price, but was reprinted in 1772. Agr.

1664. Blake, ———. Gardener's Practice, 4to. Gar.

1664. ———, ———. England's Happiness increased, or a Remedy against all succeeding dear years, by a plantation of Potatoes. 4to. Ga. Agr.

Potatoes were introduced into England, from the Continent of South America, by

This is the first treatise expressly on potatoes; but who the author is I have never yet discovered.

1665. Rea, John. Flora, or a compleat system of Gardening, with cuts, fo. Gar.

1666. Merret, Christopherus. Pinax Rerum Naturalium Britannicarum continens Vegetabilia, Animalia et Fossilia. 8vo. Bo. Agr.

1668. Chamberlayne, M. D. ———. *England's Wants*, humbly offered to the consideration of all good Patriots in both Houses of Parliament. 4to. Agr.

1668. Lawson, William. *Husbandry of Bees*, quarto. Agr.

1668. Worlidge, ———. *System of Agriculture*, fol. 2d ed. in 1675. Agr.

1669. ———, ———. *Observations and Advice œconomical*, 12mo. Agr.

1669. Blagrave, Samuel. *The Epitome of Husbandry*, 12mo. Agr.

He has copied 181 pages from Fitz-Herbert, without making any apology, and the remaining chapters are taken with the same liberty from Mascall, Blythe, and an Italian author, who wrote a *Treatise*, called by the Translator, the *Heroic Excellence of Horsemanship*.

1669. Morison, Robertus. *Hortus Regius Blesensis, auctus, seu Preludia Botanica*, 8vo. Another edition at Paris, in 1665, fol. Gar.

1669. Newcastle, Duke of. *New Method and extraordinary Invention to dress Horses*, fol. Agr.

1670. Iliffe, ———. *Compleat Vineyard*, 12mo. Agr.

1670. Smith, ———. *England's Improvement*, revived, quarto. Agr.

1670. Bacon, Lord. *Sylva Sylvarum, or a thousand curious Observations in Natural History*. Nat. His.

1670. Pettus, ———. *History, Laws and Places of the chief Mines and Mineral Works in England, Wales, &c.* fol. Agr.

1671. ———. *Saint Foine improved*, quarto, 2d ed. 1674. Agr.

1672. Drope, ———. *Sure Guide of raising and ordering Fruit-trees*, 8vo. Gar.

1672. Grew, Nehemiah. *The Anatomy of Vegetables begun, with a general account of Vegetation founded thereon*, 12mo. with figures. Bot.

1672. Hughes William. *The American Physician, or a Treatise of the Roots, Plants, Trees, Shrubs, Fruits, Herbs, &c. growing in the English Plantations in America*, 12mo. Bot.

1672. Josselyn, John. *New England's Rarities*, 12mo. Bot.

1672. Morison, Robertus. *Plantarum Umbelliferarum distributio nova, pertabulas cognationis et affinitatis ex libro naturæ, observata et detexta*. Oxonii. fol. Bot.

Plantarum Historia Universalis Oxoniensis. tomus 2 dus. fol. Oxoniæ. 1680.

To. nus 3 tius, post auctoris mortem expletus et absolutus à Jacobo Bobartfol. Oxoniæ. 1699.

1672. Grew, Nehemiah. An Idea of a Philological History propounded, together with a continuation of the anatomy of vegetables, particularly prosecuted upon roots. 8vo. Bot.

1673. Almond, ——. The English Horseman. 8vo. Agr.

1673. Evelyn, jun. ——. Of Gardens, in four books. 8vo. Translated from the Latin of Renutus Rapinus, published at Leyden. 1672. 12mo. Gar.—Mr. Gardiner also, in 1706, translated it.

1675. Grew, Nehemiah. The Comparative Anatomy of Trunks, together with an account of their vegetation grounded thereupon, in two parts. 8vo. Bot.

1675. Cotton, Esq. Charles. The Planter's Manual, in small 12mo. Gar.

1676. Cooke, ——. On Forest-Trees. 4to. 2d edit. in 8vo. 1700. Gar.

1676. Sherley, ——. Curiosities of Scurvy-Grass, with cuts. 8vo. Bot.

1676. Rea, John. Flora, Ceres and Pomono. Fol. Gar.

1677. Geddes, ——. Method of Bee-hives. 8vo. 2d edit.

1721. Agr.

1677. Worlidge, ——. Art of Gardening. 2 vol. 8vo. Gar.

1678. Willoughby, Esq. ——. Observations on Birds. Nat. Hist.

1678. Plot, L. L. D. Robert. The Natural History of Oxfordshire, fol. with copper-plates. Fol. Nat. Hist.—Dr. Plot was Keeper of the Ashmolean Museum at Oxford.

1678. ————. Reasons for a Registry of Lands. Agr.

1679. ————. Compleat Gardener. 4to. Gar.

1680. Mascall, Leonard. The Countryman's Jewell, in 3 books. 8vo. Agr.

1681. Houghton, ——. Collection of Husbandry, 2 vol. 4to. Fol. in 1697, and 1727 in 4 vol. 8vo. Agr.

1681. Firmin, Thomas. Proposals for Employing the Poor. 4to. Agr.

1681. Knox, Robert. Historical Relation of the Island of Ceylon. Fol. Nat. Hist.

1682. Grew, Nehemiah. An Idea of a Philological History of Plants, and several other Lectures, read before the Royal Society. Fol. 83 plates. Bot.

1682. ————. Natural History of Coffee, Tea and Tobacco. Nat. Hist.

1683. Lambert, John. The Countryman's Treasure; or, A Treatise of Oxen, Sheep, Hogs and Dogs. 12mo. Agr.

1683. Hughes, ——. *Flower Garden and Vineyard*. 12mo. Gar.

1683. ————. *On the Management of Orange-Trees*, 12mo. Translated from the Dutch of Commelyn, in fol. Gar.

1683. Meager, Leonard. *Compleat English Gardner*, with 24 cuts, 4to. Gar. 10th ed. 1704.

1683. Sutherland, James. *Hortus Medicus Edinburgensis: or a Catalogue of the Plants in the Physical Garden at Edinburgh*, containing their most proper Latin and English names, with an English alphabetical index, 8vo. 2d ed. 1692. Gar. Bot.---He was Intendant of the Edinburgh Garden.

1683. Newton, M. D. James. *A Complete Herbal*, containing the prints and English names of several thousand trees, plants, shrubs, flowers, &c. all engraved on 176 copper plates, with his portrait. 8vo. Bot.---There is no letter press in this book, it being all engraved on copper plates. It was published again in 1752, 1770, and this last year, price 10s. 6d.

1684. Sibbald, Robertus. *Scotia Illustrata: sive Prodrromus Historiæ naturalis Scotiæ, Edinburgi* in fol. cum 16 iconibus. Nat. Hist.

1684. ————. *A Necessary Companion, or the English Interest*. 12mo. Agr.

1614. Plattes, Gabriel. *Remedies against Famine*. 8vo. Agr.

1685. Grew, Nehemiah. *Anatomy of Plants*, on 83 folio copper plates. Bot.

1685. Collins, ——. *System of Anatomy*, treating of man, beasts, fishes, insects and plants, fol. Nat. Hist.

1685. Willoughby, esq. ——. *History of Fishes*. Nat. Hist.

1685. ————, ——. *The Complete Planter and Cyderist*, 8vo. Agr.

1686. Bannister, ——. *Catalogue of Virginian Plants*, fol. Bot.—This work will be found in Ray's *Historia Plantarum*, 3 tomi fol.

1689. Wharton, Samuel. *Schola Botanica, sive catalogus plantarum quas ab aliquot annis in horto regio parisiensi studiosis indigitavit toume fortius, a Samuele Whartono Anglo, vel potius gulielmo, Sherardo in lucem editus*. Amstelodami, 12mo. Bot.

1691. Pluknetius, Leonardus. *Phytographia*, 4to.

Almagestum Botanicum, 4to. 1696.

Opera Botanica, 4 tomi, 4to. 1762. Bot.

1692. Petiverius, Jacobus. *Musei Petiveriani centuriæ decem, rariora naturæ continentis. viz.*

Animalia. Fossilia.

Plantas ex variis mundi plagis advecta, ordine digesta, e nominibus propriis signata. 8vo. Nat. Hist. Bot.

Cent. 1, in 1692, and 1695. Cent. 2, et 3. in 1698. Cent. 4, 5, 6, et 7. in 1699. Cent. 8. in 1700. Cent. 9, et 10, in 1703.

1694. Pechey, John, Compleat Herbal of Physical Plants 8vo. Bot.

1695. Moore, Sir John. England's Interest, or the Gentleman and Farmer's Friend, 12mo. Agr.

1696. Sloanus, M. D. Hans. Catalogus Plantarum quæ in Insulâ Jamaicâ spontè proveniunt, vel vulgo coluntur, 8vo. Bot.

1696. Langford, ——. A Treatise on Fruit-trees, 8vo. Agr.

1697. ———, ——. The Mystery of Husbandry, in 12mo. Agr.

1697. Donaldson, ——. Husbandry Anatomised. Agr.

1699. Facio, ——. Fruit Walls improved by inclining them to the Horizon, with cuts, by Grebelin, 4to. Gar.

1699. London and Wise. The Complete Gardener, with cuts, 8vo. Gar.—These two Authors were Gardeners of eminence, at the period in which they lived. Mr. Wise was gardener at Kensington Palace.

1700. Leigh, ——. Natural History of Lancashire, Cheshire, and the Peak of Derbyshire, fol. Nat. Hist.

1700. Warlidge, ——. Art of Gardening, 2 vol. 8vo. 2d. Ed. Gar.

The Retired Gardener, 2 vols. 8vo. 1706. Gar.—This will be continued to the year 1800, in two parts, first to 1750, which is ready, the other not quite completed.

(to be continued.)

OBSERVATIONS ON THE GRAND JUNCTION CANAL.

(Continued from page 24.)

SCALE.

THE grand basis and support of this Canal being founded in the City of London, and the River Thames, certainly required its being made on a scale adopted for such sized vessels, as would navigate that river with ease and security. There have been, it is believed, a few instances of narrow boats of seven feet beam, passing from London to Oxford by the Thames, and into, and along the Oxford Canal; but these have been very rare, and in vessels so narrow in proportion to their length, few people would be found to venture a considerable traffick on the Thames in all weathers. The canal, with its tunnely locks and embankments, might have been made a narrower one, for seven feet wide boats in a much

shorter time, and at a much less expence: but when it is considered, that 100 vessels per day, is full four to pass each lock every hour, even allowing the canal passable all hours of the night; and supposing 300 days in the year it can be kept navigable, (exclusive of Sundays, frosts, and those unavoidable stoppages, that take place for necessary repairs,) and allowing every such vessel each way to carry 20 tons, would give an annual tonnage of 600,000 tons, or 300,000 in each direction. This most assuredly would have paid the proprietors handsomely for a narrow canal, but would the public have been accommodated to the extent it required? Many of the advocates for narrow canals, allow more vessels to pass in an hour, which is very possible; though but few venture to state, that a greater weight can pass in a year with a single set of locks. Will not the quantities of fuel, cattle, metals, salt, cheese, pottery, glass, &c. from the north; and the almost infinite articles from London, with its various and very valuable manures and ashes; together with the chalk, lime, flints, stone, gravel, sand, wood, and grain, on or near the line, require a wide canal, even supposing a narrow one capable of forwarding a greater quantity than above stated? Narrow boats will also navigate with greater speed in a wide, than in a narrow canal. This kind of vessel will, without doubt, be in much use where expedition is most requisite: two of these will pass the locks together, enabling it on that account only, to do double the business of a narrow one. But the barge capable of conveying 60 tons, (excepting where expedition is superior to every other consideration,) surely promises to become that species of vessel most in request, on account of economy in both men and horses, as one man and one horse extra, will forward thrice the load, except loosing about a day in the whole length.

The necessity of wide canals must also have been allowed, by the Oxford, Coventry, and Grand Trunk Companies, from their entering into an agreement, to widen theirs on the completion of the Grand Junction, if required.

Less waste of water in transacting the same business, will also be sustained in the proportion, as one barge is heavier than two narrow boats.

COMMUNICATIONS AND BRANCHES. The canals in Surry, Sussex, and Hampshire, opening water conveyances from the Thames to the English channels, must operate as much to the advantage of the Grand Junction, as to them; all these districts want to a great extent, many of the leading articles that will be brought from the northern counties; and this in return, will afford them a more extended market for whatever they may have to spare.

London, by means of the Thames, will for a great extent, be the foundation of every link of the general system to the north and south; but the commencement of the Grand Junction at Brentford, promises to be the point of most consequence, from the length of the line, and its very various objects. This place may become in time a very considerable and useful depot, and the seat of many commercial undertakings, at present not thought of: though in this respect, it may yield to the superior advantages of the branch to Paddington.

This is the first branch north of the Thames, and being on one level, is consequently without locks; a convenience of immense consequence, for so many miles immediately connected with the Metropolis.

The market and wharf at Paddington embrace such a variety of objects, and those of such magnitude, making it equally as difficult to particularize them, as any attempt at stating the leading objects of the canal must be deficient, that does not notice, at least, some of the most considerable.

The bason exceeds 400 yards long, by about 30 wide; and already twelve or more convenient warehouses are built, with large inclosed yards for their different commodities; which, with the spacious sheds for hay, straw, and other articles in front, exhibit even already, a faint idea of the consequence this situation will in a short time arrive at.

