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ROOD'S PATENT HAMPSHIRE WAGGON.

[*With a Plate annexed.*]

To the Editor of the Agricultural Magazine.

SIR,
AGREEABLE to my promise to you at Lord Somerville's late Shew, I herewith transmit you, for insertion in your valuable and useful Magazine, the plates of my Hampshire waggon* and a description thereof.

As I am in a very different line of business, I feel unable to do justice to the publicity of my invention, and consequently feel inclined to dispose of my Patent †

I am, Sir, your most obedient,

JOHN ROOD.

Portsmouth,
May 7, 1807.

It having been long a complaint among gentlemen, farmers, and others, whose business requires the constant use of carts, and only the occasional use of waggons, that the waggon, however well preserved by a shed or building, is daily decaying while out of use, particularly the iron work thereof, which is shortly destroyed by rust; in like manner, those whose concerns require the almost constant use of waggons, and but the occasional use of carts, the latter while unemployed, bear a very considerable proportion to the wear and tear of carts which are in constant use. These circumstances have induced the patentee to bring to perfection, at a considerable expense, a contrivance whereby the same carriage

* It is to be wished that Mr. Rood had printed his plates on a better paper. E.

† Any wheelwright or agricultural implement maker, who has an extensive connexion for bringing this useful and valuable economical waggon into general use, would probably find his account in treating with Mr. Rood for his patent right. E.

may, in a few minutes be made by the carter, into two complete tip carts of the common dimensions, and applicable to all the uses of carts in general, or into one waggon, so complete that a narrow inspection is necessary, to distinguish it from a common waggon.

There are no complication of parts in the patent waggon, and the whole is so contrived, that none of its parts are ever out of use, consequently not liable to be mislaid or lost. The carts have a contrivance, to render them more safe and easy to the horse in going down a hill, and have moveable side-ladders, which will be found of great use in carrying corn, bark, &c. It may be constructed with perfect facility by the wheelwrights of any county, its shape and particular dimensions can be suited to the wishes of the owner, or to the local fashion of his neighbourhood. The result of considerable experience and enquiries, enables Mr. Rood to state, that it may in any county be compleated, for about five pounds more than the cost of two common carts.

His Majesty, whose spirited and judicious farming is so much applauded, has been graciously pleased to inspect it minutely, and to express his high approbation of the invention.

His Royal Highness the Duke of Kent, who has had one in use near two years, was graciously pleased to permit the same to be shown, with the approbation of Lord Somerville, at his cattle shew in Barbican, where it underwent minute investigation, and was repeatedly put together as a waggon, and again separated as two carts, in the presence of as great a number of respectable and competent judges of agricultural affairs, as were perhaps ever before assembled; and his Lordship, has been pleased to grant Mr. Rood the privilege to use his friction drag, which impedes the motion in proportion to the steepness of the descent, thus doing no injury to the road or wheels as in the common method.

Mr. Rood's leisure, not allowing him to attend the manufacture of the patent waggon on a large scale for sale, is inclined to give this public notice, that gentlemen, farmers, and others, may have them made by their own wheeler, on application to him by letter, (post paid) the wheeler paying him a very small sum for a licence, for each of the patent waggons which he makes, and to such wheeler, Mr. Rood proposes to give working drawings, and every requisite direction for properly executing the work.

PRACTICAL OBSERVATIONS RESPECTING THE
SIZE OF MALE AND FEMALE SHEEP.

To the Editor of the Agricultural Magazine.

SIR,

IF the method of improving the breed of domestic animals cannot be reduced to scientific certainty, and if the laws of the animal economy are in many instances so obscure, that it is impossible they ever should be placed in an intelligible point of view, or that anatomy should remove the difficulties with which the subject is surrounded, still the plain evidence of nature will be found no less worthy of our attention.

It will not be necessary on the present occasion, to examine all the theoretical conjectures, with which Mr. Cline has thought proper to embellish his new opinions, having previously given a general reply, under the title of "Anatomical Reflections," to whatever appeared interesting on that part of the subject; for as anatomy and physiology, make two very important branches of that profession in which we are both engaged, I thought it would be right, in the first place, to expose the fallacy of that part of the subject, with which it was reasonable to suppose we were both the best acquainted.

As for many of those who call themselves philosophers, I could display a number of brilliant examples, but it must have long been evident, that one of the first principles of modern philosophy, has been to amuse the credulous with hypothetical speculations; but if philosophy is to be established on the evidence of nature, it is on practical observation that we must depend for the light of truth. If we want a knowledge of the external parts, we must make those parts the object of our attention; the question before us would have been plain and self-evident, if it had not been enveloped in anatomical obscurity. But the misrepresentation of one party appears as inexplicable as the mis-construction of the other, and that I may not add to the present difficulties, or make their "confusion worse confounded," I shall limit this inquiry to one part of the subject, and only attempt to set the question respecting the size of the male and female, in an intelligible point of view. If on a careful examination of the evidence of nature, we find that one principle generally prevails, it is reasonable to conclude, that it is one of the established laws by which nature regulates the just proportion of the animal world. I do not pretend to assert, that it would be

impossible to meet with an instance to the contrary, but amongst those animals which are now the subject of our consideration, the principle is so prevalent, that it must be evident to every person who has ever seen a flock of sheep that the males are the largest animals.

There cannot be a doubt of the possibility of making a selection of small males, and large females, from the varieties we meet with in different situations; but we shall certainly find in those flocks which have been bred on the same pasturage, and in the same families, the most satisfactory evidence in favour of this opinion. On a point so unquestionable, and on facts so easily to be ascertained, it will not be necessary to introduce a number of examples, but it is certainly worth observation that in cases of twins, which must in all probability, be the offspring of the same parents, the male is in general larger than the female. If then, this is found to be one of the established laws of nature, we should certainly be violating one of her first principles, if we were to breed from females larger than the males, and I have no doubt but such a connexion would be productive of a degenerate offspring; for though this method may sometimes be made use of with advantage, for the purpose of improving a race of monsters, it would as certainly end in a breed of dwarfs, or what the learned writer would perhaps call starvelings. On the other side of the question, it may be necessary to observe, that if a race of animals has, either from bad management or want of attention become disproportionally large, there cannot remain a doubt that the size may be reduced, and the breed improved, by the use of small males; but having reduced the size to that standard, which is supposed to be most perfect, that state of perfection can only be preserved, by making use of such males and females as are consistent with that standard, and for this purpose, the males must be larger than the females.

Mr. Cline observes, that "the great improvement in the breed of horses in England, arose from crossing with those diminutive stallions, Barbs and Arabians;" and all this may be true, for if, before the introduction of these small stallions, the breed of horses was unnaturally large, this would certainly prove a convenient method of reducing them to a better standard; but if by the use of small stallions the size was first reduced, there cannot remain a doubt but if the same method of reduction was continued, that the reduction would as certainly sink beneath the standard of perfection, as it served in the first instance to diminish that size, which at first exceeded the limits of just proportion. I believe it is

generally allowed, that the offspring will bear a stronger resemblance to the male than the female parent; Mr. Cline says, that "the size of the foetus is generally in proportion to that of the male parent." If so, a small ram will be productive of a diminutive offspring, and consequently, if small males are made use of through a long succession, the breed will soon become reduced, in size, below what should be considered the standard of perfection.

To all those who will carefully examine all that Mr. Cline has said on this subject, it must appear unquestionably evident that it was his opinion, that the male should be smaller than the female; though I am sorry to observe, that the ambiguity with which he has expressed himself, on this part of the subject, has been productive of such obscurity, as to render the question to many absolutely unintelligible, and though, in behalf of public justice, I am now compelled to give an impartial representation, believe me, it is with considerable reluctance I here acknowledge that an agricultural gentleman of great celebrity, has been so much embarrassed by Mr. Cline's description, that it has not yet been within the narrow limits of my humble abilities, either to remove the obscurity or give a satisfactory explanation.

The doubts and difficulties which have taken place on this occasion, seem to have originated from the indefinite use of the epithet proportionally, the learned author having repeatedly observed, that the females should be proportionally larger than the males; in consequence of which it has been thought by some, that it was not his opinion that the females should be absolutely larger than the males, but that he only meant they should be relatively so; but after all this ambiguity of expression, it will afterwards appear that Mr. Cline has expressly said, that the males should be smaller than the females.

The first statement that we meet with is an exaggerated representation, where it is said that, "when the male is much larger than the female, the offspring is generally of an imperfect form;" and as large males are seldom well formed, it would certainly be irrational to suppose that a large, ill-formed male would be productive of an improved offspring. It is the small, compact form, which will in general be found the most perfect, in which the male may be larger than the female, and yet neither exceed the best proportion. By such descriptions it must appear evident that Mr. Cline wished to embellish his arguments with examples beyond the common size; but such representations, I should presume, must be thought unnecessary, as it would be illiberal to suppose that the agricultural gentleman who was acquainted with the sub-

ject, would make choice of a male much beyond the common size; or to suppose that from a breed of monsters, perfection was likely to be obtained.

But, for the purpose of placing this question in a more conspicuous point of view, let us suppose that a male was made choice of whose size was most approved, which was well formed, and of just proportion; let us suppose it to be the most complete male sheep that Dishley could now furnish; under such circumstances, would Mr. Cline recommend that the female should be absolutely larger than the male; or what are we to understand by the term proportionally? It is reasonable to suppose that the males and females at Dishley are both of the best proportion? If then, a Dishley male is made choice of to be put to a larger female, I am ready to allow, that in all probability the offspring will be an improvement with respect to the female, but still inferior to the male. But what does this prove, more than that the female was too large, and that the breed might be improved by reduction; at the same time I shall beg leave to observe, that it would be impossible to find small males and large females, except in such instances of imperfection, where the males are too small, or the females are unnaturally too large, and consequently in many other respects not well proportioned. But, in debating this question with the agricultural gentleman before alluded to, the ambiguity of expression has always been urged against me, and the term *proportionally*, represented as an argument beyond the reach of all reply. But it is only a single fact which I have now to prove, which is, whether Mr. Cline has absolutely asserted that the male should be smaller than the female. On this occasion, I shall beg leave to refer to p. 6, of his Essay, where we shall find the argument and evidence, the theory and practice, all exposed to view, where our enlightened physiologist observes, that "when the female, from her size, is more than adequate to the nourishment of a foetus of a smaller male than herself, the growth must be proportionally great. In this instance we cannot get free from the term *proportionally*, but in other respects the language is too clear to admit of a doubt; the description is so plainly expressed, that there does not remain a possibility of misconstruction, that the male should be smaller than the female, is here made a direct assertion, which must, of necessity, be intelligible.

But, whatever my opponent may think of Mr. Cline's opinions, this is not the only instance which I have to appeal to, and if further evidence should still be wanting, it will only be necessary to direct the sceptical reader to the next page, where we shall meet with this important information, that "Hence arises the remarkably large chest, which is produced

by crossing with females which are larger than the males." This curious opinion has already been discussed in my *Anatomical Reflections*: it is the fact alone respecting large females and small males, which is here brought forward as a full answer to this part of the argument. The evidence, I hope, has been clearly stated, and the obscurity of the question, in some respects, removed; yet I cannot resist the temptation of reminding the Reader, that in one place we are told that a small male is to be made use of for the purpose of producing a small fœtus, and that a large female is equally necessary for the purpose of making the small fœtus a large one. But it is for those alone who can reconcile such direct absurdities, to subscribe to the new opinions of Mr. Cline; for my own part, I shall not give up the opinion I have already formed so long as the evidence of nature, the light of reason, and the import of argument, are all united in my favour.

Let those who think with Mr. Cline put the question to experimental proof, and I have no doubt if the practice were to become general, that the improvements which we have now to boast of would in a few years sink into obscurity, and the present breed of sheep perhaps be lost for ever.

On a subject of such importance, Mr. Cline should have carefully examined the evidence of nature, before he had given his opinion; but where was it probable that such information could be obtained. It is much less difficult to collect museums, than to investigate the laws of nature; a collection of embalmed beasts, birds or butterflies, may serve for outside show, but it is the living evidence which will be found most difficult to procure. For this purpose, I should not think that St. Thomas's Hospital would prove a convenient situation; nor, indeed, does the metropolis appear like a fertile field, where instructive examples are likely to be procured. If Mr. Cline received his information from the Board of Agriculture, the cautious reader will do right to observe, that the opinion is not then his own. I do not pretend to say, that it is impossible for an anatomist to understand what is the best method of improving the breed of sheep and cattle; but I have already shown, that anatomy has not yet thrown any new light upon the subject. At the same time I am ready to allow, that a sensible man may understand any subject that he will pay attention to; the question is, whether the subject now before us has ever had a sufficient share of Mr. Cline's attention; it is not spending an evening at an Agricultural Society, that is sufficient for the purpose: it was the business of Mr. Bakewell's *Life*; but, perhaps, modern ingenuity can do more in a day, than this great

naturalist was able to accomplish in an age. Whatever may be the boast of modern times, I believe few men possessed more originality of thought; Mr. Bakewell certainly was capable of thinking for himself, he had penetration sufficient for the examination of the living animal, without dissection; it was in his prolific mind that the breeding system first originated; it was at Dishley that the method of improving the breed of domestic animals first took place. If then it has been one of the leading principles of the Dishley system, that the male should be larger than the female; and if by perseverance in the same method for more than half a century, the Leicestershire breed of sheep has been brought to such unparalleled perfection, it certainly would be highly irrational to change the plan, in direct opposition to such instructive illustrations of the evidence of nature.

I shall not in the present instance attempt to investigate what were the leading motives of those gentlemen who first made application to Mr. Cline on this subject; but I hope it was not with a view of reducing the Leicestershire breed of sheep to a level with their own; and yet, if we may judge from the activity of the party, the plan has not been formed without design. Very considerable exertions have already been made not only in England, but also in Ireland and Scotland, for the purpose of making Mr. Cline's opinions an object of general attention; as much so, as if one general sentiment prevailed; and that it was thought necessary, that the present breed of sheep should be reduced to a more humble standard. But I flatter myself that the Leicestershire breeders, instead of becoming dupes to any anatomical delusion, will, by a steady attention to those principles, which have raised the breed of sheep in this county to such pre-eminence, still preserve that superiority, which has so long commanded the admiration of the world.

I am, Sir, your humble servant,

Loughborough,
May 5, 1807.

JOHN HUNT.

CURSORY HINTS ON THE MOST PROPER BREEDS;
AND THE WORKING OF OXEN.

To the Editor of the Agricultural Magazine.

SIR,

THOUGH many of the statements in your valuable Magazine, shew in a pretty clear manner the superiority and advantage of the use of horse teams in preference to those of oxen, when *properly* managed with *proper* sorts of

ploughs; there are still many districts and situations of the farmer, in which the employing of ox teams may be had recourse to with convenience and profit; it may not be unuseful to consider the breeds most profitable for the purpose.

Devonshire breed. This breed and its different varieties, are unquestionably the most adapted to farm labour, both from their quick step, and capability of enduring labour, or standing work well, either on hilly or vale lands. With this description of oxen, two of them in steady driving, on their first setting off in the morning, will with ease plough up an acre a day, on light land; and in strong stiff clayey lands, an addition of two more will be sufficient to plough up the same quantity. And this proportion of labour they will be capable of performing for a month together, and in many cases a much greater length of time without inconvenience.

It has been found by experience, that all oxen in teams require a steady follower or driver, as an ox will get more mischief by being over driven in one week, than in four years regular driving; and if he once gets, by rashness or mischance, an over heating, it is ten to one if he get fat afterwards, and some have even been destroyed by it; though at the same time, when worked four or five years in a proper manner they get to their full growth, and are much better for fattening than those which have not drawn the plough at all. It is evident, therefore, that teams of oxen even of this quick walking breed, cannot be hurried in their work without danger and great inconvenience.

Carmarthen breed. This is a kind of cattle that comes in the next place as team oxen, or are the next best in standing farm work, and they are also very quick on their legs; being excellent beasts for grazing or filling themselves after they have left their work. But neither this or any other kind, can be worked more than five years with propriety or to advantage, as when continued longer they lose in their feeding and fattening qualities or properties.

Herefordshire breed. This is a breed which possesses much beauty, as well as strength and size, especially when full grown, and they are capable of doing work well; the only objection that can be made to them, being, that of their requiring better keep than either of the above breeds, which are unquestionably still before them for the purposes of field labour. They mostly rise to a great weight, however, when grazed, and of course are on that account also less proper than the two preceding kinds for farm work.

Besides these three breeds, the long-horned or Lancashire improved sort, often answers well as team oxen, being the

sort frequently made use of in the Northern districts of the kingdom.

In the use of teams of this sort of animals, care should constantly be taken to keep them in a full manner, and not to over-work them, as they will pay much better and grow much larger, than if they are scantily and poorly kept, and made to do more labour than their strength is adapted to. When they have been hard worked for a great length of time, and used in the latter manner, they require much time to recover themselves, and never scarcely revive or fatten in a perfect manner, of course the loss is very great. And this is one unfavourable consequence of using these animals for the purpose of team labour.

Where oxen are worked and four driven in a team, it is necessary to keep six, to change two over every day, which gives them rest, as well as improves the beasts; in the like manner, where two are only driven on light soils, there should likewise be four kept for performing the work, that two may be substituted every other day, and proper rest be given to the others. But in cart or waggon-work, two is of little consequence, of course in keeping four or six, it is an easy matter to make up a proper team for the sort of work intended.

Mr. Parkinson states, in his *Experienced Farmer*, that he has found ox teams very useful in scarifying, as they draw steady and slow, by which the work is done better than by horses, as when the scarifier catches upon any obstructing substance, there is time for the man to regulate and manage the implement, and prevent the claws of it from being deranged or put out of order. In carting dung he also considers them as useful, as the work suits them on account of their being much standing. But though he advises the use of ox teams for these purposes, and other odd jobs about the house, he does not think much of them for either the plough or harrow.

I am, yours, &c.

X. Z.

ON DEER.

To the Editor of the Agricultural Magazine.

SIR,

THE following curious and interesting remarks on Deer and Roes, are given by the Rev. Dr. James Robertson, in his very able account of the Agriculture of the county of

Perth, and which may, perhaps, not be unworthy of introducing in some corner of your very useful Magazine.

Your's,

Glasgow, April 29, 1807.