Every large city must, of course, have the first necessaries of life from the country; and the more perishable and cumbersome articles only, from a short distance. And as nothing so completely ruins the agriculture of any district as selling off its fodder, so *vice versa*, nothing ameliorates the surface more than the manure of large towns. Though these facts are known to nearly all the world, many may not be aware to what extent the Grand Junction Canal will improve the agriculture of several counties, by enabling them to use the various and rich manures of the Metropolis, till now absolutely too far removed, by the expence of conveyance, and in the same proportion, the country every year will be more enabled to send, for the use of the capital, greater quantities of hay, clover, and straw: articles that could not be spared without ruin to every farm that attempts it, but for the mutual advantage of the manure first received, and the supply made regular and certain. Manure then, in one direction, and hay, clover, and straw in the other, will be among the first objects of carriage at Paddington.

Fuel will be a great article here, when we consider that a great part of Herts and Bucks is already, and will more completely, be supplied with pit-coal, and in consequence, will

spare its billet and other fire wood in much greater quantities, for the use of the metropolis. This trade will increase in proportion, as collateral branches shall be made into districts producing wood.

But pit-coal at Paddington, holds out an advantage to London, that will surely never be lost sight of. For although it cannot be supposed that Staffordshire, and other pit-coal, will supersede sea-coal, in any very great degree, price and quality considered; yet all must allow the effect a moderate quantity kept here, will have in preventing any sudden advance in price. A sufficient inducement to bring large quantities can only exist, when sea-coal becomes, whether from accident or design, unreasonably high. Manure, as back carriage being always obtainable, when nothing more profitable presents itself, and will, perhaps, be the principal cause of enabling any trader to keep pit-coal here, at a price at all in proportion to sea-coal.

Paddington is so far distant from the Thames, as to make even a sea-coal market a great convenience. This is already felt and acknowledged: but that the sea-coal trade should either be much hurt or ruined, is too absurd an idea to be seriously entertained; for the canal could scarcely convey in one direction, a weight equal to the sea-coal imported into the port of London. It may rather be expected that pit-coals will be burnt, on account of their pleasantness and cleanliness, in the palours of a part of the genteel world, and by no means in manufactories, or for culinary purposes.

The cattle market here has surprized many, by the extent it has already acquired; and the necessity for more than one beast market, has been very ably shewn. But surely the company should hold forth encouragement to bring them by the canal! Might not properly constructed vessels, (even gratis,) be an inducement to commence this much talked of mode of conveyance? Or a premium for the first and largest regular weekly cargo of cattle? Will not there be always plenty of heavy metallic articles, as iron or lead, or even slate, to be found, to increase the weight of cattle merely, and yet occupy but little space?

Many have allowed the superior state, cattle, sheep, and pigs, so carried, will arrive in, over those driven; but the experience of some well regulated trials, would bring this practice into general use much quicker and easier than all the reasoning in the universe: and when this superiority of conveyance is established, the cattle-market here will surely rest on as firm a basis, as any market in the kingdom. Mr. Weston, of Piccadilly, has placed this advantage very high indeed; an old salesman also supposes, fat sheep loose six pounds on an average, in driving 60 or 70 miles; if half this loss can be saved by

the canal, it will be very considerable, and tend to lessen the importation of tallow, as well as ensure the meat arriving in superior quality. The loss in weight of large cattle and pigs it is presumed, is in a greater proportion; and the expence by this mode, promises to be very greatly lessened in comparison to the present mode of conveying calves by land.

The garden-stuff market may grow more slowly; but whoever considers the great difference of soil, on or near the line of canal, may reasonably expect many places will more or less, become gardening spots, when they are secure of obtaining so certain a market as this at Paddington, and getting in abundance, London manure in return. Little premiums for considerable and regular supplies, may accelerate the period of making this place the great receptacle for potatoes, carrots, turnips, and the many various products of gardens, that admit of distant carriage and keeping. The more perishable articles may be brought daily from as great or greater distance than by land, at a much less expence. The same arguments will apply to fruits.

Paddington will, no doubt, be daily increasing as a warehouse for every article the north-west part of the Metropolis now gets from the country, on the line of canal: although the route by Brentford and the river, may be preferred for the consumption of the city, and for exportation.

WATER WORKS. From the high level of Paddington, water may be distributed over a great part of the Metropolis, and many have regretted the privilege to do so has not, before this, been made use of: but in justice to the conductors of this business, it does not appear, that there has been, as yet, at *all seasons*, water to spare. When the higher levels come to be noticed, it is hoped it will be shewn that every shadow of inability on this head, may with care be done away; and considerable exertions for this very purpose are now making. In case of fire, and on many other accounts, every large place cannot be too well supplied with water. It is hoped then, that part of the last subscription stated to be for this purpose, will be punctually applied thereto; and no unnecessary time lost in laying down some of the principal mains and pipes. May not a certain division of the town be supplied by each water company? Thereby avoiding opposition, yet each company will be the better enabled to effectually provide for its respective district?

It has been said, few things clear water better than by running it along, or over a sharp gravelly bottom; but if this is neither convenient or efficacious, may not 3 or 4 reservoirs or recesses, of perhaps half an acre each in extent, that is, about equal to the supposed consumption of one day, be formed, and the water in them used in turn? These might easily

be made near the canal, with proper and separate pipes to the principal main; and all the water by this method, would have 2 or 3 days to settle and become clear before it is let off for use.

The newly projected extension of the canal round the North of London, must at this time make, (as a private dispute which has been but lately adjusted, has, for several years past rendered) it difficult to determine to what extent, or on what scale, the different conveniencies at Paddington ought to be made. But it will be a severe reflection twenty years hence, to find the 50 or more acres of land, which the company are in possession of here, occupied by an incongruous and irregular mass of little petty places without plan or design, however convenient each office or warehouse may be in itself; when from the nature of the ground and situation, every thing great and noble, as well as convenient may easily be made. This uncertainty will now not last long; and in the mean time nothing should be done incompatible with a regular plan that can be avoided.

In things of much less consequence, the publick have been invited to give plans, and as the objects of this concern are almost every article from the most costly merchandize to the dung-heap, some little care, it must be allowed, is necessary as to arrangement.

THE LONDON CANAL. The utility of continuing a canal from Paddington round the North of London, consequently crossing every avenue on that side the metropolis, and uniting with the Thames, at or near those immense new, and as yet unfinished works, the London wet-docks at Wapping, and West India Docks at the Isle of Dogs, *below Lime House*, must be generally acknowledged. This, by affording room for erecting warehouses on or near its banks for the heaviest and most considerable articles, will cause a great saving in cartage, and the maintenance of horses.

At every avenue there will be a wharf of very considerable consequence, and the press of business on the banks of the river, will be therefore much lessened. It promises to make the route by Paddington more in use than that by Brentford; yet in very few instances does there appear any thing prejudicial to the Grand Junction Canal: unless lessening the consequence of Paddington as a depot, deserves a consideration.

From the immense quantity of business this will create whenever compleated, a proportionate supply of water will be wanted, and the almost only possible mode of procuring it, is through the Grand Junction. This has certainly none to spare at present, but the sources that have been pointed out will be hereafter noticed.

Whenever any one ventures to contemplate the consequence and extent of any projected improvement in or near the metropolis, the mind becomes soon lost, and shrinks at the magnitude of the object. No wonder then there should be different opinions as to the best mode of executing this great work, some preferring a rail-road to a canal, and others proposing both. A rail-road, however useful it might be in addition to a canal, it is presumed, would facilitate the system of pilferage, already so much complained of. It might make Paddington the first depot in the world, but surely it would fall infinitely short of vessels setting out on their respective trips from warehouses on its banks, adjoining every avenue to the most commercial parts of the city.

A canal also, would fill such warehouses by cargoes of from 30 to 60 tons each, a rail-road by loads of one, two, or three tons only, with the same inconvenience of cartage, when goods must be conveyed at all out of the line.

WESTERN BRANCHES. The level of the Paddington branch may be preserved for many miles, to the west of the principal line. And when the many inconveniences and natural impediments of the Thames navigation are considered, the completing the system of canal communication seems to call for it. Wherever this level meets that of the Thames, an easy and almost natural union may be made, affording a length of canal, unknown in this country without a lock, and supplying plenty of water for every purpose, at or near London; and from a source where such supply can be spared without any material detriment. But the meeting the Kennet at or near Reading, holds out more distant, as well as more numerous, and still greater advantages. This subject, it is now hoped, is seriously taken up.

By this line, and the Kennet, and Avon, the port of Bristol will have a water conveyance to London, not 30 miles longer than that by land: Reading will be within four or five miles as near as the shortest road, and with only three locks.

The peat and its ashes near this line, are objects of immense agricultural consequence; one of the leading advantages of these concerns, being to convey manures cheaply and easily to great distances: and there are perhaps, but few instances where so rich a substance, and inexhaustible in quantity, can prove more useful than this promises to do, to a great extent of country near the Grand Junction Line.

When once a canal is carried over or across the Thames, it may be easily made to communicate with different points of that river, as necessity may point out, or even carried to the mouth of the Thames and Severn Canal.

The easy and improved connections these branches hold out to all the western counties, and even South Wales, are

scarcely inferior to those, the original line promises to the Midland and northern.

In proportion as the Thames navigation is likely to be affected, its proprietors ought to be indemnified; but the whole country on each side that noble river, promises to be benefited in proportion to the variety of points, it communicates with well constructed canals.

The convenience of passage boats to Uxbridge is already felt, and these will certainly increase, from not being troubled with locks towards the west. It may become an agreeable relief to reach Reading, or even further by water, in journies to Bath or Bristol, at least in the summer: and for economy there can be no comparison.

If there is one part of the great system that will be in more use than any other, it most likely will be that between the extremity of the Paddington line and the entrance of the western branches, particularly at this last mentioned point. May we not expect to see here the commerce of half the kingdom, that cannot more commodiously or more cheaply be sent coastwise, seeking its best market, the Metropolis? The London manufactured and imported articles in the same proportion, travelling the contrary way. Sea coal, Staffordshire and Somersetshire coals, perhaps, will be going in all directions at once, each correcting any deficiency or exorbitancy of price in the other. Even dung, ashes, and soot from London, lime and chalk from the north, and peat from the west, may cause as many vessels to pass this point, as at present in its infant state exist. But when those loaded with every kind of provision for the Metropolis, and vessels for pleasure are added, the daily number passing this spot, may amount to more hundreds than some people are willing to allow scores.

(To be continued.)

CRITICAL CATALOGUE.

- I. *Observations on the Structure, Economy, and Diseases of the Foot of the Horse, and on the Principles and Practice of Shoeing.* By Edward Coleman, Professor of the Veterinary College, Principal Veterinary Surgeon to the British Cavalry, and to his Majesty's most Honourable Board of Ordnance, and Honorary Member of the Board of Agriculture. Vol. II. royal 4to. 3l. 13s. 6d. boards.

THE Veterinary Student will doubtless be inclined to expect considerable gratification from this volume, but we fear he will be disappointed to find the information it contains, so very disproportionate to its price. It appears, in fact, to contain very little new. The observations on shoeing are, in a great measure, a repetition of what Mr. Coleman published on the same subject in the former volume.

As a work of practical investigation, and designed for general utility, it is to be regretted, that the price places it beyond the reach of any, but a few affluent individuals, or of those who purchase a work not for the purpose of perusing it, but merely as an addition to their libraries.

Mr. Coleman divides his work into four distinct parts, in order to examine the structure and functions of the contents of the hoof, on the nature and knowledge of which he asserts, that the principles and practice of shoeing adopted by the Veterinary College, are founded. He first considers the bones of the foot, with their ligaments and cartilages.

Secondly, the coverings of the coffin bone, namely, the sensible laminae, sensible sole, sensible frog, and sensible bars.

Thirdly, the muscles and tendons, by which the bones are put into motion.

Fourthly, the arteries, veins, nerves, and absorbents.

After treating of the above subjects in the order enumerated, he then vindicates the manner of shoeing adopted at the College, from the objections made against it; successfully combats Mr. Moorcroft's practice, in recommending the seated shoe as inconsistent with the principles he professes in common with the author.

As no part of the animal economy of the horse, is more liable to derangement or disease than the substances composing the foot, none therefore, demands more accurate investigation in order to ascertain the causes of those diseases, which, if not timely checked, infallibly terminate in depriving man of the assistance of this valuable servant.

There is no point on which the opinions of Veterinary Practitioners are more at issue than the method of shoeing. Every one who has devoted the smallest degree of attention to the structure of the foot, must be aware that an improper system of shoeing cannot fail to produce the worst consequences. The difference that exists on this head, amongst the professors of the Veterinary Art, is therefore the more to be regretted. Mr. Coleman, as we have seen, lays down a method that disagrees with Moorcroft's practice, and we observe, that the manner recommended by the former, differs from the principles inculcated by Mr. White, whose popular and useful manual we noticed in a former Number of the Agricultural Magazine.

For the sake of contrasting the opinions of those two writers on this subject, we shall introduce their own words,—Mr. White, (page 166,) says:

“It will probably be observed of the shoe which I have recommended, that it is inconsistent with the principle of the frog's receiving pressure. I believe it is an incontrovertible fact, that unless the frog receives a certain degree of pressure, it will become soft, and incapable of affording sufficient protection to the sensible frog which it covers; that the heels will gradually contract, and the natural form of the foot be destroyed; for I have proved by experiment, that the bars alone are not sufficient to prevent contraction, though they certainly oppose it with considerable force; but *it does not follow from this, that it is necessary for the pressure to be constant, nor do I believe, that a shoe which allows the frog to bear upon the ground,*

when the animal stands upon a plane hard surface, can be always applied even to sound feet without inconvenience. There is no doubt, that a horse in a state of nature, has his frog almost always in contact with the ground, and then of course, he feels no inconvenience from it; but when burthens are placed upon his back, and he is driven about upon hard roads, he is certainly on very different circumstances, and if the frog in such cases, were constantly exposed to this severe pressure, it would sometimes, I believe, occasion lameness."