R. R.

“ It is observed that the red deer, one of the species of the *Cervus*, is not so numerous in this county as formerly, yet they have such remains of them as to deserve being mentioned. The principal forest of Perthshire is in Athol, in the heart of the Grampians, and on the confines of the shires of Inverness and Aberdeen. The Duke allots many thousands of acres to his deer, is a great sportsman himself, and often resides in the forest for several days. This forest was famous even in ancient times, when they were so frequent, that every chieftain had a forest of his own. In the year 1530, James the Fifth, Margaret the queen's mother, and the Pope's ambassador, together with their attendants, had a temporary palace of wood erected for them by the Earl of Athol, on the north side of Benglo, at a place called Lochain, distant twenty miles from the inhabited country, in the recesses of this forest, where they remained three days. Lord Perth has deer in his forest of Glenertnay. The forest of Mamlorn has been converted into a sheep-walk about twenty years ago. There had been a forest in Benmore, Glenfinlass, and Benvenue; all in the county of Perth.

“ While the deer were permitted to inhabit the vallies, and the country was under wood, the natives, it is remarked, hunted them, by surrounding them with men, or by making large inclosures of such a height as the deer could not over-leap, fenced with stakes, and entwined with brush-wood. Vast multitudes of men were collected on hunting days, who forming a ring around the deer, drove them into these inclosures, which were open on one side. From some eminence, which overlooked the inclosure, the principal personages and others, who did not choose to engage in the chase, were spectators of the whole diversion. These inclosures were called in the language of the country *elerig* which is derived from another word that signifies contest, or strife. One of the farms in Glenlochay of Breadalbane is called *Cragan an elerig*, a small rock which overhangs a beautiful field resembling the *arena* of an amphitheatre, probably the first that was cleared of wood in that district, and admirably adapted for this purpose, by the natural situation of the adjacent ground. There are *elerigs* in various parts of the county.

“ The *stag*, or *male deer*, sheds his horns in spring, either earlier or later, in proportion to his age; the oldest always first. About Lammas their horns are fully grown, which are

solid, cylindrical, and ramified, with sharp brow antlers. During their growth, they have extreme sensibility, which decreases as they advance to their full length. The hinds have no horns. The horns of the fawns begin to appear, when they are about six months old. In the rutting season, from the middle of September to the end of October, the stags are wildly furious, despising danger, and ready to attack every creature that annoys them.

“The *roe-buck* and *doe* are in many parts of the county, almost in every district, which is not divested of wood; and although no sanctuary is allotted them, like the deer, they live nearer to the habitations of men; but always in the neighbourhood of extensive and solitary woods, to which they may flee in the hour of danger. The deer are gregarious animals, and associate in herds, one being always appointed to keep watch, while the rest are asleep. The roes travel in single families, seldom more than four together, the sire, the dam, and two kids. At the rutting season, which is about a month later than with the deer, the kids are driven off in quest of a new settlement and a new connection; the old pair continue constant in their affection from year to year, unlike the faithless hart, which bellows mad with promiscuous love. The buck's horns are like the hart's, solid, cylindrical, and shaded annually, but much smaller in size, and having two points at the top. The sagacity with which the females of both kinds hide their young, can only be equalled by that with which the young keep close to their form, until the dam return to raise them.

“The *moose deer*, it is probable, once existed in Scotland, but the species is now extinct. This probability is founded on the large horns found in mosses and marle pits; which far exceed any horns now carried by the stags of this country: yet the argument drawn from the superior size of horns is not conclusive. The deer, like other cattle, rise in the bone by good keeping; and the breed degenerates when the pasture is poor. How different is the lowland cow from one reared in the mountains. When the deer enjoyed the extensive range of the most fertile vallies, and were fed undisturbed, by the most luxuriant grass, they must have been larger, both horn and hoof, than at present, while banished to the recesses of the highest mountains, and compelled to live on such coarse fare as they can find on the mountain's brow. The horns of the *moose deer* are palmated, like those of the fallow deer, only larger; which is a surer characteristic of the species, than the size alone.

“The only *fallow-deer* in the whole county are at Blair, Athol, and Taymouth. Although the fashion, and nothing but the fashion, has allotted this species of cattle to the most wealthy of the nobility alone, yet other proprietors in Perthshire might be pointed out, whose fortune entitles them to have a park of fallow-deer. Nor does the able writer know any species of tame animals, that are more elegant in their appearance, if they be well selected, or better suited for occupying an extensive lawn, which stretches round the castle of a great man.”

It is not improbable but that this sort of live stock might, by proper care and management, be rendered much more beneficial, in a national point of view, than has hitherto been the case. In Hertfordshire, Lord Clarendon fattens the young deer of his park to much advantage, as an article of farm stock.

ON GYPSUM, OR PLAISTER OF PARIS, AS A MANURE.

To the Editor of the Agricultural Magazine.

SIR,

OBSERVING an account of Gypsum or Plaister of Paris, in the London morning papers, I beg leave to offer you some observations on that valuable substance; and I hope to call the attention of the Agriculturist to this very important subject.

The properties of Gypsum were first discovered in America, where it is getting into universal use as a manure for clover, and the different varieties of grass, as well as corn; and the result of my observations perfectly coincide with a recent publication called “*The Stranger in America*,” where the Author not only very judiciously points out its qualities, but clearly shews that it might become an object of revenue.

It appears from more recent publications, that the silver medal of the Society of Arts and Sciences, has been given to Mr. William Smyth, of Sittenbourne in Kent, for his successful and extensive experiments of this valuable article as a new manure. A letter said to have been written by a gentleman high in office in New York, has also lately been published on the subject.

“Several of our experimental farmers,” says this letter, “have assured me that lands which have for twenty years been

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manured with Gypsum, are not impoverished by the use of it. About fifty miles up Hudson's river, from this city, (New York) and from thence to the northward, it is in general use. Its effects are wonderful, particularly on grass. The crops of grain and Indian corn, have been more than doubled by the use of Gypsum, instead of a stable manure. It is found to answer best on dry gravelly or sandy soils. Remote from the sea, it often succeeds on any soil—near the sea it has an effect on some grounds, and not on others, where there is not any great difference in the soil."

This writer in another part of his letter, says, that 40,000 tons are annually brought into New York, in *British bottoms*; but Mr. Janson, in his *Stranger in America*, develops a scene of speculation committed upon the British subjects in America by the crafty Americans.

"It is surprising," says this gentleman, "to observe the quantities of gypsum, or plaister of Paris, which is carried from the sea ports of the United States into the country. The waggons, of late years, make a profitable return-load of this article, which is pulverised and used as manure. On certain lands it produces a better crop of wheat and Indian corn than any other kind, and is more durable. When it is known that this valuable substance is not found within the United States, the trade in that article becomes more a matter of surprise. It is procured from the British dominions, where vast rocks and quarries are found along the coast; and the Americans unmolested pilfer it from the inhabitants. I have often wondered that the British Government do not turn the matter to their own profit."

On enquiry I was informed that in various parts of Britain this invaluable article is found in large quantities; and in the *Extract* from the daily paper above alluded to, (*The Morning Post*) it is asserted, "that this article, is so valuable in effect, so cheap in price, and so plentifully dispersed through some parts of this kingdom, as to ensure an inexhaustible supply." I sincerely hope that the author of this information will, through the channel of your *Agricultural Work*, point out the *particular parts* where it can be obtained; and, that Mr. Smyth will give more particular information on the subject.

I am, Sir, your most obedient,

A FARMER IN THE WEST.

Devon, May 1, 1807.

ON THE EFFECTS OF LEASES.

To the Editor of the Agricultural Magazine.

SIR,

THE use of Leases is of so much importance and advantage to the interests of Agriculture, and the improvement of the soil, that every hint in respect to them is deserving of the attention of the farmer as well as the proprietor of land. The following are some of the remarks given on the subject by Mr. Young, in his valuable Survey of the County of Norfolk, which may not be wholly unworthy of the notice of some of your readers.

I am, your's,

A FRIEND TO IMPROVEMENT.

Norwich, May 10, 1807.

“ It is observed by this very intelligent Agriculturist, that the great improvements which for seventy years past have rendered Norfolk famous for its husbandry, were effected by means of twenty-one years leases; a circumstance which very fortunately took place on the first attempt to break up the heaths and warrens in the north-west part of the county. These leases established themselves generally, and were more than any other cause, powerfully operative in working those great ameliorations of wastes which converted that part of the county into a garden.”

“ It is supposed that to explain generally the necessity of long leases, would, at this time of day, be an idle disquisition. The able writer never heard any arguments against them which carried the least weight. Exceptions may, and will occur: in lands which are immediately around the mansion, it may be prudent to grant short tenures; and when a landlord is willing to take upon himself all those expenses which a tenant submits to merely because he has a term of twenty-one years, it is obvious that there is no necessity for a long lease; but, in general, it may be held for sound doctrine in Norfolk, that an estate can neither be improved, nor even held to its former state of improvement, without long leases.