Let us now hear Mr. Coleman.—

"If the frog be raised above pressure, and exposed to heat without moisture, I believe there is no system of shoeing that can possibly preserve the hoofs of horses circular. It therefore follows, that when the frog receives pressure from the ground, the cartilages, the quarters, and the frogs, are preserved expanded, and perform their functions, and the heat of the stable is generally incapable of producing contraction; but the frog being raised above the ground, the cartilages lose their functions, and have no power to resist the contraction of the crust. These circumstances, therefore, fully explain what has been often repeated, that whatever form of shoe be adopted, *if the frog does not receive pressure in the stable, at rest as well as in motion, the heels of every individual horse will be more or less liable to contraction, as they are exposed to more or less heat:* and whatever form of shoe be used, if the frog, when at rest, is on a level with the heels, the sole properly thinned, and the horse allowed a proper degree of exercise, the hoof will continue circular."

We have only farther to observe, that the plates to this volume, fifteen in number, are outlines coloured by the hand in a very superior style, and are admirable representations of all the important parts of the foot. To each plate is annexed a descriptive and explanatory reference.

II. *Lettre sur le Robinier, &c.—Letter on the Robinia or False Acacia Tree, with several pieces relative to its culture; by N. François de Neufchateau, Member of the Conservative Senate, and of the National Institute.*

THE French Government has for a considerable time, directed its attention towards the preservation of the forests, and the means of multiplying plantations.

Increasing wants, luxury, and the progress of the arts and manufactures, have prodigiously augmented the consumption of wood; the administration perceived, that a ruinous scarcity of that material would be the consequence of that state of things. Agriculturists, ever solicitous to render themselves useful, eagerly partook of its cares, and considered of the improvements that were necessary. In a situation for obtaining a more perfect knowledge of the urgency of such wants, and the means of diminishing them, Mr. François de Neufchateau has called the attention of the public to the False Acacia, a tree which has almost become indigenious, and so easy to be multiplied in such a variety of ways, to be reared in every climate, and in every soil, even the most uncultivated.

His opinion, on this head, which alone would carry with it very great weight, is confirmed by that of M. Bohadsch, M. Hall, M. Saint-Jean de Creve-Coeur, Filassier, Dettmar-Basse, Miller, Chal-

lan, Muller, &c. whose memoirs he has collected, and to which he has added the most instructive notes and remarks. His work is certainly the most complete and interesting of any that has yet appeared on this subject.

M. François de Neufchateau has not simply confined himself to an indication of the advantages that may be derived from this tree, considered as an article of consumption. He treats of its utility in the different arts; in fact, it is employed with success either for turnery or cabinet-making. It likewise forms impenetrable hedges; it makes vine poles, and hoops, and adds to our enjoyments by the colours which may be extracted from it.

The public is under great obligations to M. François de Neufchateau, for the zeal with which he demonstrated the various purposes to which it may be applied, and with which he endeavours to do justice to the memory of the man to whom France is indebted for this tree.

At the conclusion of the 16th, and beginning of the 17th century, during the storms of a revolution, of which ambition was the motive and religious fanaticism the pretext, arose two men, strangers to every one, eager after knowledge, ardently desirous to render themselves useful, who contemplated, amidst the tumult of armies, the means of consoling mankind and their country, for the misfortunes inseparable from civil commotions; which armed citizen against citizen, brother against brother, and children against the authors of their existence.

One of these was Olivier de Serres, Lord of Pradel, who saw his castle and his farm house a prey to the flames; the other Jean Robin, the Jussieu of his age. Almost all Lexicographers have omitted in their collections, these two respectable names; but gratitude had engraved on the mind, the remembrance of the immortal author of the *Theatre of Agriculture*.—(See No. 40, page 374, of the *Agricultural Magazine*.) and of the celebrated botanist, who commenced a course in which he proceeded with gigantic steps, by tracing the plan of a garden of plants, the grandest and most magnificent of its kind in Europe, and to which the talents of the Messrs. Thouin are daily adding fresh lustre. Jean Robin naturalized, in France, that invaluable tree which Linnæus calls *Robinia pseudo Acacia*. The term Robinia was an homage of gratitude, rendered by talent to ardent and disinterested zeal. A blind habit has still preserved the appellation of false Acacia, and continually leads into error those who are ignorant that the real Acacia is an African tree found in Egypt and the deserts; that it is denominated by the Arabs *om gaillan*, (which according to D'Herbelot signifies, *the mother of satyrs or the demons of the forests*.) It is the sap of this tree, which forms the gum sold to us under the name of gum arabic.

During his too short administration, (which although at a period far from tranquil, was remarkable for the judicious encouragement bestowed on agriculture and the arts,) M. François de Neufchateau thoroughly convinced of the advantage of multiplying the Robinia, never omitted this important subject, in his circular addresses to those in office and to the public; he even pressed it into

his exhortations with a kind of importunity, if that term may be applied to the ever increasing zeal of a minister who can and is determined to do good. Above a million of Robinias on the surface of the Republic, owe their existence to that indefatigable zeal which knew no bounds. Since that time plantations of the Robinia have multiplied, and are multiplying in every quarter, and M. François de Neufchateau enjoys the satisfaction of having been the occasion of them, combined with the grateful sentiment of public gratitude.

III. *Instructions elementaires en Agriculture, &c. Elementary Instructions in Agriculture; translated from the Italian of Adam Fabroni, of the Royal and Economical Academy of Florence; augmented and adapted to the soil and climate of France, by Alexander Vallée, to which is annexed, a Letter from the Author to the Translator.*

THE name of Fabroni, known to such advantage throughout all Europe, justifies the reception which this work has experienced. The translation was very anxiously expected.

The author has selected the most important agricultural subjects: in several dialogues he treats of the earth, seed, crops, trees, meadows, &c. The questions are clear and precise; the answers ready, just, and simple.

Fabroni adopted the form of dialogues in conformity to the plan of the Archduke Leopold, afterwards Emperor of Germany, who had requested him to write some elementary lessons suited to the farmers and peasantry in his dominions.

In translating them into French, M. Vallée, sensible that the difference of the climate required some variation in practical agriculture, has adopted the principles of Fabroni to the soil of France. It is a work that cannot but be held in the highest estimation by all the lovers of agriculture.

IV. *Nouveau Dictionnaire d'histoire naturelle, &c. A new Dictionary of Natural History applied to the Arts, principally to Agriculture and Rural and Domestic Economy. To be completed in about 20 volumes, 8vo. embellished with plates.*

TO collect recent discoveries, to combine the scattered observations of modern naturalists with the notions before acquired, to present an epitome of the matter dispersed through a great number of books, so as to form a substitute for a library of that kind; to give it the most convenient size, and best adapted to propagate instruction, and facilitate research; such is in part the aim of the work here announced. The method adopted to avoid all ambiguity is accuracy in description, as indispensable to precision and clearness in the sciences, as the definition of words in common conversation. Each article commences with a faithful but not too minute sketch of the object to which it is devoted, and to render it the more intelligible, particularly to foreigners, every name or title of an article is accompanied with the designation employed by Linnæus, Latham, and other authors. Anatomical details are not introduced into these descriptions; they form a distinct science, which is only touched upon generally. The editors have, however, not neglected

to point out the most remarkable peculiarities in the anatomy, and internal organization of various animals, and have not omitted short dissertations on any interesting critical subject. After the descriptions, they give a picture of the manners and habits of animals, as well as of the properties of inanimate substances.

A great advantage not to be met with in any book of this kind, and which will, no doubt, enhance the value of this work, is the analytical index which accompanies it, by means of which one may learn natural history as in an elementary book. Besides this the preliminary discourse presents a rapid, but yet sufficiently prolix account of the present state of the science, and the means of accelerating its progress.

But this new dictionary is not confined to this single circle of knowledge. Whatever attractions natural history may have, whatever charms may be discovered in the observation and contemplation of the various works of the creation, the mind is not completely satisfied if these remarks tend only to afford barren information, that is, without any fruit for public or private advantage. It is by studying the manners of animals that we learn the best methods of rearing, preserving, and taking care of those which man has conquered; that we know how to ensnare the wild ones, whose flesh furnishes us with food, or whose spoils supply an article of trade: that the produce of the fisheries is augmented; that insects, and shell fish become the most powerful agents of the wealth of nations, by means of the substances which they afford for arts and manufactures; and lastly, that we wage a successful war with rapacious animals, we preserve ourselves from their attacks, and prevent the frequently excessive multiplication of some species. It is by the precepts of vegetable physiology that we distinguish the soil in which the seed of plants is most vigorously developed, the most proper method of cultivating those which serve for the food or clothing of man, the care and management required by those transplanted from a foreign soil, the most profitable purpose to which they may be applied in the arts and economy; the signs by which malignant plants may be known, &c. It is by the exercise of mineralogy that we make ourselves acquainted with the principal chemical properties of minerals, and their employment in the arts or in medicine, and that the proprietor knows of what kinds of land his estate is composed; whether it contains fertilising marle, coal, minerals in sufficient quantity to induce the erection of forges, if a specimen of an ore promises an advantage adequate to the expence of raising it, &c.

It is well known what powerful influence the state of the atmosphere, and most meteors possess over the animal economy and agriculture; a point is made of describing them in this work, and likewise, the most striking phenomena, as the tides, volcanoes, water-spouts, hurricanes, &c. and to render it as complete as possible, elementary notions are given on natural philosophy and astronomy, with a sketch on the connection between the earth and the celestial bodies, and on the reciprocal action of the one on the other. Lastly, it will be found to contain a satisfactory analysis of all the experiments made to the present time, in electricity and galvanism, those

two active agents diffused through animated beings as well as unorganized substances.

Such is the vast and entirely new plan of this dictionary. It could not be the work of an individual; thus, each of the writers in it (who are mostly members of the National Institute) has undertaken that part with which he is the most familiar. The old dictionaries of natural history, putting the later discoveries out of the question, contain very little relative to agriculture and rural economy, and those which treat of these two arts, have not combined natural history with them. Independent of natural history, the present work embraces whatever it furnishes to agriculture, rural and domestic economy, commerce, and the arts.

Natural history has been so augmented within these 30 years, its application to the arts, to agriculture, and to every object of utility or luxury, has received such extensive developements; such numerous discoveries have been made, that it is impossible to fix the exact number of volumes necessary to complete this dictionary, of which three have already appeared. It may be considered as a real encyclopedia of natural history, in which nothing of importance or utility will be omitted. It will be embellished with figures designed from nature, of the most useful, most interesting, or least known subjects in the three kingdoms of nature.

The authors give in general a figure of each genus, in the classes which are least familiar to most readers, as fishes, insects, reptiles, shells, worms, &c. They likewise give an engraving of all foreign plants which are known only to a few, although of great importance to man, either as articles of food, or as primary materials in the arts, and consequently, interesting subjects to be acquainted with.

In short, in order that the man of science, and the student, the amateur, and he who wishes to obtain a more profound knowledge, may equally find in this new dictionary all that can interest them, and to make it an elementary and truly national work, the generic characters of every part of natural history will be given at the conclusion, on such a number of plates that each character may appear distinct, and be easily recognized.

It will be published three volumes at a time. The first three vols. have just made their appearance, and come down to the word *Cheval* (Horse.) The price at Paris is 19 francs 50c. but in future, each volume will be charged 1 fr. more. The next three volumes will be ready for delivery at the end of February.

HISTORY.

National Transactions.

HOLLAND.

IT is said that an arrangement is negotiating between the Batavian Government and the Prince of Orange, by which the latter will receive an indemnity for the loss of some of his property, situated in the Dutch territory. His Serene Highness, it is also reported, will exchange his newly acquired territory of Fulda for the duchy of Berg.

The legislative body has published an account of the expenditure for the ensuing year, which is considerably less than those of former years. The expenditure for the charges of government, of the legislative body, and of the tribunals of justice, amounts to 1,085,888 florins, for the maintenance of the army, magazines, fortresses, &c. 8,170,825 florins; for foreign ministers, &c. 592,410 florins; for the marine 4,298,272 florins. The Council for the West Indies receive for the expences of the Colonies this year 1,565,733 florins, and the sum of 1,500,000 florins will be advanced to the East India Company.

The Legislative Assembly has definitively resolved that till the 1st of Dec. next, woollen cloths of all sorts may be freely conveyed through the territories of this republic, and bought and sold in it for foreign use; but that the importation of such goods for home consumption shall, from the date of this law, be entirely prohibited, and that only the foreign woollens now in the warehouses shall be permitted to be sold for use in that country.

GERMANY.—On the 5th of January the Emperor ratified the convention, concluded on the 26th of December, relative to the supplementary indemnities to the Grand Duke. The treaty is signed by the Russian as well as the Austrian Minister.—Austria cedes the Ortenau to the Duke of Modena, and receives in exchange the Bishoprics of Trent and Brixen, to be incorporated with the Austrian monarchy. The Grand Duke invited to renounce Trent and Brixen, obtains the Bishopric of Eichstadt, except the six superior bailiwicks of that country, which are to be united to the principality of Wurzburg; he also obtains a part of the Upper Palatinate, but he formally engages not to fortify Eichstadt. Bavaria is to preserve the six superior bailiwicks of the Bishopric, but is to indemnify the Grand Duke, by ceding property which the Elector possesses as Duke of Deux Ponts in Bohemia. The Elector keeps all his possessions on the Inn, and the Town of Passau is to be ceded to him by Austria. The Elector Arch Chancellor obtains all the tolls of the Rhine on the right bank. Prussia is to keep part of the territory of Nuremberg, which she occupied last year.

The Margrave of Baden, at the request of the French government, intends to augment his troops to 10,000 men.

ITALY.—Their Majesties, the King and Queen of Etruria, with their suite, arrived at Leghorn on the 7th of January, on their return from their voyage to Spain, and were expected at Florence on the 13th. The King of Etruria has at length been acknowledged by the Cabinet of Vienna.

A new constitution has been made for the island of Elba. It is to be governed by a Commissary General, and a Council of five persons to be appointed by the First Consul.

Prince Ruspoli, it is said, has at length determined to accept the Grand Mastership of the Order of Malta, having been invited to do so by the Pope, and at the request of some great powers.

The French Squadron at Genoa has sailed from that port for St. Domingo, with the whole of the Polish brigade, consisting of nearly 3,000 men.

SPAIN.—The Court of Madrid has obtained from the Pope a Bull, which authorizes the Archbishop of Toledo to suppress as many convents as he may think proper throughout the whole kingdom of Spain.

It is confidently stated, that the once formidable Tribunal, the Inquisition, is to be entirely abolished. The recent release of M. de Urquyo, who had been disgraced and banished for having declared himself hostile to that institution, gives great probability to the report.

TURKEY, Constantinople, Dec. 27. — According to intelligence from Alexandria eight English ships have arrived, to take on board the English troops in that country, and to convey them to England. The Adjutant of General Stuart arrived a few days ago, and will this day have an audience of the Reis Effendi. Nothing has yet transpired respecting the contents of the

dispatches which he brought, and which have been delivered to the Grand Vizier.

In consequence of an express and repeated request made to the Porte by the Russian Ambassador, permission has been granted to the Spanish, Neapolitan and Dutch merchant ships to navigate freely the Black Sea, and carry on trade in the Russian harbours there, but with this restriction, that they are to be restrained from the farther privileges granted to the French and English of trading in the Turkish ports in that sea, and of establishing Consuls in them.

Colonel Sebastiani has made a report to the First Consul of his late visit to Egypt, Syria, and the Isles of the Levant. It appears that he was charged with two important duties, to demand from the British Commander in Alexandria the immediate evacuation of that fortress, and to mediate a peace between the Porte and the Beys: but in both points he has failed. Although commerce is the avowed object of his mission, yet, from the attention paid by him to the state of the armies of the different military positions, and the fortresses, it appears that he has acted more in the capacity of an engineer than as an agent for trade.

At Algiers the influence of France has been again felt, and the Regency has been obliged to sign a treaty of peace with Denmark, upon terms much less favourable to its own interests than it would have done, but for the interposition of the First Consul.

FRANCE.—The First Consul displays the greatest vigilance and activity in sending out re-inforcements to St. Domingo, and in adopting measures which may contribute to the restoration of the French trade and fisheries.

It is said that the First Consul will himself visit the site of the new fortresses, to be built between Mentz and the Dutch frontiers; he will then decide between the different plans presented by General Andreossi, and the Commissioners of Officers of the Artillery and of Engineers, who have been to the Banks of the Rhine.

The best informed merchants at Antwerp, Ghent, Brussels and Louvain, are employed in drawing up memorials upon the means of restoring the trade of Belgium. These memorials will be presented to the First Consul during his journey through that country.

The law prohibiting the exportation of silk from Piedmont has been revoked, and new regulations substituted, which allow the exportation of that article, upon the payment of certain duties. In these regulations the French Council of State wishes to render Lyons the great mart of the commodity, and to check the commerce of England with Nice; the duties laid upon it at the latter place being higher than those imposed at Lyons.

The Government has definitively organized the Reformed Protestant Church at Paris. It has established a Consistorial Church, and granted for the celebration of the reformed worship the edifice of St. Louis de Louvre, the Pantheon and of St. Mary.

General Laines is about to resume his situation at the Court of Lisbon, as Minister Plenipotentiary from the French Republic.

The French Government has resolved that henceforth no marriages shall be celebrated between Whites and Negroes or Negresses.

Joseph Fesch, Archbishop of Lyons, uncle of the First Consul, Boisgelin, Archbishop of Tours, and Cambaceres, Archbishop of Rouen, are proclaimed Princes and Cardinals of the Church of Rome.

AMERICAN STATES.—Accounts from America assert, that the greatest alarm has been spread throughout the United States, by the shutting up of the port of New Orleans against the American commerce. The right of the subjects of the States to the freedom of commerce on the River Mississippi and to the making of New Orleans a depot for their merchandize, cannot be contested, having been recognized by a solemn treaty, and acted upon without interruption until the present moment.

The Spanish Governor, General of Louisiana, is said to have acted in this affair merely according to instructions received from Madrid. If such be the fact, we may anticipate a very serious issue to the question, as not only the American legislature, but the great mass of the people also, are indignant at this violation of their established right, and seem determined to resist it by every possible exertion.

ST. DOMINGO.—General Rochambeau the successor of Leclerc in the chief command in this island, has not only placed the Cape in perfect safety from the attacks of the Blacks, but has even resumed offensive operations, and by a well planned expedition, recovered the important post of Fort Dauphin.

His able and prudent administration of affairs continues to give general satisfaction both to the planters and inhabitants, and to the foreigners whose relations with the colony are of a commercial nature. A fresh reinforcement of about 2000 men arrived in December at Port Republicain.

GREAT BRITAIN.—The subject which has most interested the public mind during the preceding month, has been the trial and execution of the unhappy wretches, whose traitorous designs had for their aim to involve their country in all the horrors of anarchy, massacre, and confusion.

After the most fair and impartial hearing, their leader, Colonel Despard, and nine of his accomplices were found guilty of the crime of which they were accused, and he with six of his deluded associates accordingly suffered the punishment so justly incurred by their meditated atrocities.

It is with the greatest pleasure that we observe from accounts from every part of the united Kingdom, that trade and manufactures are in a state of increasing activity, and that there is an augmented demand for the productions of British industry, notwithstanding the attempts of our continental neighbours to check our commercial operations.

We shall now briefly take our accustomed survey of the most important subjects which have been submitted to the consideration of the two houses of parliament since their meeting.

HOUSE OF LORDS.—*Tuesday February 8th.* The ordering for going into a committee on the woollen manufacturer's Bill being read, Lord Pelham rose for the purpose of moving that its commitment should be postponed until that day month. His reason for this motion was, that a number of the acts which the bill proposed to be suspended were in fact already repealed, and there were others which required very mature consideration before the measure could be farther proceeded in. A new order was accordingly made for taking this subject into consideration on the 8th of March.

Thursday February 17th. Lord Pelham moved the first reading of the Bank Restriction Bill, which being done, Lord Moira said that no measure ever called more loudly for discussion and for explanation on the part of ministers. He contended that the restriction produced the unfavorable state of exchange, and that no necessity existed for the measure. He concluded by moving for the production of a string of documents relative to the affairs of the bank, which after a very able answer to his Lordship from Lord Pelham, were agreed to be given.

HOUSE OF COMMONS.—*Monday February 7th.* The Sheriffs of London appeared at the bar and presented three petitions. The first prayed for leave to bring in a bill for enlarging Smithfield market, the second for a bill for establishing a regular market for the sale of coals, and the third prayed for a loan to enable the corporation to carry into execution, the bill for improving the port of London.

Mr. Addington then moved for leave to bring in a bill for continuing the restriction of the cash payments of the bank for a limited time. After a debate in which Messrs Fox and Tierney spoke in opposition, leave was given to bring in the bill.

Tuesday February 8th. The report of the committee of supply on the Irish Miscellaneous Services was brought up, and after some conversation in which Mr. Corry and Mr. Wickham took part, relative to the erection of houses of industry in the country districts of Ireland, the different resolutions were agreed to.

Friday February 11th. Mr. Addington moved the committal of the Bank Restriction Bill. The order having been read, the Attorney General moved an instruction to the Committee to make provision in the bill, declaring bank notes a legal tender, and thus doing away a difficulty which had occurred in the courts of law.

Mr. Addington next moved that the blank for the continuance of the act should be filled up with the words, "six weeks after the commencement of the next session of Parliament," which was agreed to. The bill was read a third time on the 14th. and on the same day Mr. Manning brought up a petition, praying for leave to bring in a bill for making a canal from the Grand Junction Canal at Paddington, to the London docks at Wapping.

Tuesday February 15th. Mr. Charles Dundas presented a petition from the brewers of Berkshire, praying relief from the late additional duties on malt. Petitions to the same effect from different parts of the country, were presented by several other noblemen and gentlemen.

Mr. George Rose brought up a bill for abolishing certain petty customs, and for improving the town and harbour of Southampton.

On Wednesday the 16th. a message relative to the discharge of the Prince of Wales's debts was read, and referred to a committee of the whole House.

Agriculture.

AMONGST other effects of the late storms, such a quantity of sea weed has been thrown ashore at Branston, Yorkshire, the estate of Sir Francis Boynton, that it is imagined there are 15,000 loads of this manure. There are daily to be seen from 50 to 70 carts and waggons carrying it into the country, and it is imagined there will be a quantity sufficient to manure the estate for the two ensuing years.

We are happy to hear that the spirit of improvement in Agriculture that has of late years made such rapid progress in the county of York, has extended to the North Moors. A subscription has been entered into by the farmers of Whiby Strand and Pickering Lythe, to which a very liberal donation has been added by Sir Richard Johnstone, baronet, for improvements in husbandry, the breed of cattle, &c. A committee is already appointed, and there is no doubt but that the proprietors of estates in that neighbourhood will contribute to so laudable an undertaking.

We understand that some samples of wool have lately been brought home from Port Jackson, shorn from sheep of the Spanish kind, bred in New South Wales, and it is said, that these samples are quite as fine as the wool of the native Spanish sheep, from which this breed was obtained.

The Berkshire Agricultural Society at their meetings held in 1802, have voted the following premiums for the present year, to be adjudged at Ilfley on the day preceding the day of business of the Summer assizes for that county, that is, on the Monday, if that is the commission day for July, if on a Saturday, then on the Wednesday following.

LAMBS. To the person who shall produce 20 of the best horned ewe lambs, lambed and bred in Berkshire.—three guineas.

The same for 20 of the best Berks Notts.

The same for 20 of the best Cotswold.

The same for 20 of the best Southdown breed.

The same for 20 of the best Leicester breed.

The same for 20 of the best of the above, or any cross breeds.

TWO TOOTH SHEEP. To the owner of 15 of that score of lambs which were shown at last Illey show, which shall at the next show in 1803, be shown as two tooth sheep, and be adjudged the best, and to have improved the most, so as in some degree to determine the best and most useful sort.—three guineas.

To the owner and breeder of 20 of the best two tooth, horned sheep, lambed and bred in Berks.—three guineas.

The same for 20 of the best Berks Notts.

The same for 20 of the best Cotswold.

The same for 20 of the best Southdown breed.

The same for 20 of the best Leicester breed.

The same for 20 of the best of the above, or any cross breed.

RAMS. To the owner and breeder of the best two tooth Ram of each of the above sorts, bred in Berks.—two guineas.

N. B. The Rams must not be shorn before the 1st of May, and the fleece must also be produced. Each lot of sheep shown, shall have been bred in the same stock, and belong to the same person.

SHEEP SHEARERS. Premiums of 3, 2 and 1 guinea will be given to the first, second and next best shearers resident in Berks, who shall shear a sheep in the best and most complete manner, at the next Illey shew, the shearer to produce and shear his sheep on the spot, which must be a folding sheep.

SHEPHERDS. Premiums of 3, 2, and 1 guinea will be given to three shepherds who have resided the greatest length of time in the same service, with any member of this society, or the predecessor of such member.

In order to call forth the attention of all cultivators to the best and most useful sorts of ploughs, and for the encouragement of good ploughmen, the following premiums are offered :

To the owner of the best constructed plough which shall be worked by the best and cheapest team of either oxen or horses, a piece of plate value ten pounds.

To the best ploughman two guineas.

To the second one guinea.

To the next half a guinea.

Rewards to industrious labourers and servants in husbandry. To the labourer in husbandry who has reared the largest family without assistance from parochial relief, two guineas.

To the second one guinea ; to the next half a guinea.

To the woman servant, two guineas.

To the second one guinea ; to the next half a guinea.

To the person being the maker who shall then and there produce the most useful implement in husbandry, not in common use, five guineas.

To the next best, two guineas.

To the maker of the lightest, strongest and best constructed Berkshire waggon, which shall be then and there produced, three guineas.

To the maker or owner of the lightest, strongest and best constructed cart fit to be used with a single horse, for the carriage of burthens, or removal of gravel, chalk, dirt or dung, two guineas.

The following will be adjudged at Wantage, the second Saturday in October, 1803.

To the owner of the best constructed plough that shall be worked by the best and cheapest team of either horses or oxen, a piece of plate value ten pounds.

To the best ploughman two guineas ; to the second best one guinea, and to the next half a guinea.

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Y

CATTLE. For the best fat cow which shall have been kept in Berkshire, for the last year.—three guineas.

For the best boar kept and used in Berks, from Christmas to October.—two guineas.

For the best two year old heifer.—two guineas.

For the best cart colt.—five pounds.

TURNIPS.—To the owner, being a member of this Society, who shall, in October, 1803, have the best crop of turnips, not less than five acres, three poles of which shall be selected and weighed, in the presence of two other members of this Society—a piece of plate, value five guineas. The member, intending to become a candidate for this prize, to give notice to the Secretaries before the 1st of October, 1803, and stake a guinea, which is to be returned if he gains the prize. The Secretaries are then to request one or more of the members, resident near the candidates, to view the crops, and report the same at the ensuing meeting in Wantage. The staking to go towards the expences of the members taking the view, and if not sufficient the remainder to be defrayed from the funds of the Society.

FOR PROMOTING THE WELFARE OF COTTAGERS.—To the cottager who shall, in the course of 1803, have the larger number of bee-hives; the numbers of hives and swarms to be certified by a member of this Society—two guineas.

To the landlord who shall, previous to this anniversary meeting at Wantage, in the year 1803, have laid the greatest quantity of land, not more than half an acre each, in lots to cottage-houses, and furnished the cottagers with young apple-trees—a piece of plate, value 10*l*.