“ Sorry he is, however, to perceive that contrary ideas seem to be gaining ground in this county; that some landlords will give no leases, and others only for 7 or 9 years. That the Agriculture of the country will suffer in proportion as these ideas prevail, he has not a doubt; and it is a very fortunate circumstance, that Mr. Coke, the possessor of the

largest estate in it, adheres steadily to those principles which improved his noble property, never giving a shorter term than 21 years. It is suggested, that the views of landlords who act otherwise may easily be conceived; they have a quicker return of those opportunities for advancing their rents than occur with longer terms; and the late scarcities, among their other evils, have added much to this. The tenants' profits (supposed to be greater than in fact they were), glittered in the eyes of landlords, who were apt to think they had not a fair proportion of the product. But if such temporary fluctuations are to have weight in regulating the rent of land, the medium short of a corn rent will, he thinks, be difficult to find; and no leases at all are likely to be the consequence; what such maxims would produce in Norfolk, are easily, he says, conceived. But it is added, that in the main object of raising rents, confining himself to the county he treats of, he has great doubts whether an estate, in 43 years, will not be let for much more after two leases, than after six. Every sort of improvement, and what is of as much consequence, the common course of the husbandry, in points which no covenants can touch, will tend to improve the land in one case; while, in the other, the tenant will look to the duration of his term before he spends a shilling, or gives an order for a cart or plough to move. The silent operation of such a constantly influencing motive, will gradually affect the farm in a manner that must be severely felt; and is a perfect contrast to the spirit of animated exertion which pervades every part of the farmer's business, when he looks forward to a long period for his remuneration. He states that "the particular notes he made on the subject are, that there are more seven years leases about Holt than of any other term." And that "Mr. Styleman, at Snettisham, gives leases of ten or fifteen years, of lands in the five-shift husbandry; that is, for two or three courses; and for twelve years, in the four or six-shift course."

And further, that "Mr. Hill occupies two farms, one (Waterden) under Mr. Coke, on a twenty-one years lease, and another (Barsham) from a relation, on a seven years tenure; the former land a lightish sand or gravel; sandy and gravelly light loams: the latter, a deep rich friable sandy loam, on marle, very fine land, and far superior to the Waterden soil; but he has upon it crops at least equal to the soil; fine corn, that is in its appearance to his credit as a farmer. The writer was, however, much surprised to find the crops on the Barsham land very inferior; by no means equal to the soil: some very good barley; but some inferior, and no wheat comparable to the crops at Waterden. In such cases, he

always expects to find some cross-cropping has been tampered with; and it turned out just so—wheat after barley; barley after wheat, &c. The circumstance is, he thinks, applicable not so much to the subject of courses of crops as to leases: it deserves the attention of landlords; for they never refuse twenty-four years leases without their farms suffering. It is true, the farmers suffer also, and nine times in ten lose by their calculation.”

*The New Covenants in Letting the Farms of T. W. COKE,
Esq. M. P.*

These are thus stated, “Supposing a farm to contain five hundred and forty acres arable land:”

“Shall, and will at all times, keep and leave ninety acres, part of the arable land, laid to grass of one or more years laying. Also ninety acres grass of two or more years laying—each to be laid down with a crop of corn, after turnips, and to continue laid two years at least; the time of laying to be computed from the harvest next after sowing the said seeds; and upon breaking up the same*, after Jan. 1, 1804, may be permitted to sow forty-five acres (part thereof annually) with pease, or tares, for seed, to be twice well hoed: other part thereof with tares, for green food, buck-wheat, or any leguminous or other vegetable plant, for ploughing in as manure, or summer-tilling any portion of the remainder.

“Shall not sow any of the lands with two successive crops of corn, grain, pulse, rape, or turnips, for seed, (except the abovementioned pea and tare stubble), without the leave or consent of the said —, his heirs, or assigns, being first had and obtained in writing.

“Lands for turnips, four clean earths at least.

“The turnips covenanted to be left in the last year, ninety acres to be mucked, so far as the same will extend, and to be paid for by valuation; at the same time a due regard to be had to the cleanness of the land upon which they grow.

“Sheep, cattle, and all other live stock, to be lodged upon some part of the premises, when consuming the produce of the farm.

“Straw, chaff, and colder, to be left without allowance.

“Incoming tenant to carry out the crop of corn, not exceeding the distance of ten miles, gratis.

* The Land intended to be sown with pease should not be till four years and a half after the commencement of lease, upon supposition that new tenant may not be so situated as to have the turnips (covenanted to be left by old lease) completely clean.

“ Rent payable forty days before St. Michaelmas (wherever a threshing machine is, or shall be erected), if demanded, by notice in writing being left at the farm-house to that purpose.”

ON PLOUGHING DIFFERENT SORTS OF LANDS,
FOR DIFFERENT SORTS OF CROPS.

To the Editor of the Agricultural Magazine.

SIR,

IN the performance of this sort of work more attention is necessary, than is commonly supposed by the inexperienced farmer, as on the manner in which it is done, the effect entirely depends. And by having it properly executed, the labour of the men and the cattle may not only be lightened, but at the same time the land be more beneficially ploughed up. In the execution of this business, the nature of the land is the first consideration; and to which the plough should be well adapted, and the next that of using it properly, which can only be done by a thorough knowledge of ploughing, by which the expence and labour may be greatly saved. The goodness of crops often depend on the manner in which the land has been ploughed, as, where it is not done properly, the soil remains so clogged that the seeds cannot have room to vegetate or shoot, as where it is lighter, and the work better performed.

In ploughing *light soils* for wheat, it is a good way to prepare the land as fast as the sheep feed off the grass on the old field, fallowing it up, and afterwards harrowing it down fine; then cutting it across as deep as the land will bear; harrowing it down again, and then putting the sheep to fold on the fallows, if found necessary.

In the stronger sorts of *high lands*, it is also necessary to feed the grass off in the way above mentioned. It is found that this land generally requires ploughing three times: 1st, making it a fallow, then cutting across; and, previous to the last ploughing, this sort of land should be laid out in ten yards lands; then ploughing, for the last time, about a month or six weeks before sowing. This is a method that has always been found to answer well, but care should be taken that the furrows should be left close and shallow in finishing the work.

In ploughing *stiff clay lands* for wheat, they should be prepared by fallowing, and then cutting across. The couch, and other weeds, should then be got off the land in order to clear

it, striking up the furrows to keep it dry, and in a healthy state. About a month before sowing, it should be ploughed up again in *five-bout* lands, or, should it be very wet, in *four-bout* lands. Where proper advantage of the situation of the lands is taken, *five-bout* lands will mostly keep them in tolerable condition.

In ploughing *wet sandy land*, as it is mostly subject, more or less, to breed couch; after feeding off the grass, it should be fallowed up, cutting it across, and afterwards dragging and harrowing it well. The couch should either be carried off, or burnt on the land; the latter method is always preferred when the weather will permit, as it saves a great deal of unnecessary trouble: the ashes being spread out after it has done burning, in an easy, regular manner. Then striking up a furrow, in order to keep it as dry as possible, and plough it up again at any convenient time in *five-bout* lands, when it will be ready for the seed, as this does not require long-standing furrows for being sown upon.

In ploughing the better sorts of *sand lands* for wheat, which lie dry, so many ploughings as in the former cases are not necessary. Neither is there occasion to lay them out in such small lands as the four or five bout; the ten yards or stride, will not only be sufficient, but the best that can probably be employed.

In ploughing the mixed or *mungrel sandy land*, which is mostly of a superior quality, and lays quite dry, being of a rather dark colour and very fertile, bearing good crops of most descriptions, as beans, peas, wheat, turnips, clover, carrots, parsnips, cabbages, &c. &c. In this sort of land trench ploughing is sufficient, or the making it up in trenches in other ways.

In the very rich *clay sorts of land*, three ploughings are necessary for wheat for keeping it clean. It is a sort of land that may also be sown with beans, peas, carrots, or parsnips, by ploughing deep, with almost a certainty of a plentiful produce.

In the ploughing up *wheat stubble*, or other lands in place of a *winter fallow*, the best method is first to make what is called a *whipstitch*, or in some counties a *raster* or half ploughing, and when come back to the same furrow again turning them both over; the top part of both furrows being thus turned in the middle, which leaves the space of four inches betwixt each furrow, then ploughing the land across the old furrows. If the land lay ever so wet in winter, by ploughing in this manner, it may be kept healthy: it is necessary also to strike up the old furrows every day before leaving the field, and to let the main drains be kept open to receive the water from the

other furrows; as, by this manner of ploughing, it will admit the frost in four inches deeper than a flat fallow. This is a method of ploughing which is called *trench ploughing*, or *double whip stitching*, in some counties or districts of the kingdom. And some prefer double whip stitching before all others for winter ploughing, as it brings the lands into a much better condition for cultivation than twice fallowing.

In the ploughing lands in autumn for bean crops, &c. it should always be done by Christmas, being by far the best method, as the land by it gets close and firm at the bottom, and the frost shakes the top parts so as to make it work well, for the crop to be planted or drilled in.

In the ploughing of land after turnips for Lent crops, the performing it across the furrows as fast as the sheep feed off the turnips; is probably the best mode for barley or oats, as the land works much better than ploughing twice in the same direction.

In ploughing for turnips on light shallow sandy or gravelly lands, much advantage has been found by working it up in the following manner; first by making it clean, as though going to sow, then going one turn with the plough, afterwards throwing two furrows together; then by a small drill plough, to drill the seed on the top part of the furrows; having a rake attached to the hind part of the plough, to cover in the seed. There will be one foot space between each furrow, when the seed is drilled in. By this method of throwing two furrows together, it causes the seed to take a deeper root in the earth, and the turnips of course to root lower. The horse that draws the plough should be led in the furrow, if not sufficiently tractable without. This is a method of ploughing and drilling turnips, which is found to answer exceedingly well on wet lands.

In the ploughing for setting of cabbage plants, when the land has been wrought into good order by common ploughing, it should be ploughed up in *two bout* lands, placing the plants in the middle part of them at the distance of about a yard from each other, in the lines or rows.

There are some other sorts of ploughing for different lands and crops, which I shall probably have an opportunity of transmitting you for a future number of your useful Magazine.

I am, yours,

D. W.

HINTS ON THE NATURE AND STATEMENTS OF THE EXPENCES OF PLANTING TREES OF DIFFERENT KINDS.

To the Editor of the Agricultural Magazine.

SIR,

THE business of planting has been lately much attended to, and its advantages more perfectly investigated and ascertained. It is only, however, the inferior sorts of lands that can with propriety be applied to this purpose, such as are not proper for the growth of corn, or being conducted under the state of grass with benefit to the farmer.

The sorts of soil most suited to the raising of trees, are all those of the gravelly or sandy kinds, where the subsoil is of a porous nature. They may also be grown with success on loamy soils, as well as those of a still heavier quality. And in performing the work, the methods advised below may be practised with confidence.

It is proper to trench all the land over well first where there is an opportunity, and then to put the plants four feet from each other. Which, after the space of about seven years, the proprietor may begin to thin some of them out, trimming up the rest, and leaving the best of the trees which are likely to become good timber; and this practice may be continued at the end of every seven years, till they are come to a proper distance for standing for timber.

For preserving hedge-row timber, it has been advised as a good plan, to allow the tenants for every young tree they preserve in the hedge-rows, which is likely to become timber at the expiration of their lease, at the rate of six-pence each, whether the lease be for seven, fourteen, or twenty-one years. And likewise, that where the proprietors cultivate their own farms, to give the labourers who cut the hedges, one penny for every tree which is likely to become timber.

And the same writer has stated the expense and profit of planting, in the following manner. And the most proper trees for planting in general as being the most beneficial, are, he says, oak, ash, elm, Spanish oak, chesnut, larch, American oak, beach, shrubs for shelter, Scotch fir, spruce fir, cluster, pine, horse chesnut, sycamore, cedar, &c. &c.

Methods and Expences of Planting.

DEBTOR.

In planting a piece of land with trees, which have been three years in growth, before set out, which is probably the best age for the plants, the following plan should, he thinks, be pursued, and the expences will be much as below.

	L.	s.	d.
<i>Preparing land for trenching.</i> —First, trenching up land, the furrows between being two feet deep, at 2s. per pole (there being 160 poles to the acre)	16	0	0
<i>Proportion of trees.</i> —As the trees should be planted three feet in every direction from each other, the number required to an acre will be 880, which, at 1s. each, is	44	0	0
<i>Digging the holes for planting.</i> —Digging 880 holes at the above distance, at 1d. each, is	3	13	4
Total expense of planting an acre with 880 trees	63	13	4
<i>Decrease of expence by thinner planting.</i> —But in planting at four feet square, or with 660 trees to the acre, the expense may be decreased	11	19	2
Total expense of planting an acre with 660 trees	51	14	2

CONTRA, CREDITOR.

<i>By thinning plantations.</i> —When the trees have been planted seven years or had that growth, it is necessary to thin them at the rate of nine trees to every eight rods, when planted in the latter of the above proportions. The number of trees thus taken out amounts to 180, which, at 3d each, will be	2	5	0
And after another seven years growth, they require thinning again at the rate of one tree to the rod, which, at 6d. each, is	4	0	0
At the third seven years growth, they should be again thinned for the last time, in the same proportion of one tree to each rod square, leaving the best and straightest for timber, and reckoning each tree now taken out at 1s. 6d. the whole is	12	0	0
<i>Proportion of trees retained.</i> —After these regular thinnings, the number left for timber will be one to each pole square, or 160 to the acre; which, at 5s. each, an acre is worth	40	0	0
	58	0	0
Which, after the first 20 years growth, <i>L. s. d.</i>			
leaves to pay the rent, &c.	6	10	10
Expences of planting 660 trees	51	14	2
	58	5	0

Thus the first twenty-one years does not pay the expences, but reckoning on a second twenty-one years, the profit of lands in the state of plantation is evident.

DEBTOR.

	L.	s.	d.	L.	s.	d.
First, expences of planting as before, 880 trees to the acre	63	13	4	114	1	4
<i>Proportion of rent.</i> —Rent for 42 years of one acre of land, at 24s. a year	50	8	0			
<hr/>						
<i>By thinning 880 trees.</i> —The first seven years thinnings, at two trees to a rod, or 320 to an acre, at 3d. each	4	0	0			
The second seven years thinnings, three to two rods, or 240 to the acre, at 6d. each	6	0	0			
The third seven years thinnings, one to a rod, or 160 to the acre, at 1s. 6d. each, is	12	0	0			
				22	0	0
				92	1	4
<hr/>						
Remaining expense of planting 880 trees to the acre, after 21 years growth, added to the rent of 42 years, is				92	1	4

CONTRA CREDITOR.

The number of trees thinned out being reckoned as above, there remains 160 to the acre, or one to each rod before reckoned worth, after 21 years	40	0	0
And after the second 21 years, supposing (ac- cording to the best judges) that they have increased in value 3s. every year, each tree, of 3l. 3s. in the course of the second 21 years, their value would then be increased to	504	0	0
And the value of 160 trees after 42 years growth	544	0	0
	L.	s.	d.
Cost as above	92	1	4
Profit after 42 years	451	18	8
	544	0	0

It is supposed that this calculation will plainly show the great profit arising from timber, as being more than three times the simple interest of the money (which is only 133l. 14s.) in the time, and more than double the compound interest. And that something may be gained in addition, by the grazing of stock in the second twenty-one years.

But lands of such value should, perhaps, never be occupied in planting of trees. It is the inferior sorts that are proper for this system of management as has been suggested above.

I am, &c.

A CONSTANT READER.

SOME STATEMENTS ON THE EFFECTS OF CLIMATE ON VEGETATION.

To the Editor of the Agricultural Magazine.

SIR,

IT is well known that the effects of climate are very considerable, on animal as well as vegetable life; and that the products of the farmer are greatly influenced by its agency and operation. Almost all sorts of crops, both in the field and garden, feel the changes of climate in the more early spring months, in a manner that renders them more or less abundant. It has been well observed, in one of the Northern Reports of Agriculture, that "the greatest droughts are in the month of May and June. When the weather is dry in the latter end of May, it commonly continues so in June, till thunder brings rain. The violent exhalation, in these months, suddenly binds up the wet clay soil, making it so hard that the roots of the plants cannot extend in it, so that vegetation is almost suspended till the rains come. The ground is generally well watered towards the latter end of June and beginning of July, and then a great growth commences; and as the latter end of summer is generally more rainy than the beginning of it, this growth is protracted till the season is far advanced, and occasions a late harvest. The drought in May, which is often accompanied with a cold wind, greatly checks the rising of the pasture; but is still more injurious to the hay crop, which, when stunted at this time never recovers."

And the states of cold, below the freezing point, that are injurious to different sorts of crops, have likewise been shewn in the following table.

TABLE.

On the degrees of cold beneath the freezing point which injure different vegetables.

	Degrees.
Potatoes either in spring or autumn, the leaves affected and growth checked by.....	2
Ditto ditto, the stem attacked, and its farther growth prevented, and if in autumn, the root makes no more progress by.....	4

	Degrees.
Green peas and barley, when the ear is just become milky, spoiled by	4
Beans, when green or wet by	5
Oats, when the ear is milky by	6
Ditto, when green and the ear watery on porous soils, will stand without being much hurt	7
Ditto ditto on firm clay, ditto.....	10
Clover in the tender leaf, hurt by	3
Ditto and rye grass, the crop in May or June ruined by	9
Turnips on the ground in winter, injured by	24
Ditto ditto, totally destroyed by.....	30

It has been found that frost hurts plants soonest when the air is still and the dew great, or when it comes on immediately after rain; and the injury does not happen unless the frost continues till the sun be above the horizon. Where the frost goes off before morning, and the sky is overcast with fresh clouds, plants escape unhurt, though they may have suffered a pretty severe frost during the night."

I am, &c.

Glasgow.

R. R.

HINTS ON THE ADVANTAGE OF THE THRESHING MACHINE,
IN RESPECT TO THE MANAGEMENT OF THE BUSINESS OF
A FARM.

To the Editor of the Agricultural Magazine.

SIR,

I BEG leave to lay before you, a few observations on the Threshing Machine, and the advantages that may be derived from that valuable invention.