To the cottager who, before that time, shall have raised and maintained the best bounds round such allotment, and have well and sufficiently nurtured and protected such trees—two sacks of malt, or the value thereof.

FOR PROMOTING THE USE OF SICKLES INSTEAD OF REAP-HOOKS.—To the young man, under twenty-one, who shall have reaped the greatest quantity of land with a sickle, never having used one before the year 1803—two guineas.

To the young woman under 21, the same reward.

Rewards to husbandmen will be distributed on the days of meeting at Wantage, similar to those distributed at Reading.

For the encouragement of ten of the most industrious persons in husbandry, who labouring under any bodily infirmity, shall have continued to labour notwithstanding such infirmity, each half a guinea.

Also to the parents of the children (under 12 years of age) who shall prove to the Committee that they have been most usefully employed in husbandry, one guinea.

At a meeting of the South-Devon Agricultural Society, held at the London Inn, Ivybridge, on Wednesday, the 2d of February, 1803, Paul Treby Treby, Esq. in the chair, it was resolved, that the Society should in future have but one general meeting, and that it should be held annually on the first Wednesday in June—that as the improvement of all kinds of farming stock appears to be most beneficial for the improvement of the South-Devon district in a general point of view, the ensuing general meeting is appointed solely for that purpose—that the said general meeting shall be held at the London Inn, Ivy-bridge, on Wednesday, the 1st of June, 1803, at eleven o'clock precisely—that no claimant shall be allowed any of the following premiums whose stock is not produced at or before twelve o'clock, and that the following premiums only shall be offered to the public for the year 1803, and distributed under the usual restrictions:

For the best stallion	_____	5	5	0
For the second best ditto	_____	3	3	0
For the best bull	_____	5	5	0
For the second best ditto	_____	3	3	0

For the third best ditto	_____	2 2 0
For the best breeding cow or heifer	_____	5 5 0
For the second best ditto	_____	3 3 0
For the best ram	_____	5 5 0
For the second best ditto	_____	3 3 0
For the best hog, or two-toothed ditto, bred in this district	_____	5 5 0
For the second best ditto, ditto	_____	3 3 0
The same sheep to obtain only one of the above premiums.		
For the best lot of breeding ewes, not less than six, the property of one person,	_____	5 5 0
For the second best ditto, ditto	_____	2 2 0
For the best lot of two-toothed or hog ewes, not less than six, the property of one person,	_____	3 3 0
For the best fat wether sheep, to be killed on the spot, regard being had to the live and dead weight, and fed in this district, on grass, hay, turnips, potatoes, or any other green vegetable food,	_____	2 2 0
For the second best ditto, ditto	_____	1 1 0
All the sheep are to be produced in the wool.		
For the best boars	_____	2 2 0
For the second best ditto	_____	1 1 0
Satisfactory certificates of the ages of all the cattle, and of the food of the fatted sheep, to be produced to the Secretary previous to the exhibition.		
For the best ram's fleece, to be shorn on the spot	_____	2 2 0
For the second best ditto	_____	1 1 0
To the best sheep-shearer	_____	2 2 0
To the second best ditto	_____	1 11 6
To the third best ditto	_____	1 1 0
To the fourth best ditto	_____	0 10 6
There will be a ploughing match at Marazion, in Cornwall, on Tuesday, the 8th of March, 1803, for the following premiums, offered by the Cornwall Agricultural Society.		
Best ploughman, three guineas, or a coat and waistcoat—his driver half a guinea.—Second best ditto 2l. 2s. or a coat—driver 5s.—Third best ditto 1l. 1s. or a jacket—driver 2s. 6d.—Best plougher, a parish apprentice, 1l. 1s. or a jacket—driver, a parish apprentice, 2s. 6d.		
The trial to be made in a ley field, as for a crop of oats. Ploughs of any description to be admitted. The owner of each to enter the same three days previous to the day appointed for ploughing. The ploughing to begin precisely at eleven o'clock.		
The following premiums are offered by the Society for cattle, to be produced at their annual exhibition, to be held at Bodmin on the first Tuesday in June next.		
For the best bull	_____	£. 10 10 0
Second best ditto	_____	5 5 0
For the best ditto, not exceeding two years old,	_____	5 5 0
Second best ditto	_____	3 3 0
Satisfactory certificates of their ages to be produced to the Secretary.		
For the best stallion	_____	10 10 0
For the best ram, free for all England	_____	10 10 0
For the second best ditto	_____	5 5 0
For the best ram, yeaned in Cornwall, the property of a person within the county,	_____	5 5 0
For the second best ditto	_____	3 3 0
For the best hog ram ditto, ditto	_____	5 5 0
For the ten best store ewes	_____	5 5 0
For the second best ditto	_____	2 2 0
For the best boar	_____	3 3 0

The owner to have the above live stock in his possession in the county, excepting the rams free for all England, at least one month before the exhibition; fourteen days notice to be given to the Secretary of their exhibition.

For the best fat wether sheep, under three years old, slaughtered, fed in Cornwall, on grafs, hay, turnips, potatoes, or other green vegetable food, _____	3 3 0
For the next best ditto _____	2 2 0
For the best ditto under two years old _____	3 3 0
For the heaviest entire fleece of wool from a ram, regard being had to value per lb. the time of growth, and the weight of the animal producing such fleece _____	2 2 0
For the best ditto from a ewe _____	2 2 0
To the best shearer of sheep _____	3 3 0
To the second best ditto _____	2 2 0
To the third best ditto _____	1 1 0
To the fourth best ditto _____	0 10 6

To be entered with the Secretary fourteen days previous to the exhibition.

For the cart which shall be most approved of for strength, lightness and cheapness of construction, and for its general fitness to be used both on fields and roads _____ 5 5 0

At a meeting of the Committee of the Essex Agricultural Society, held at Chelmsford on the 12th of January 1803, Charles Callis Western, Esq. in the chair; it was resolved that the same premiums be allowed for the encouragement of industry and good behaviour in labourers and servants as were given last year, and that the Secretary do advertise the same at the usual time. It was also resolved that the premiums for stock to be exhibited in the present year be adjudged as follows:

To the person who shall exhibit at the meeting of this society to be held at Chelmsford, on Friday 27th of May next, the best cart stallion, his own property, and which he shall engage to cover during the ensuing season within the county—the silver medal.

To the best bull, being two years old or more, the exhibitor's own property, and which he shall engage to use during the ensuing season within the county—the silver medal.

To the best cow or heifer, (then giving milk,) the exhibitor's own property, which shall be kept by him for the purpose of breeding, within the county—the silver medal.

To the best ram, growing a fleece, coming under the denomination of long or combing wool, the exhibitor's own property, which during the season, he shall engage to use or cause to be used within the county—the silver medal.

To the best ram, growing a fleece, coming under the denomination of fine or clothing wool, the exhibitor's own property, which, during the ensuing season he shall engage to use or cause to be used within the county—the silver medal.

To the best pen of three long wool ewe hoggets, bred by the exhibitor within the county, and his own property—the silver medal.

To the best two year old wether, bred and fed by the exhibitor, within the county, and having had neither corn nor oil-cake—the silver medal.

The rams are to be shewn in their wool, and the fat wethers to be shorn.

To the best fat ox, the property of the exhibitor, and having had the same twelve calendar months—the silver medal.

To the best boar, being not less than twelve months old, the property of the exhibitor, and which shall be used the ensuing year, within the county—the silver medal.

No person to be entitled to any of the above premiums for stock, to which at any former period, a premium shall have been adjudged; nor to any person who shall not have been resident in the county at least twelve calendar months, preceding the day of exhibition.

In the spring of 1801, Mr. Sheriff, Kinmyle, Inverness, bought a parcel of great ewes of the white-faced old Highland breed, at 7s. 7d. They lambed in March and April; the lambs were sold off the 1st of June. One old ewe, without a tooth, dropt a second lamb the 1st of November, 1801, which was killed the 29th of December, and for which 30s. were refused. On the 29th of April, 1802, she dropt a third lamb, which was taken off the beginning of June; and on the 12th of Jan. 1803, she dropt a fourth lamb, much larger than any of the former, being got by an English ram; so that this extraordinary ewe has yeaned four lambs, at different times, in the course of twenty-one months.

Sir John Sinclair has lately ascertained that peat earth, ashes, and common dung form together one of the best composts for manure that has ever been brought into use.

A remarkably fat pig was lately killed by Mr. James Godfrey, of the following dimensions and weight: height 21 inches, round its neck 53 inches, round its body 66 inches, from nose to tail 66 inches, its weight 23 stone $2\frac{1}{2}$ lb. leaf $23\frac{1}{2}$ lb. average about 15 lb. per inch. The pig was bred by Henry Bell, Esq. of Walkington, and fattened by Mr. John Brereton, of Brinton, near Holt, in Norfolk.

A few days since five young bullocks belonging to Mr. Clulton, at Hartwood, Surry, were destroyed by the effects of yew, which they had bruted from an hedge. The poisonous nature of this plant has long been acknowledged, and many fatal instances of its effects are on record, but it being a prevalent notion that no cattle will touch till it has been severed some time, and its pointed leaves become clung, the public are informed of the above recent fact that this insidious inhabitant of old orchards and farm yards may not be trusted.

We have been favoured with the perusal of the following letter from the Duke of Bedford. As we deem the subject of importance to a considerable number of our readers, we gladly give it insertion.

Woburn Abbey, Dec. 1. 1802.—The Duke of Bedford, anxious to try the comparative merits of the various sorts of sheep in this island, proposes to the different breeders of each sort, to send him 20 wether lambs to Woburn, between the 13th of September and the 15th of October, 1803, accompanied by a certificate from the breeders of each, stating the period, as near as may be, when they were lambed. The Duke is willing to pay the full price for them, and all expences incurred on the journey. He requests those who propose sending them, to inform him by letter of their intention, in the month of August, or sooner, that he may have the opportunity of declining them, in the event of his having had prior notice of a lot of the same breed being to be sent from another quarter.

The Duke proposes to treat them in the following manner: they will be weighed as soon as they arrive, and again on the 15th of November. They will be then divided into two lots, ten of each sort. One lot shall be such as each breeder shall have himself previously marked as most likely to come to early maturity. These, on or about the 15th of November, will be put to turnips, as followers to the fatting sheep. In this manner they will be kept through the greatest part of the winter. In the last month or six weeks, if it be found practicable, their food will be weighed to them.

They will then be put to tolerable grass in the spring, and produced for the inspection of the company at the sheep-shearing 1804; at which time one of each sort will be killed, unless the breeders of the sheep should object to it. Out of the remaining nine, the breeders, if they are present, or if not, some person from the county where each sort was bred, will be requested to select four, which will immediately be put to good grass, and from that time pushed forward, with the intention of making them good meat as soon as possible. As fast as each sheep arrives at that state, he will be slaughtered, and a particular account taken of his live and dead weight, offal, &c. &c. Such as are

not fit to be killed from grass, will be put to the best turnips and hay on the 15th of October.

The remaining five of each sort in this lot will immediately after the selection of the above-mentioned, be put to a rather bare pasture; such an one, however, as will promote their growth; and on the 1st of November they will be put to turnips, with a small portion of hay, and three of each sort, selected as before by the breeders, or their countrymen, at the sheep-shearing, 1804, will be slaughtered in the same manner as the four above-mentioned. The remaining two of each sort will be kept at turnips through the winter. In the spring the y will be put to good grass, and slaughtered at the sheep-shearing 1805.

In each year of this experiment, an attempt will be made to ascertain the quantity of food consumed by each sort, by putting them into moderate-sized divisions of dry bare pasture, weighing and cutting turnips for them, and twice or oftener in the course of the week, weighing back all that is not consumed. These sheep will be often weighed, and always when their food is changed.

The second lot, consisting of the remaining ten of each sort, will, upon their being divided, be put to hard keep, and will continue to be treated in that manner through the first winter and the following summer. The second winter they will have some hay given them, and in the spring be put to tolerable grass. They will be exhibited at the sheep-shearings 1804 and 1805. Such as are at the last shearing fit for the butcher, will be slaughtered, and the remainder, as soon as they are in proper condition.

The different lots will, of course, be always kept in the same field.

Any person who may send sheep, and who may wish for any particular attention in the treatment of them, will if he gives in his request in writing, have it properly attended to, provided it should not appear to injure the general experiment, or give to his sheep any exclusive advantage.

Stamford Candlemas fair, was by no means so well attended with stock as has been usual. Both fat cattle and store beasts, fetched extravagant prices. The shew of horses too was small, and good ones sold high.

There was a good supply of horned cattle at Morpeth, on Wednesday, Feb. 9th. Some remained unfold. There were also great numbers of sheep, but the demand being great, they were soon bought up at an advanced price.

There was a capital exhibition of fine cattle, at Hereford Candlemas fair; but as few buyers attended, not many were disposed of, at prices rather on the advance. Few horses were brought for sale, and those of an ordinary kind; notwithstanding which, the prices asked were higher than at the neighbouring fairs. The sale of hops was dull, and the number of bags weighed unusually small. Five bags for which 17 guineas per cwt. had been refused by the planter, were disposed of for less than 5*l.* per cwt. The average price asked for prime samples, was 7*l.* 7*s.* Cheese averaged, one meal, from 60*s.* to 66*s.* and the two meal from 46*s.* to 56*s.* per cwt.

At Ledbury fair, there were not many cattle and horses exhibited for sale, the few however, which were sold, fetched their full value.

At Worcester new meeting, there was a large shew of fat beasts and sheep; but inferior in quality to what are generally produced there. The sale was dull, prices somewhat reduced, most of the sheep were turned out unfold. Store cattle considerably lower.

Commercial Affairs.

THE receipt of the customs at the port of Hull last year, amounted to near 400,000*l.* and such is the increase in the trade of that town, that seven acres of water in the Humber, were said to be lately covered with ships that could not get into docks.