I am yours,

An Experimental Farmer,

J. T.

It is with much pleasure that I have it in my power, from experience, to lay before your readers the following statements, which I consider great advantages, resulting from the use of the above machine. In a half cultivated country, such as part of Worcestershire, and the adjoining counties of Hereford and Salop, I have no doubt, that with the assistance of the Threshing Machine, the Mole Plough, and the Floating Plough, properly executed, the whole of the land may be brought into cultivation, and in a much shorter time than if they were not adopted. From the scarcity of labourers,

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2 Q

it is impossible to carry on the improvements of clearing and stocking up rough ground, in addition to the necessary work of the farm, to any extent. The Threshing Machine will, however, render the flail unnecessary, and therefore enable the farmer to employ his labourers in other and more useful work—both to himself, his landlord, and consequently to the country at large. It also diminishes the actual quantity of labour to be done, and therefore becomes of great service to the tenant.

Instead of keeping my labourers in the barn during the greater part of the winter, as those farmers are obliged to do who have no machine, I employ them wholly in stocking up and clearing rough land, and in fencing. The customary price of threshing wheat by the bushel is here six-pence, so that for every bushel and a half of wheat that your labourers would thresh for you, you will have one perch, or eight yards, of hedging done; so that, if a farmer in a woodland country should grow five hundred bushels of wheat annually, he will, by the introduction of the Threshing Machine, be enabled to have three hundred and thirty-three perches of hedging done, or other useful out-door work executed in the same proportion, which he must otherwise have neglected altogether. The same advantage is also gained in threshing all other sorts of corn, in proportion to the price paid for doing it by hand, as the machine is not confined to wheat, but will thresh oats, barley, beans, and peas, equally well. Thus a farmer is able to improve his farm, without the assistance of more hands than he used formerly to employ. Nay, where he employs two labourers, I look upon them with the addition of a machine, to be equal to four without one.

The farm I now occupy is about three hundred statute acres, I erected a Threshing Machine upon it on a small and cheap construction, as the whole machinery only cost about forty guineas.* Before I had this machine put up, I had more employment than four labourers could perform, now I have but two, and I am confident I shall be able to improve my farm with these two, more than I could have done with the four upon the old plan.

What has been hitherto mentioned, however, only constitutes the advantages that the tenant derives from the use of this machine; I will, therefore, now point out those that arise to the landlord. In the first place, oak plank barn-floors are very expensive, and often out of repair, and therefore

* We should be obliged to this correspondent for information, as to the principle on which the machine is constructed, and the power by which it is wrought. Edit.

the landlord, by encouraging Threshing Machines, encourages the tenant, and by those means gets his estate much better cultivated, and in the end such conduct is advantageous to both parties. And by this kind of management, the labourers are left at liberty to be employed in improving the land, instead of threshing corn; which they cannot, by any labour of theirs bestowed upon it, render more productive, or make the straw any better than by the mill, as I can make as good bolting from the machine as by the flail.

Near Tenbury, May 18, 1807.

ON THE INCREASE OF POOR AND POOR RATES,
IN ANSWER TO MR. WRIGHT.

To the Editor of the Agricultural Magazine.

SIR,

Hadlow, May 20, 1807.

WHEN I communicated my sentiments on the "Increase of Poor and Poor Rates," as inserted in your Magazine of March last, I did not dream of their procuring me the notice of such a veteran in Agricultural Literature, as has stepped forth to combat my opinions. I do really feel a little awkward, at sitting down to oppose my sentiments to those of one whom (on account of his valuable and interesting contributions to your Publication) I have been in the habit of looking up to with a high degree of respect; however, I trust he will pardon me for presuming to differ with him on some points, and I will endeavour to give my reasons for so doing.

To contend with him that the present mode of farming is not infinitely preferable to the ancient, as far as it regards a multiplied produce, would be idle, and an useless waste of your valuable pages. But I may be permitted to state it as my belief, that that advantage, and the great increase of Poor's Rates, originate in one and the same thing.

Mr. Wright, tells us "that little farmers might then (a century back) probably be a happy people, but in these days they are amongst the most miserable." I would beg leave to ask, why they are so? Why, because they are hemmed in and beset on all sides by the gentlemen farmer. If working farmers were a happy people, for centuries following centuries, whilst no gentlemen were amongst them, and if on the introduction and great increase of gentlemen farmers, they are become so miserable—can any body doubt wherefore it is so?

That his cattle is bad, and that all the catalogue of inconveniences and miseries so ingeniously conjured up by Mr.

Wright, do attach themselves to the little farmer, is a fact out of the reach of dispute. But it certainly was not always so. No, they began to fasten themselves upon him, when the rich man began to take twenty-one* farms into his hands; and then having for the consumption of his single family, the same produce that previously had sufficed twenty-one, he could offer a considerable increase of rent, and afford to give better prices for his conveniences. Hence, then, arose the increase of rents, the consequent advance of provisions, the difficulties and miserable condition of the little farmer; and also, I must admit, the improvements which have been made in Agriculture.

It has been the wisdom of Parliament always to abstain from laying burthens upon the tiller of the earth, until within a few years past, when seeing the great fortunes accumulated by, and the increasing luxuries of the gentleman farmer, he has been considered as a fair object of taxation; and so what are called King's Taxes, have risen upon the Landholders to a large extent. But you will observe the same spirit guide its conduct towards the labouring farmer, in exempting him from some of them, and easing the weight of others; and by such means endeavouring to keep up a class between the rich and the poor, between the gentleman and the labourer.

I am sorry that my argument of forty-two cows being kept, where only four were subsequently, should be no argument at all; perhaps, it may not, as to comparative production arising from the land; but it may, to shew that they maintained in decency and comfort one hundred and five persons (or twenty-one families at five shillings each), and supplied the neighbouring markets at moderate prices with milk, butter and cheese; while now a gentleman riots upon the produce of the whole, and the former occupiers of the land—upon the luxuries of a workhouse.

Notwithstanding the undiminished veneration I continue to feel for Mr. Wright, I cannot avoid noticing an assumption of his, which he will find a difficulty in supporting. He says, "and yet this attentive reader *is surprised* that nearly all the necessaries of life are doubled, when it plainly appears they have not risen in proportion to expences."—Here I am scarcely dealt fairly with, for I never felt or expressed any surprise at it; I have often regretted it, and the cause.

My chief object, to shew that a monopoly of farms is one of the leading causes of the great increase of Poor's Rates, I trust will not be controverted; and as Mr. Wright has not

* If I had written my numbers in my former letter in figures, instead of giving them in words at length, you would not have mistaken 21 farm for 71.

thought proper to direct his efforts against it, I claim to have it admitted.

I hope the freedom of my observations will offend no gentleman; for, certainly, I do not intend any offence; and I shall be very happy to see some plan devised and acted upon for the remedying the enormous evils, which have evidently arisen from the monopoly of farms.

Wishing hearty success to the interests of Agriculture. I shall content myself with remaining

Your humble Servant,
AN ATTENTIVE READER.

ON THE MEANS OF INCREASING MANURES.

To the Editor of the Agricultural Magazine.

SIR,

THE following useful hints on the means of augmenting the quantity of those substances which are found beneficial in improving the fertility of the Soil, occurred to me in looking over the state of agriculture, as drawn up for one of the northern districts of the kingdom; and may, probably lead some of your numerous readers to the trial of matters that have not been generally in use in this way.

I am, your's,
A CONSTANT READER.

“It has been observed,” the very intelligent writer says, “that animal and vegetable offals are the genuine food for growing plants. The quantity of such offals scattered about as nuisances, to shock the delicacy of the passengers, show an equal disregard to cleanliness and economy. Were all the spoils of both kingdoms, liquid as well as solid, which are thrown off as useless, carefully collected and carried to the fields, what an increase of fertility might be expected! But besides these, there is no situation in which means are wanting to make considerable augmentations to the ordinary quantity of manure. Rushes, fern, the musci which are frequently found in woods and plantations, steep banks and waste grounds, might be gathered, dried, and laid up to absorb the urine of cattle and other putrid liquids. All kinds of weeds and inesculent herbage might be collected about the time of flowering, before the fibres of the stem become rigid and refractory. The young and tender shoots of trees and shrubs, not ripened into perfect wood, the leaves of trees shed in autumn, the grassy bottoms of open drains, pond and river weed, and sea weed near the shore: all these might be laid in

regular strata, along with the farm dung, in a wet dungstead. There is some cause to believe, that the earth frequently contains in its bowels substances capable of fertilizing its surface, if the proper application of them were understood; and it would be a matter of great importance, that experiments were set on foot for making such discoveries. The *blaise* or *shiver*, accompanying the coal, in many situations—a kind of indurated *shistus*, which sometimes skirts out in the faces of banks, and moulders down with the weather, may be useful in this way. At first it appears quite barren, but after lying sometime exposed to the influence of the sun and air, it not only fertilizes the soil on which it falls, but, where it accumulates to a body, shows great signs of fertility itself, plants growing in it with great luxuriancy. Lord Dundonald strewed one kind of blaise which he found here, reduced to powder, about the roots of growing corn, and in a short time the deep verdure and luxuriant growth distinguished that part from the rest of the field. These schists might be had at coal mines, and at many places where they skirt out at the surface; and when they were found, upon fair trials, to have a fertilizing effect, might probably be used as top-dressings with great advantage. This noble Author, and all the writers on chymistry, agree, that magnesia promotes, in a very considerable degree, the growth of plants,” though Mr. Tennant has advanced a contrary doctrine, but which probably stands in need of additional experiments. “Much of it is said to be contained in the steatities, or soap rock, which is found in different places. The careful agricultor should leave no situation or substance unexplored, that is likely to afford matters capable of adding to the fertility and improvement of the soil. By additional attention in this respect, vast advantage and profit may often be obtained by the farmer.”

HINTS ON THE CULTIVATION AND IMPROVEMENT OF MOOR FARMS, ESPECIALLY IN THE NORTHERN DISTRICTS.

To the Editor of the Agricultural Magazine.

SIR,

THE hints and suggestions given below, appear the result of much experience and attentive observation in bringing this description of waste land into a state of cultivation, being the substance of a paper on the subject, contained in the Survey of the state of Agriculture, in the county of Mid Lothian, in Scotland; and which may, perhaps, not

be altogether inapplicable to some of the southern parts of the kingdom.

I am, your's, &c.

W. R.

The writer begins by remarking, that "the idea that these farms (in the above county) cannot be improved, seems not well founded; almost all of them having the means of improvement within themselves. There are few of them but what have a portion of low land connected with them, that lie between the moors, and the rivers or burns, with which they are generally bounded, upon the one side or the other. Some, more or less, in proportion to their extent.

"There are a great many large farms of this kind, that are, he says, formed from an union of two or three; and, in such cases, there is very commonly a large portion of arable and improvable land in one possession.

"These, at present, are extremely subservient to the purposes of the farmer, in producing subsistence for his family, in corn for oatmeal, potatoes, &c. as well as low-land pasture for his cattle and sheep.

"The greater part of these farms are, however, remote from the common means of improvement by dung, except what is made upon the farm; but many of them have lime upon them, or at no great distance; and although it may happen that they are far from coal to burn this lime, yet it is most probable, that they are extremely near plenty of other fuel for the purpose; as almost in every farm of this kind there is a command of abundance of turf, or peat moss, that is capable, as well as coals, of burning lime; the ashes produced by which, is adding a portion of a very active and profitable manure, when well mixed and incorporated with the soil.

"When the farmer is without the ability of procuring dung, or lime, marl, or sea-shells, from his remote situation to any of these useful manures, he has a manure within his own grounds, which, perhaps, he has never thought of, and which is capable of improving them in as perfect a manner, almost, as any of the former; and that, in general, very near at hand to his improveable lands; he means the turf-bog, or peat-moss, which very few moor farms are without, in the greatest abundance.

"That substance called *peat*, or *moss*, is of a vegetable nature, and when burnt and reduced to ashes, and spread upon land in an equal manner, are an excellent manure, either for pasture, or corn lands, especially when applied as a *top* dressing. This substance has also since been found to be capable

of being applied in the state of compost with dung, lime, or other materials with great advantage.

“ Some farmers, in some parts of the country, have been in the practice of burning a part of the soil, in coarse, benty, or heathy land, and then ploughing it down for crops. This will produce luxuriant crops of corn, for a year or two, but it leaves the soil barren afterwards for many years, the act of paring and burning having destroyed a great deal of its best parts. The applying the ashes of peats, or turf, brought from useless bogs, or mosses, at some distance, and spread upon the ground, will not be much more expensive, than the paring and burning as above, and it will save the destruction of soils that are to be improved, and will meliorate and fertilize them. Although paring and burning may be very injurious to light lands, yet in such as have a deep covering of turfy or mossy surface, may admit of these operations without injury, and be very much improved by them, if not over-cropped afterwards.

“ This operation of converting moss into ashes, can, the writer say, neither be difficult or expensive. The best time for doing this, may be in the month of May, or June, when the weather is dry and tolerably good; and as the shepherds, about this period, have not much to do, they may give great assistance to the other servants and labourers, that may belong to the family, in digging up, by breast-spades or otherwise, large square or oblong junks of moss for this purpose, that may be gently dried upon the ground by turning them daily, for a few days; or they may be put up in rows one above another, in the form of a common folding-dyke, where they would dry sufficiently for burning. This being done, they should be made into a large kiln, with wind passages, or flues in it; and then, after having some dried heather, or fern, put into the passages, the whole is to be kindled and set on fire. It seems almost unnecessary to mention, that the driest sods of turf should be at the lower part of the kiln. The whole mass being set on fire, will burn in a slow half-smothered manner; and as the burning extends to the top, or sides, more moss or turf should be added, from time to time, till a quantity of ashes is obtained sufficient for the purpose required. The sods of turf that have been added, after the moss has been fully kindled, need not be dried, as the heat from below will soon dry them sufficiently.

“ It is not meant, that turf, or moss, managed in this way, should be burnt and reduced to white, or even very brown ashes; the writer wishes that they may be only burnt to a blackish grey colour.

“ In this way, any quantity of ashes may, he says, be got,

and when the burning ceases, they may be covered with broad-cut turf, or *divots*, to keep them dry till they can be conveniently carried where they are to be put on. They should then be laid upon the surface of the sward, or fallow, in cart loads, at proper distances, and spread, as equally as possible, with spades or shovels, or by a cart with a strong wire-riddle in the bottom of it. As the greater part of these ashes that are fertilizing are soluble in water, the first rain that falls will dissolve the alkaline salt in them, and wash it into the soil, so as to produce a luxuriant crop of corn, or grass. If the ashes can be preserved dry during the winter, they should be put upon the ground, immediately before the crop is sown. If not, they may be applied soon after they have been prepared, when they will mingle with the soil and dissolve the oleagenous parts of it, and have the best effects upon it. If the ashes are put upon old coarse grass lands, the nature of it will be improved. If upon lands intended for corn, not above two crops should be taken. If upon fallow, well prepared with the plough and harrow, with as much dung from the farm as can be spared, a crop of turnips, and then corn and grass seeds.

“ When the soil is strong and capable of bearing repeated cropping, which many of these lands are able to do, the crops may be changed annually, from white to green alternately. The green should be turnips, potatoes, or red clover, with rye-grass. The two first may be employed most advantageously for feeding cattle or sheep, in the winter or spring, when pasture or fodder are scarce, or wanting. The latter will serve for an early bite to ewes and lambs in the spring; or if not wanting in early seasons, it will serve for cut-grass, for feeding milch-cows or horses in the house, or for hay, if allowed to ripen.

“ In all sheep-farms of any great extent, there should be a tup-park, subdivided into two or three parts, and inclosed with a stone-wall or dyke, of sufficient height to keep in sheep; in which the tups should be put, and kept some considerable time, before they are allowed to have intercourse with the ewes. The size of this inclosure should be in proportion to the sheep stock. This park may be useful for other purposes, and should not be less than fifteen or twenty acres, or more, if the stock is great. It should be upon dry land, and as much of it arable as conveniently can be had, which should be cultivated as above, and when laid down in heart, it should be sown with white and yellow clover seeds; a very considerable portion of parsley seed; some wild thyme and lavender seeds. All of these seeds will grow upon pretty elevated situations, and, except the parsley, are commonly

to be found in sheep pastures growing naturally. Something more is expected from this inclosure.

“ If it is made upon plain ground, or upon that which has little shelter upon it, the dyke will afford some, but that is not enough. While it is under cultivation, it is recommended that drills of whin seed should be sown in different parts of it, running cross on one another, or in small clumps, so as that they may get to a sufficient height, and strength, before it is pastured; that when that takes place, the whins may both answer for shelter, and administer subsistence for sheep in hard seasons, when the ground is deeply covered with snow. Sheep will eat whins, and are fond of them. If broom and juniper will thrive in these parks, they should be added to the plantation for the same purposes; and there is good reason to believe, that they will not only give food, but in some cases be medicinal, in some diseases of sheep. This park so laid out and cultivated, may not improperly be called an *Infirmary*, or *Hospital park*. It will not only answer the purpose of keeping the rams a sufficient time at the proper season, and putting them in vigorous good order, but at other times it may be a very fit place for putting ailing diseased sheep into, that may be low in health and strength. Sheep tending to the rot, or what is called *pocked*, may be recovered in this healthful pasture, that is proposed for them above. There is much reason to believe that this disorder is of a dropsical nature. The swelling under the chin seems to be watery, and such of them as die, are found to have bad livers with watery bladders upon them and other parts of their bowels. The salutary ingredients in the pasture of this park, laid down, as has been proposed, are very likely to prevent or cure this disease, if cureable. The warm aromatic plants will prove cordial to them; while the parsley, broom whins, and juniper, will prove diuretic and cleansing. He believes, that *pocked* sheep have seldom been found upon pastures abounding with whins, broom, or juniper. Parsley seems well adapted to sheep pastures. They are fond of it, and it is not shy in growing, remains long in the ground without degenerating much, and the seed not expensive at first.

Tup parks are not so universal as they ought to be. Few farmers can afford the expence of making them, especially if their leases are short or nearly run out. The proprietors of store farms of this kind should lay out the money in making them, obliging the tenant to pay five per cent. for the money, and to keep up the fences in proper repair. As it would be a lasting improvement to the landlord, and a great temporary accommodation to the tenant, they should go hand in hand in this useful improvement.