The crops of spice on the island of Ceylon for the ensuing season, are stated in a letter received from Madras as follow:—600,000 pounds of cloves, the amount paid to the natives for the same, being 15,000*l.*—200,000 pounds of nutmegs, amount being 6,250*l.*—50,000 pounds of mace, 3,125*l.*—Total paid to the natives for those spices 24,375*l.* An estimate of the sale of the above in Europe, clear of all expence of freight and other charges, gives the following result:

600,000 pounds of cloves, yielding	-	-	240,000 <i>l.</i>
250,000 ditto nutmegs and mace, &c.	-	-	250,000 <i>l.</i>
Total.	-	-	£. 490,000

Manufactures and Useful Arts.

THE rapid rise in the manufacture of West of England broad cloths and kerseymeres, is stated, to be not in consequence of the unsettled state of the workmen, but from the enormous rise of Spanish wool, which has advanced to the price of 7*s.* per lb.

A gentleman of the name of Harriott, has invented a new engine for raising and lowering weights, and for other purposes, by the action of a column of water. The principle of this engine consists in combining the power of the syphon, with the direct pressure of a column or stream of water, so that each alternately acts on the upper and lower part of a piston, within a cylinder, as it were, reversing the syphon at each change; and the power is equal to a column of water of the same diameter as that of the cylinder, and equal in length, to the height of the head above the tail water. By this engine, it is said, that a boy can raise or lower goods of any weight without other exertion than that of merely turning a cock to the stop-mark in the index. It raises and lowers goods, with thrice the expedition usually produced by manuel labour. The ingenious inventor indicates a variety of other purposes, to which this discovery may be applied.

TRUSTEES OFFICE EDINBURGH, JAN. 14, 1803.—The commissioners and trustees for fisheries, manufactures, and improvements in Scotland, have resolved to give the following premiums this year upon the articles under-mentioned, to be lodged in the house of George Thompson, their principal clerk, York-place, Edinburgh, on or some days before the 10th February, 1803, immediately after which, the preferences will be determined by proper judges, to be appointed by the Trustees.

LINENS.

- Article 1. For the best eight pieces of sheeting of a stout full threaded fabric and nearly square, each piece to be about 30 yards long, and 9-8 broad and of the following sets—two pieces of 900, two of 1000, two of 1100, and two of 1200, to be bleached, lapped, and finished for sale. £. 16
2. For the best suit of damask linen, both with regard to the quality and elegance of pattern, the napkins to be wove in a reed of 1000 on an ell fours in the split, the cloth to have from 44 to 48 hundred on 98 inches; the figure to be new, and not to be repeated on the breadth of the table cloth. 30
3. For the best suit of Damask linen as above, the napkins to be wove in a reed of 900 on an ell, fours in the split, the cloth to have from 42 to 44 hundred on 98 inches, the figure to be new, and repeated both in length and breadth of the table cloth. 15
4. For the best two suits of diaper linens of the same pattern, both with regard to the quality and elegance of the patern, which must be new, to be woven in a loom of parts in imitation of damask, not exceeding

- the breadth of 20 designs in the body and border work together, the napkins to be wove in a reed of 1000, on ell threes in the split, the cloth not to exceed 37 hundred on ten quarters broad. 9
5. For the best two suits of diaper of the same pattern, both with regard to quality and pattern, the napkins to be wove in a reed of 900 on ell, threes in the split, the cloth from 32 to 34 hundred on ten quarters broad, and the patterns not exceeding three designs in the breadth. 6
6. For the best twelve pieces 3-4ths huckaback or towelling, in imitation of that made at Darlington, each piece not under 26 yards long, six pieces about 1s. 8d. and the other six about 2s. per yard, to stand full 25 inches bleached. 16
7. For the best twelve pieces of 4-4ths linen, to be of stout and nearly square fabric, to be bleached, taken up soft, lapped and finished for sale, each piece to be about 25 yards long, and of the following sets, three pieces of a 900, three of 1000, three of 1100, and three of 1200, 16
8. For the best six pieces of cambric, each piece to be eight yards long, the yarn not less than six spindles in the English pound, and to be spun from Scottish flax. 16
9. For the best eight pieces of long lawn, each piece to be 32 yards long, and of the usual breadth, and the price to be 3s. to 4s. 6d. per yard, the premium to be 16
- WOOLLENS.
10. For the best four pieces of Scotch carpeting, with regard to the fabric, the colors, and the elegance of the patterns, two pieces only to be of one pattern, and the patterns to be new, each piece not to be under fifty yards long. 15
11. For the best three dozen of blankets in imitation of those made in Wiltshire, each blanket to be 10-4th wide by 11-4ths long, fully, and not exceeding 19s. per blanket in value. 15
12. For the best ten pieces of forest or dressed woollen cloth, each piece not to be under twenty yards long and 7-8ths broad, and not exceeding 5s. 6d. per yard in value. 32
- For the second best ten pieces ditto. 11
13. For the best ten pieces of forest or dressed woollen cloth of the same length and breadth with the preceding article, and not exceeding 4s. 6d. per yard in value. 18
- For the second best ten pieces ditto. 9
14. For the best ten pieces of forest or dressed woollen cloth, each piece not under twenty yard long, and 3-4ths broad, and not exceeding 3s. 2d. in value. 13
- For the second best ten pieces ditto. 6
15. For the best ten pieces of dressed woollen cloth of the same length and breadth with the preceding article, and not exceeding 2s. 3d. per yard in value. 10
- For the second best ten pieces ditto. 5
16. For the six best pieces of duffle or coating 7-4ths wide, two pieces brown, two pieces blue, and two pieces light grey mixture, each piece to be twenty yards long, and not to exceed 7s. per yard in value. 12
17. For the best six pieces 7-8ths wide baize, each piece to be twenty yards long, and not exceeding 2s. per yard in value. 8
18. For the best six pieces nineteen inches wide, striped-colored calimancoes, each pieces to be forty yards long, and not exceeding 34s. per piece in value. 8
19. For the best six pieces striped swansdowns for waistcoats of different patterns, both with regard to quality and pattern, each piece to be ten yards long and 7-8ths broad, and not exceeding from 3s. to 5s. per yard, the yarn to be spun in Scotland. 15

The remainder of these Premiums will be given in our next Number.

BANKRUPTCIES AND DIVIDENDS,

Announced between the 20th of January, 1802, and the 20th of February, 1803.

BANKRUPTCIES.

The Solicitor's Names are between Parentheses.

ALLEN, J. Bartlett's Buildings, Holborn. (Holloway, Chancery lane
Francis, Pall Mall, milliner. (Dunn and Teafdale, Threadneedle Street
Alton, W. Kingston, Hull, brandy merchant. (Partner with W. Sellers) (Roffler, Kirby Street
Berger, T. Cockspur Street, hatter. (Wells, Wood Street, Spitalfields
Burnett, S. Petersfield, and Godalming, victualler. (Allen, Clifford's Inn
Boorman, J. Headcorn, timber merchant. (Dyne, Serjeant's Inn
Buck, M. Clapham, Yorkshire, dealer. (Meddowcroft, Gray's Inn
Bruce, S. Oldham, dealer. (Willis, Warnford Court
Bright, T. Inner Temple Lane, Stationer and bookbinder. (Bousfield, Bouvrie Street
Barnard, J. Jun. Bedford, corn factor. (Debary and Copé, Temple
Boyce, J. Wellclose Square, wine merchant. (Haynes, Fenchurch Street
Clancy, W. Waterford, Ireland, merchant. (Addis, Gray's Inn
Collyer, W. Pulloxhill, horse dealer. (Clennel, Staple Inn
Cole, C. late of Oldham, dealer in corn, but now of Drury Lane, victualler. (Thomas, Bearbinder Lane
Corbet, J. Milk Street, warehouseman. Firm, John Corbet and Co. (Hurd, Furnival's Inn
Danks, T. Oldbury, Salop, innholder. (Johnson, Inner Temple
Delwalle, I. Savage Gardens, and City Road, tobacco broker. (Fullen, Fore Street
Dorwell, Mary, and W. Wells, shopkeepers. (Heales, Pancras Lane, Bucklebury
Dunser, J. G. Liverpool, merchant. (Windle, Bartlett's Buildings
Duhamel, L. Liverpool, merchant and umbrella manufacturer. (Windle, Bartlett's Buildings
Donnison, T. Proffert Street, merchant. (Lockett, Basinghall Street
Davies, R. Shrewsbury, porter merchant and innholder. (Griffiths, Lincoln's Inn
Byres, S. Manchester, corn dealer. (Shepherd and Addington, Gray's Inn
Emerson, J. Birtou, brass and spelter maker. (James New Inn
Fawcett, T. Old Change, merchant. (Perring, Laurence Pountney Hill
Fearon, J. Peter, Upper Grafton Street, late Commander of the Belvidere East Indiaman. (Ward, Dennetts, and Greaves, Henrietta Street
Garwood, J. Roydon, victualler. (Higden and Sym, currier's Hall
Gibbs, W. Box, Wilts, miller. (Sandys and Horton, Crane Court, Fleet Street
Gabbitts, M. Topkitt, farmer. (Bohon, Beccles
Girling, A. Hackney Road, shoemaker. (Ruffen, Aldersgate Street
Green, E. Charles Street, Soho, mercer. (Turner, Featherstone Buildings
Mindley, R. Salford, wine merchant. (Milne and Parry, Temple
Hull, W. Upper Boddington, and L. Hull, Banbury, cow dealers. (Meyrick and Broderick, Red Lion Square
Hopwood, J. Worcester, glove seller. (Willis, Worcester
Hughes, M. Morning Lane, Hackney, milkman. (Tibbert, Devon Street, Queen Square
Morrocks, T. Rippondale, bleacher, &c. (Foulkes, Bury Place, Bloomsbury
Holbrow, D. T. and J. Haynes, and R. Henderson, Old Landmill, manufacturers of chymical preparations. (Gabbell, Lincoln's Inn
Hoek, J. Birmosley, leather dresser. (Carter, Staple's Inn
Jones, J. Penmafon drover. (Wycke, Bernard Street, Russell Square
Jackson, F. Basinghall Street, factor. (Revers, Basing Lane
Jeffery, J. Britton, cutler. (Pearsons, Pump Court, Temple
Jackson, J. Oxford Street, linen draper. (Richardson, New Inn
Joyce, W. and W. Bachelor, Bristol silvermiths. (Bigg, Hatton Garden
Janfons, John, Blackburn, cotton manufacturer. (Shaws, Tudor Street
Le Souef, P. Great Winchester Street, merchant. (Jackson, Walbrook
Miller, G. Bodmin, vintner. (Shepherd and Addington, Gray's Inn
Mickill, J. Liverpool, merchant. (Wise and Forrest, Liverpool
Mays, Stribblehill Moorwood, Great St. Helens, merchant. (Gregson, Angel Court
Michell, W. Walcott, clothier. (Blakes, Cook's Court, Carey Street
Pregrave, E. Spalding, merchant. (Druce, Billiter Square
Prickett, T. Warwick Court, Holborn, icivener. (Carter, Staple's Inn
Porter, R. C. Kingston, Hull, ironmonger. (Gale, Hull
Pennington, L. Warrington, corn dealer. (Leather, Warrington
Pashman, J. machinist maker. (Roffler, Kirby Street, Hatton Garden

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Parkes, J. Birmingham, plater. (Willington and Small, Temple
Quayle, M. Liverpool, merchant. (Norris, Liverpool
Rogers, W. Depley Mill, miller and malter. (Raggett, Odham
Richardson, T. and T. Worthington, Manchester, merchants. (Milne and Parry, Temple
John, Manchester, cotton spinner. (Hurd, Furnival's Inn
Short, J. Alfred Place, cordwainer. (Shepard, Dean Street, Canterbury Square
Sadler, E. Westbroomwich, grocer. (Wortham and Stevenfon, Cattle Street, Holborn
Simpson, E. G. Roll's Buildings, taylor. (Holloway, Chancery Lane
Smith, W. Monkwearmouth, ship builder. (Atcheson, Ely Place
Speece, T. Blackburn, shopkeeper. (Dewhurst, Blackburn
W. Upper Catton, corn factor. (Robinson, Essex Street
Staples, L. Wapping, Stafford hire, warehouseman. (Mad-dock and Stevenfon, Lincoln's Inn
Teafdale, J. Jun. Bolton, merchant. (Druce, Billiter Square
Toy, E. Plymouth dock, draper. (Phipps, at Mr. Mang-nall's, Warwick Square
Taylor, J. and H. Cowley, Gainborough, merchants. (M'Dougall and Hunter, Lincoln's Inn
Thomas, J. Chester, malter. (Bosley, Chester
Tompson, W. Jun. Wolverhampton, grocer. (Johnson, Temple
Wrightson, D. Little Alne, Flax dresser. (Egerton, Gray's Inn
Warren, J. Sandy's Street, weaver. Websters, Queen's Street, Cheapside
Wood, W. Liverpool, flour dealer. (Freckleton, Liverpool
Wright, T. Leeds, merchant. (Surviving partner of M Cawood). (Lambert, Hatton Garden
Wickens, L. St. Clement's Church Yard, haberdasher. (Davis, Hatten Garden
Wagner, J. late of Wallington, now of Lower Tooting, calico printer. (Langham, Bartlett's Buildings
Williams, J. G. late of Winchester Street, now of Mar Street, London Road, merchant. (Forbes, Ely Place
Wright, J. Manchester, cotton spinner. (Hunt, Furnival's Inn

DIVIDENDS ANNOUNCED.

Aphade, S. Blossom Street, Spitalfields, cooper, Feb. 15
Atkinson, J. Cocker mouth, tanner, March 8
Allen, J. British architect, and builder, March 15
Bullen, W. Plymouth dock, linen draper, Feb. 8
Beauchamp, R. and E. Lloyd, Kirby Street, lacemen, Feb. 15
Bevington, S. Gracechurch Street, merchant, March 5. Final
Bonnell, J. Newcastle, hatter, Feb. 23
Bathagen, M. and J. Berman, Watling Street, merchants, Feb. 26
Benficy, C. and John Dale, Norwich, warehousemen, March 14
Barrell, C. late of New York, now of James Street, Bedford Row, merchant, March 12
Barber, J. Gerrard Street, woolen draper, March 12
Crosby, J. Oxford Street, mercer, Feb. 22
Cotter, B. Woolen under Edge, clothier, &c, March 16
Clarke, C. Shrewsbury, woolen draper, March 1
Croydon, E. Stourbridge, baker, &c, Feb. 28
Cruwe, E. E. Tinson Lodge, banker, March 1
Colby, E. Brightelmstone, shopkeeper, March 2
Clarke, R. and G. Grub Street, horse dealers, March 12
Crickton, P. Woolwich, victualler, March 8
Crippen, J. Tower Street, Stationer, March 10
Cawthorn, G. Strand, bookfeller, March 1
Dearlove, J. Mannerow Wolworth, and Lambeth, corn dealer, Feb. 15
Duff, J. Finsbury Square, merchant, April 26
Donnelly, P. Tavistock Street, Covent Garden, March 2
Dylon, D. Tottenham, grazier, Feb. 23
Drinkwater, P. Manchester, and T. Dakayne, Darleydale, corn factors, Feb. 24. Joint and separate Estates of Drinkwater
Duncleft, J. Leicester, grocer, Feb. 26
Dickson, R. Cullum Street, merchant, March 10
Da Colter, J. M. Mantel Street, merchant, March 10
Eyre, B. H. Athenon, and W. Walton, Tokenhouse Yard, merchants, March 5
Every, S. Liverpool, ship chandler, March 4
Elderton, D. York, merchant and taylor, March 14
Elderton, S. and J. Peper, Godalming, linen drapers, April 2
Elderton, John, Great Carter Lane, oil and colour man, March 22
Foggan, R. Salford, cotton manufacturer, Feb. 25
Forbes, J. and R. Tomkins, Lad Lane, warehousemen, April 23
Fitze, J. Weston Street, Southwark, cooper, March 2
Fletcher, J. late of Clapham, partner with J. Fletcher, of Lisbon, merchant, March 10
Gibson, R. Jun. Kingston, Hull, grocer, March 2. Final
Grant, J. Laurence Pountney Lane, merchant, Feb. 19
Gevers, W. Mount Row, Pentonville, stable keeper, Feb. 26
Goldsmith, R. New Bend Street, umbrella maker, March 1
Green, J. Hunthill, Leeds, master, Feb. 24
Godwin, J. and T. Malham, Fleet Street, mercers, March 4

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Gardner, F. Great St. Helen's underwriter, Feb 19
 Heath, F. Bath, ironmonger, Feb. 18
 Hird, W. Jun. late chief mate of the Earl of Wycomb In-
 dianman, Merch 2
 Harrill, H. Cateaton street, linen draper, March 22
 Harrison, T. Jun. Sandford hall, timber merchant, Feb. 25
 Horten, J. Gockill Shadwell, dealer, Feb. 26
 Harper, R. Wallers Sutton, Kildwick, Feb. 28
 Whitel, Henry, Reading, coach maker, Feb. 28
 Jackson, R. and J. Hankin, Oxford street, rectifiers, &c.
 Feb. 26
 Johnson, N. Enfield, shop keeper, Feb. 28
 Jeffs, W. Strand, haberdasher, March 1
 Johnson, T. Norton Falgate, chymist, &c. April 25
 Jamison, G. Porfea, watch maker, March 5
 Johnson, T. Friday street, warehouseman, (firm, Smith,
 Johnson, and Co.) March 1
 Keighly, J. I. F. Ferguson, and W. Armstrong, London,
 merchants, Feb. 15
 Lupton, J. Middleham, dealer, Feb. 15
 Lane, E. Baker street, agent, April 29
 Lafcelles, R. South Audley street, tailor, March 19
 Lambert, T. West Grinstead, shop keeper, March 8
 Lindroth, P. Kingston, merchant, March 9
 Markland, Thos. Belton le Moors, cotton manufacturer,
 Feb. 16
 Mofely, J. and J. Rose, Birmingham, factors, Feb. 15
 Maltby, T. and G. Size lane, merchant, Feb. 8
 Moore, D. Middlewich, linen draper, March 2
 Minifie, C. Exeter, tallow chandler, Feb. 23
 Maitland, D. New Bridge street, merchant, Feb. 8
 Martin, Alex. and Thos. Panton street, cabinet makers,
 March 15
 Nelbitt, J. E. Stewart, and J. Nelbitt, Jun Aldermanbury,
 merchants, Feb. 22, and joint estates, Feb. 23
 Nobes, J. and W. Southsea Common, green grocers, Feb. 22
 Niblock, J. and E. Burgefs, Bristol, linen drapers, March 12
 O'Ryan, T. and J. Mandwille, Bristol, merchants, Feb. 23
 Pourtales, A. P. and A. G. Broad street Buildings, mer-
 chants, Feb. 12
 Parlice, J. Holt, bookseller, Feb. 18
 Porter John, alias Thomas, Deal, grocer, Feb. 26
 Quenby, J. Winchester, mescer, &c. Feb. 16
 Ring, H. Tunbridge, carpenter, April 28
 Rudderforth, T. St. Paul's Church Yard, flay maker,
 April 15
 Richardson, C. Horncastle, maltster, March 11
 Ralfe, T. and J. Gauntlet, Leadenhall street, merchants,
 March 8
 Richardson, F. Horncastle, linen draper, March 21
 Smith, W. and J. Atkinson, Jun. merchants, April 26, joint
 estates, separate estate of Smith, April 27, and separate
 estate of Atkinson, April 29
 Slater, R. Ashhurst Lodge, cyder merchant, March 2
 Swainson, R. and J. Gardner, Liverpool, grocer, Feb. 24
 Scott, A. Workington, mercer, Feb. 22
 Smith, J. and S. King, Newgate street, woolen drapers,
 March 1
 Stenfon, S. Kenington, cheese monger, March 1
 Scott, J. and G. South street, Finlbury square, merchants,
 March 19
 Stainbank, C. Old Bond street, print seller, March 5
 Sellman, W. Great Russell street, Covent Garden, iron-
 monger, March 8
 Smith, G. Lovel's court, and Pudding lane, wine mer-
 chant, March 19
 Smulley, W. Blackburn, cotton manufacturer, March 7
 Smith, G. and J. Currie, Chepstow, bankers, April 15
 Stocken, O. F. Jun. Parson's green, coal merchant,
 March 19
 Stephens, R. Manchester, dealer in wett, &c. March 15
 Tremlett, W. Totnes, bookkeeper, Feb. 14
 Timmings, J. Stewart street, Spitalfields, March 12
 Taylor, W. Eltham, dealer, Feb. 23
 Turnbull, J. J. Forbes, R. Allen Crawford, and D. Sheue,
 Broad street, merchants, separate estate of Turnbull,
 Feb. 26, and of Forbes, March 12
 Towle, T. and J. Jackson, Newgate street, warehou-
 men, &c. Feb. 26
 Taylor, J. Manchester, March 3
 Turton, B. Coleman street, druggist, April 15
 Twiss, R. Upper Titchfield street, paper manufacturer,
 March 12
 Tuck, W. Ilington, cow keeper, March 8
 Wood, J. and J. Wednesbury, gun lock makers, Feb. 25
 Williams, G. Saffron hill, shoemaker, Feb. 15
 Whitefide, R. M. Chestnut street, Herts, grocer, March 1
 Wright, G. Worcester, dealer, Feb. 21
 Wallace, J. Upper Mary-le-bone street, carpenter, &c.
 Feb. 25
 Wait, W. Jun. Bristol, merchant, Feb. 28
 Wilcocks R. Red lion street, Clerkenwell, March 5
 Wolfenhome, Dean, Jun. Waltham cross, inn holder,
 March 12
 Welier, W. Waterly, Deptford, miller, March 12
 Yare, J. Oxford street, linen draper, Feb. 26
 Zurhorst, H. Basinghall street, merchant, some time in
 business with J. and E. Reilly, and J. Morris, final
 of Zurhorst and Morris, March 2.

Prices of Raw Hides, Hay and Straw, &c. for February, 1803.

Raw Hides.	1st Week		2d Week		3d Week		4th Week.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Best Heifers & Steers, pr ft.	3 8	to 4 0	3 8	to 4 0	3 8	to 4 0	3 8	to 4 0
Middling	3 2	to 3 4	3 2	to 3 4	3 2	to 3 4	3 2	to 3 4
Ordinary	2 10	to 3 0	2 10	to 3 0	0 0	to 3 0	0 0	to 3 0
Market Calf	9 6		9 0		9 0		9 0	
Eng. Horse	14s	to 16s	14s	to 16s	14s	to 17s	14s	to 17s
Sheep Skins	4 0	to 9 0	4 6	to 9 6	4 0	to 9 0	4 0	to 10 0
Lamb Skins	0 0	to 0 0	0 0	to 0 0	0 0	to 0 0	0 0	to 0 0
Prices of Hay and Straw.								
St. James's—Hay	5 12 0		5 7 6		5 5 0		5 15 6	
Straw	2 3 6		1 19 9		2 6		2 3 6	
Whitech.—Hay	5 18 6		6 6		5 15 6		0 0	
Clover	7 1 0		7 0		7 0		0 0	
Straw	1 19 0		1 17 0		1 19 0		0 0	
Uxbridge.								
New Wheat per load	14l	to 16l	—l	to —l	—l	to —l	—l	to —l
Barley	24s	to 27s	—s	to —s	—s	to —s	—s	to —s
Oats	23s	to 27s	—s	to —s	—s	to —s	—s	to —s
Beans	32s	to 38s	—s	to —s	—s	to —s	—s	to —s
New ditto	—s	to —s	—s	to —s	—s	to —s	—s	to —s
Peas	40s	to 42s	—s	to —s	—s	to —s	—s	to —s
Newbury.								
Wheat	—s	to —s	42s	to 64s	42s	to 63s	45s	to 64s
New ditto	—s	to —s	—s	to —s	—s	to —s	—s	to —s
Barley	—s	to —s	—s	to 6	18s	to 24s	20s	to 24s
Beans	—s	to —s	—s	to —s	—s	to —s	—s	to —s
Oats	—s	to —s	—s	to —s	17s	to 20s	18s	to 21s
Peas	—s	to —s	—s	to —s	—s	to —s	—s	to —s

Prices of Hops, Meat, Seeds, Leather, Tallow, &c. for Feb.
1803.

Price of Hops.	First Week		2d Week		3d Week		4th Week	
	s.	s.	s.	s.	s.	s.	s.	s.
Bags.								
Kent — —	200 to	224	150 to	168	200 to	220	200 to	224
Suffex — —	200 to	215	145 to	160	200 to	210	200 to	220
Essex — —	200 to	210	140 to	160	200 to	210	200 to	220
Pockets.								
Kent (new) — —	205 to	250	200 to	250	200 to	245	200 to	240
Suffex — —	200 to	231	200 to	238	200 to	231	200 to	231
Farnham — —	280 to	320	240 to	294	280 to	320	220 to	320
Seeds.								
Canary Seed (per cwt.)	80 to	85	80 to	85	80 to	85	80 to	85
Red Clover ditto —	80 to	110	80 to	110	75 to	100	80 to	112
White Clover, ditto —	80 to	140	80 to	140	80 to	147	80 to	147
Trefoil, ditto —	30 to	76	30 to	76	30 to	76	30 to	78
Carraway ditto —	36 to	42	36 to	42	36 to	42	36 to	42
Coriander ditto —	28 to	30	28 to	30	28 to	30	28 to	30
Turnip, (per bushel) —	22 to	26	22 to	26	— to	—	18 to	25
Rye Grass, (per quarter)	30 to	50	30 to	50	30 to	50	30 to	56
Cinque Foil, ditto —	— to	—	— to	—	— to	—	— to	—
Rape Seed, (per last) —	321 to	351	321 to	351	321 to	351	321 to	351
Meat at Smithfield,	<i>s.d.</i>	<i>s.d.</i>	<i>s.d.</i>	<i>s.d.</i>	<i>s.d.</i>	<i>s.d.</i>	<i>s.d.</i>	<i>s.d.</i>
To sink the offal, p. ft. 8lb.	4 0 to	5 6	4 8 to	6 2	4 6 to	6 0	4 6 to	6 0
Beef — —	4 8 to	6 0	5 0 to	6 4	5 4 to	6 4	5 4 to	6 4
Mutton — —	6 0 to	8 0	6 0 to	8 0	6 0 to	8 4	6 0 to	8 4
Veal — —	4 8 to	6 6	5 0 to	6 0	4 8 to	6 0	4 8 to	6 0
Pork — —	0 0 to	0 0	0 0 to	0 0	0 0 to	0 0	0 0 to	0 0
Lamb — —	7,00		2,000		2,000		2,000	
Head of Cattle—Beasts about	8,500		7,500		8,500		7,500	
— Sheep and Lambs								
Price of Leather.	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>
Butts, 50lb. to 56lb. each	19 to	20	19½ to	21	19½ to	21	19½ to	20
Ditto, 60lb. to 66lb. each	22½ to	23	22 to	23	22 to	23	22½ to	23
Merchants Backs —	19 to	20	— to	—	— to	—	19 to	20
Dressing Hides —	18 to	19	18 to	19	18 to	19	19 to	20
Fine Coach Hides —	19 to	21	20 to	21	20 to	21	20 to	22
Crop Hides for cutting	20 to	22	20 to	22	20 to	22	20½ to	22
Flat Ordinary —	18 to	19	18 to	19	18 to	19	18½ to	20
Calf Skins, 40 to 50lb. p. doz.	26 to	32	26 to	32	26 to	32	26 to	32
Ditto, 50lb. to 70lb. do.	27 to	32	26 to	32	26 to	32	27 to	32
Ditto, 70lb. to 80lb. do.	26 to	28	26 to	28	26 to	28	26 to	28
Sm. Seals (Greenland)	38 to	40	38 to	40	38 to	40	40 to	42
Large do.	51 to	71	51 to	71	51 to	71	51 to	71
Tanned Horse Hides	18s to	32s	18s to	32s	18s to	32s	18s to	32s
Goat Skins per doz.	—s to	—s	—s to	—s	—s to	—s	—s to	—s
Price of Tallow.	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
St. James's Market —	4	7½	4	8	4	7	4	4½
Clare Market — —	4	7	4	8	4	7½	4	0
Whitechapel Market —	4	6½	4	6½	4	5	4	4½
Per stone of 8lb. Average	4	7	4	7½	4	6½	4	4½
Town Tallow — —	78	0	78	0	77	0	75	6
Russia ditto (Candles) —	76	0	76	0	76	0	75	0
Russia ditto (Soap) —	70	0	69	0	69	0	69	0
Melting Stuff — —	60	0	60	0	60	0	61	0
Ditto rough — —	44	0	42	0	42	0	42	0
Graves — — —	16	0	16	0	16	0	16	0
Good Dregs — — —	10	0	10	0	10	0	10	0
Yellow Soap — — —	78	0	78	0	78	0	78	0
Mottled ditto — — —	86	0	86	0	86	0	86	0
Curd ditto — — —	90	0	90	0	90	0	90	0
Candles, per dozen, —	12	0	12	0	12	0	12	0
Moulds — — —	13	0	13	0	13	0	13	0

LONDON PRICES OF GRAIN for *February, 1803.*MARK-LANE, *Monday, January 31.**Price of Grain, on board Ship, as under*

Monday, Jan. 31.—From a prospect of the frost not being of long continuance, we had this day a very slack market, and very little done. Hence the price of most Grain may be quoted at near last Monday's prices, with the exception, however, of Oats, and both sorts of Peas and Beans, which are brisker.

Wheat	46s to 61s	Malt	41s to 46s 6d	Grey Peas	33s to 37s 6d
Fine	62s to 63s od	Oats	18s to 23s	Small Beans	36s to 39s od
Rye	35s to 38s	Polands	24s to 25s 6d	Ticks,	32s to 35s od
Barley	24s to 28s 6d	White Peas	33s to 40s		

Monday, Feb. 7.—We have had a very considerable arrival of Wheat since the thaw, and that article at market this day is 2s. per quarter lower than last Monday.

Barley is likewise in great plenty, and Malt about 1s. per quarter cheaper.

Oats also came to hand in abundance, and are declining in price.

Peas and Beans of both sorts are not so plentiful, and something dearer.

Wheat	44s to 56s	Barley	23s to 27s od	White Peas	33s to 40s
Fine	58s to 59s od	Malt	40s to 45s od	Grey Peas	32s to 35s od
Rye	35s to 38s od	Oats	15 to 21s	Sm. Beans,	34s to 38s od
		Polands ditto	22s to 23s od	Ticks,	30s to 34s od

Monday, Sept. 14.—Having no arrivals of consequence since the frost, the prices of all Grain remain nearly as last Monday's quotation, with the exception, however, that Rye is cheaper, and Barley a declining article.

Malt remains steady.

Peas and Beans of both sorts are in plenty.

Some cargoes of Oats being up, they are rather dull sale.

Flour still keeps its price,

Wheat	44s to 59s	Malt	41s to 46s od	White Peas	33s to 44s od
Fine	60s to 61s	Oats	14s to 21s	Grey Peas	30s to 34s 6d
Rye	33s to 36s	Polands	22s to 23s od	Sm. Beans,	31s to 36s
Barley	23s to 27s od			Ticks	28s to 32s 6d

Monday, Feb. 21.—Our market for Wheat was not so large as expected.

Best Essex and Kent runs, maintained last week's prices, and a few superfine samples fetched a trifle more than the general currency.

We have moderate supplies of Barley and Malt, and which are cheaper.

Oats are rather a better supply, but we note no variation in the price.

Peas of both sorts are dearer, but Beans cheaper.

Flour nearly as last week.

Wheat	44s to 59s	Malt	40s to 44s 6d	Grey Peas	30s to 34s 6d
Fine	60s to 61s od	Oats	14s to 21s	Small Beans	28s to 34s 6d
Rye	32s to 35s od	Polands ditto	22s to 23s od	Ticks,	27s to 31s 6d
Barley	23s to 26s od	White Peas	33s to 41s od		

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 FEBRUARY 19, 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	61	6	38	0	26	5	23	11	35	0	39	8		
Surry	59	8	36	0	26	8	21	6	34	0	37	9		
Hertford	53	6	35	6	26	0	21	0	36	0	40	5		
Bedford	51	0	29	0	24	2	18	5	27	3	39	3		
Huntingdon	51	2			23	4	16	10	26	8	36	9		
Northampton	53	2	29	6	21	6	17	8	26	6	30	6		
Rutland	56	0			23	6	18	0	32	0			58	0
Leicester	56	11			23	10	17	9	29	3	32	0	33	9
Nottingham	62	2	37	6	27	2	19	4	34	0	36	6		
Derby	62	0			27	9	19	8	37	8	33	0	27	5
Stafford	60	7			26	7	19	9	36	6			28	8
Salop	55	8	38	2	25	6	20	6	37	4	31	4	63	7
Hereford	52	5	33	6	24	8	20	11	33	11	33	3	62	8
Worcester	54	1	33	2	24	9	22	2	33	7	40	10		
Warwick	56	11			26	5	19	8	37	5	41	8	31	7
Wilts	55	0			22	2	19	4	38	0	34	0		
Berks	59	3			23	7	21	8	34	3	36	8		
Oxford	56	6			21	10	20	0	30	5	33	11		
Bucks	55	0			23	6	20	10	32	11	40	0		
Brecon	56	0	32	0	25	4	16	0			28	0	34	8
Montgomery	54	5			22	5	17	7			33	8	38	2
Radnor	51	9			23	11	20	2			30	1	60	8

Maritime Counties.

Essex	56	10	34	6	24	7	23	0	30	4	32	6		
Kent	55	10			26	0	22	2	31	3	36	9		
Suffex	53	6			25	2	20	10			42	2		
Suffolk	54	10	30	0	23	1	19	9	27	1	32	7	48	6
Cambridge	50	2	24	10	22	11	14	11	26	0				
Norfolk	53	7	36	0	22	0	19	1	26	11	32	9		
Lincoln	52	8	34	11	24	1	15	11	29	11	36	0		
York	53	5	38	5	24	4	16	9	31	4	56	0	38	3
Durham	56	7			29	0	18	11	36	8				
Northumberland	50	9	36	5	21	6	16	11			35	0	14	6
Cumberland	63	0	43	4	27	1	20	4					17	6
Westmorland	69	0	48	10	27	8	21	0					17	6
Lancaster	63	0			31	11	20	10	38	3			17	8
Chester	57	8			26	6	19	2					17	6
Flint									41	4				
Denbigh	61	5			29	10	18	4			38	5	35	7
Anglesea					24	0	14	0	41	8				
Carnarvon	62	0			24	0	14	0					31	9
Merioneth	66	8			30	8	19	4			36	0	34	11
Cardigan	54	5			19	10	11	0						
Pembroke	50	9			24	1	13	0						
Carmarthen	57	4			21	4	13	11						
Glamorgan	54	8			22	1	16	0						
Gloucester	55	1			23	11	19	1	55	1	37	4		
Somerset	56	3			23	2	18	0						
Monmouth	55	0			24	4	17	9						
Devon	59	2			22	2	16	0			47	10	34	7
Cornwall	57	11			21	4	14	7						
Dorset	56	2			22	6	20	8						
Hants	55	4			23	10	21	5	33	10				

A TABLE of the Prices of STOCKS in February, 1803.

Days	Bank Stocks.	3per Ct. Red.	3per Ct. Consols.	4per Ct. Consols.	5per Ct. Navy.	5per Ct. Loyalty.	Long Ann.	Short Ann.	Imp. 3 per Ct.	Imp. Ann.	India Stock.	Omnium.	Exchgd. Bills.	Consols for Act.	Tickets.
Jan. 28	187	71 1/2	70 1/2	87 1/4	100 1/2	103 1/2	20 9-16	4 9-16	70	11 11-16	210 1/2	4 1/2	71 1/2	17 16	
Jan. 29	187	71 1/2	70 1/2	87 1/4	100 1/2	103 1/2	20 9-16	4 9-16	70	11 11-16	209 1/2	4 1/2	71 1/2	17 16	
Feb. 1	187	71 1/2	70 1/2	86 1/2	100 1/2	103 1/2	20 7-16		69 1/2	11 9-16	208 1/2	4 1/2	70 1/2	17 16	
Feb. 3	187	71 1/2	70 1/2	87	100 1/2	103 1/2	20 7-16		69 1/2	11 9-16		4 1/2	71 1/2	17 16	
Feb. 4	187 1/2	71 1/2	70 1/2	87 1/4	100 1/2	103 1/2	20 7-16	4 9-16	69 1/2	11 9-16		4 1/2	70 1/2	17 16	
Feb. 5	187 1/2	71 1/2	70 1/2	87 1/4	100 1/2	103 1/2	20 7-16		69 1/2	11 9-16		4 1/2	70 1/2	17 16	
Feb. 7	187 1/2	71 1/2	70 1/2	87 1/4	100 1/2	103 1/2	20 7-16		69 1/2	11 9-16		4 1/2	70 1/2	17 16	
Feb. 8	188	70 1/2	70 1/2	87 1/4	100 1/2	103 1/2	20 7-16		69 1/2	11 9-16		4 1/2	70 1/2	17 16	
Feb. 9	188	70 1/2	70 1/2	86 3/4	100 1/2	103 1/2	20 7-16		69 1/2	11 9-16	211 1/2	5 1/2	70 1/2	17 16	
Feb. 10	188	70 1/2	70 1/2	86 3/4	100 1/2	103 1/2	20 7-16		69 1/2	11 9-16		5 1/2	70 1/2	17 16	
Feb. 11	187 1/2	70 1/2	70 1/2	86 3/4	100 1/2	103 1/2	20 7-16		69 1/2	11 9-16		5 1/2	70 1/2	17 16	
Feb. 12	187 1/2	70 1/2	70 1/2	87	100 1/2	103 1/2	20 7-16		70	11 9-16		3 1/2	71 1/2	17 16	
Feb. 14	188 1/2	70 1/2	70 1/2	87 1/4	101	103 1/2	20 9-16		70	11 9-16		3 1/2	71 1/2	17 16	
Feb. 15	188 1/2	71 1/2	71 1/2	88	101	104 1/2	20 13-16		70 1/2	11 11-16	214	4 1/2	71 1/2	17 16	
Feb. 16	189	71 1/2	71 1/2	88	101	104 1/2	20 13-16		70 1/2	11 11-16	214	4 1/2	71 1/2	17 16	
Feb. 17	190	71 1/2	71 1/2	88	101	104 1/2	20 13-16		70 1/2	11 11-16	214	4 1/2	71 1/2	17 16	
Feb. 18	190	71 1/2	71 1/2	88	101	104 1/2	20 13-16	4 9-16	70 1/2	11 11-16	214	4 1/2	71 1/2	17 16	
Feb. 19	188 1/2	71 1/2	71 1/2	88	101	104 1/2	20 13-16		70 1/2	11 11-16	214 1/2	4 1/2	71 1/2	17 16	
Feb. 21	188 1/2	71 1/2	71 1/2	88 1/4	101	104 1/2	20 13-16		70 1/2	11 11-16	217	4 1/2	71 1/2	17 16	
Feb. 22	190	71 1/2	71 1/2	88 1/4	101	104 1/2	20 13-16		70 1/2	11 11-16	217	4 1/2	71 1/2	17 16	
Feb. 25	190	71 1/2	71 1/2	88 1/4	101	104 1/2	20 13-16		70 1/2	11 11-16	217	4 1/2	71 1/2	17 16	
Feb. 26	190	71 1/2	71 1/2	88 1/4	101	104 1/2	20 13-16		70 1/2	11 11-16	217	4 1/2	71 1/2	17 16	

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

TO OUR READERS AND CORRESPONDENTS.

WE have availed ourselves of the permission of the proprietor of Dr. Darwin's Valuable Work, the Phytologia, to copy their Engraving of his Drill Plough, and Mr. Swanick's Seed Box. Our numerous correspondents may possibly improve upon them—at least they have one thing to recommend them—the adoption of the universal joint, which, in our opinion, is a great improvement.

Agricola Norfolkensis, is deserving of our best thanks, and we think that our agricultural readers will ever find both amusement and improvement in the perusal of his Essays.

Mr. Weston's very valuable communications are inserted, and we have no doubt but they will prove as acceptable to our readers as to us.

The Berkshire Farmer's account of Boardsey's Instrument for sowing small seeds broadcast, will, we have no doubt, be used by every adherent of the old system.

The Buckinghamshire Farmer's Letter was received, but we conceived the expressions were rather too harsh, and therefore did not insert it—should he, however, think fit again, to write any thing on the same subject, which would not personally offend—it would immediately occupy a place in our Magazine.

The favors of N. S. and P. are received, but came too late for publication.

Our Old Friend Castor has not lately addressed us, we trust we have not offended him, and therefore hope for a continuation of his favors.

** * * The stitcher of this Magazine, by drying the sheets suffered some hundred of four pages, of the last Number to be burnt, consequently some of our Readers have their Numbers imperfect; we therefore present the deficiency in this Number.*