“ In the greater number of sheep farms, plenty of stones may be obtained from quarries, or otherwise, for making this inclosure; but in cases where stones are not to be got, a *sod* fence may be so constructed as to keep in sheep. In that case, the foundation should be three or four feet thick, and taper gradually to the top, which may be about a foot and a half, or two feet in breadth, and the height from four to five feet, which may be considered of a sufficient height; but as the small black-faced sheep are very active, and not easily confined, it will be necessary to have a row of projecting long stones put upon the top of it, or a low coping or paling of wood of any kind. When neither of those are to be got, a drill of whin seed may be sown on the top of the fence, and, to secure the growth of the whins, a little manure of any kind may be added, if the soil appears barren. When the whins thrive and grow up, they form a most complete fence, that even a deer cannot get over, and it affords a most comfortable shelter for all animals that may be in the inclosure. As the propagation of whins, broom, and juniper, in sheep farms, appears to him to be of great consequence for the purposes beforementioned; and if the farmer cannot raise them in a tup park in the way that has been proposed, from the unwillingness of the landlord to contribute his mite, his own inability, or the smallness of his farm, or any other cause, he begs leave to suggest the following:—Upon the lowest and dryest of his ground, let him, in different places, run three furrows with the plough, and cross them with three others, at different parts, according as the situation of his ground will allow. It is meant that these furrows so disposed should be fallowed so as that the soil should be fully pulverized.

“ In the months of February, March, or April, the seeds of whins, or broom, may be sown, having interruptions here and there for the accommodation of the sheep to pass to and fro, either for feeding or shelter, according as the wind may blow. To have whins at an earlier period than by raising them from the seed, young plants may be got in many places, and planted by the dibble, or spade, like thorns. To secure young plants of this kind raised either way, it will be necessary to inclose them with a common single-folding fence, four or five feet in height, which will stand two or three years, till the plants have got sufficient strength and maturity, otherwise they would be eat up at too early a period and destroyed. Small clumps of these plants may also be made up and down at no great distance from one another, on the sides of hills and low grounds for the same purposes, and may be secured by the same means, from being eat up, a due length of time.

Small clumps of the Scotch fir may be very proper for *stells*, as well as for food in the winter.

“ Except where sheep farms are connected with much low lying ground upon the banks of great rivers, much cropping seems not advisable, as the crops are generally late and seldom ripen fully. In high farms, it seems advisable that farmers should throw their arable lands into pasture as soon as possible by the aid of the manures suggested, and sow the grasses recommended, reserving a proper proportion of their best and driest land for turnips and potatoes, especially the *red-yam* potatoe, making use of the peat or moss ashes, together with what dung they can make, to aid the cultivation of these two most beneficial productions.

“ The *red-yam* potatoe is much more productive than any other kind. They are very large, and will grow almost upon any kind of soil, and, he is well informed, with little or no manure. They are remarkable for enriching and ameliorating the land, and fit it for the production of any kind of crop, where the climate is favourable. This root is not commonly made use of for the food of man, though not unwholesome, but it is most excellent for feeding horses, and milch-cows; keeping the first in good sleeky order for labour, with very little corn, and extremely favourable for producing milk in the latter. As it is little known in many parts of the country, he most earnestly recommends it to the acquaintance of all farmers, but especially to those for whom this paper is more particularly intended. It is given raw to both horses and cows. He does not know if sheep will eat them. It is worthy of trial, and if they do, it will still be a more valuable acquisition to the moor farmers, as well as the lowland ones, to whom the use of it is only known to a few as yet.

“ Every store farmer should endeavour to have a field of turnips every year in extent to the wants of his farm, and the means he can procure of obtaining manure, for they will not do well without some. Every thing should be done that the plough and harrow can do, to make the mould fine, and after he has applied what dung he can get, he should sow his seed at the proper season; and if he thinks he has been deficient in the necessary quantity of dung, he may give it a top-dressing of ashes. This most valuable crop will seldom fail in moor farms, if the ground be properly prepared, as these situations are most likely to have refreshing showers soon after the sowing, and the young turnip leaves will be in no danger from the slog or snail, which in low lands are often found to be extremely destructive. The alkaline salt, in the moss ashes, when they are made use of, will very probably destroy them, if they be in the soil. Great advantages must

acres to the farmer, if he can command ten or fifteen acres of turnips each year. It will enable him to bring his *crock-ewes* and other sheep that he means for the butcher, in much better order than otherwise, and put three or four shillings in his pocket more than he would have got without such feed; and if he feeds black cattle, as many pounds each.

“ As he is an enthusiast in the interest of that useful animal a sheep, that feeds and clothes us, he begs leave to suggest a few more hints for its comfort and accommodation in the winter, when severe. He would recommend hay-heather to be made in summer, to be cut when the heather is in its greatest bloom. Very little winning will answer, and it may be put in stacks or ricks, upon convenient parts of the farm. Sheep, he is well informed, will eat this in deep storms of snow, and such ricks or stacks, in that case, will both answer for food and shelter, by way of *stells*. These heather stacks, or ricks, may be covered with *divots* to keep them dry.

“ Another suggestion is, that the farmer should erect large shades upon different convenient parts of his grounds, facing different ways, that his sheep may have shelter from the storm, whatever point it comes from. Shades of this kind, properly constructed, will answer much better than any *stells* that he has ever seen. Sheep at first are shy of coming near, or going into places of this kind; but if they are placed at some distance from the habitations of man, they will soon be familiar to them, for shelter either by night or by day, if the storm is great, and little or nothing to be got without. If coarse grass hay, or even properly prepared heather hay, were put under cover in part of these shades, they would soon find their habitations agreeable and comfortable every way. It seems unnecessary to be particular about the construction of these shades. Every common understanding will readily suggest a proper enough method. Let it suffice, that the walls should be made of sods, like to what some of the commonest country cabins. It would be a good place for erecting one or more of these shades upon the wall or dyke of the top-park, where the sheep would be near whin or broom pasture.

“ In many farms of this kind there is a very considerable portion of wet marshy ground, approaching in the produce, to coarse meadow, abounding with *spirits*, or flags and rushes, and a good deal of long eatable grass intermixed. As they are rough, they are extremely useful in snow storms for the sheep to *work* in; and some parts of them are, at times, cut for coarse hay for sheep or cattle, in their natural state; but if these grounds were properly drained, they might be

made much more productive in the quantity and quality of the grass or hay that they would raise, especially if, after they were made dry, they were dressed upon the surface with ashes.

“ Mr. Elkington’s method of draining may be applied to good purpose in these situations, as much of these grounds are hanging.

“ On moor farms there are also very often to be found large portions of pretty dry heathery and benty grounds, that lie pretty low and flat, and at the same time not very wet, that seems very capable of much improvement, and may be made arable at no very great expense. This ground is of a mossy nature to appearance, but is different from real moss, or what has lately been called by Dr. Anderson, *quick-moss*. It is composed of a black earth, formed from the roots of bent and other grasses, the roots of heather, &c. and often a small portion of quick-moss.

“ The plough and the harrow will do much for this kind of soil; but if lime, marle, or sea-shell sand, could be got, it would produce great crops. If these are not to be obtained, a large dose of ashes must be put on. As this ground is often deep in the soil, and can spare a diminution, it may admit of paring and burning without suffering, if not more than two crops are taken out of it. The proper grain for this sort of land, and indeed for all late moor farms, is the red early oat.

“ This oat is commonly a fortnight earlier than the most of oats sown in this country, and is not subject to shake, and is fully as productive in grain and meal as any other oat.— This is not generally known in many parts of this country.

“ Thus the writer has thrown out such hints and observations upon the improvement and meliorating the condition of moor farms, a subject that has hitherto been little attended to, as appeared to him to be the most useful; but many others, may have occurred to other inquirers; however, from the circumstance of his having been “ born upon a moor farm, he presumes he knows something about them.”

ON THE LAYING OF BARN FLOORS.

To the Editor of the Agricultural Magazine.

SIR,
THOUGH there is not, since the more general introduction of the threshing machine, so great a necessity for barn floors as before; yet as every department of rural eco-

mony must be interesting in your useful publication, the method of laying these sorts of floors described below, as being the result of actual experience, may deserve a place in some part of it.

I am, &c.

X. Z.

“ About twenty years ago the writer laid a barn floor with oak beams, fourteen inches square, and three inch oak plank, the plank was fourteen inches hollow from the ground, and the beams about two feet asunder; in two years after, some part of the plank broke down, without any other use than common threshing upon; he examined the reason, and found the under side of the plank decayed by the *damp rot*, nearly through; upon which he had the floor taken up, and found all the planks in the same situation, and the beams almost totally perished; upon which he consulted a very experienced architect, who advised him to lay the next floor still higher than the former, and if possible to admit a circulation of air under the same, as the situation of the barn must be very subject to the *damp rot*. He relaid the floor with new beams and plank of the same thickness as the former; the beams were fixed upon brick pillars, fourteen inches high, so that the floor lay twenty-eight inches hollow; and under each door-sil was two grates, about one foot square each, that gave a current of air under the floor through the barn, and by the beams being laid upon supporters of brick, the whole floor was hollow except the nine inch pillars.

“ The current of air was not through the middle of the floor, as the doors were more to one side than the other. In about two years the planks that were farthest from the passage of air fell down, all reduced to rotten wood, but about three-eighths of an inch at the upper side; upon taking up the floor, he found the beams nearly reduced to rotten wood, except those that lay near the current of air, which were very sound, as was also the plank that lay over them in that situation.

“ After these trials in the usual way of laying barn floors, he determined upon the following experiment:—to lay the next floor solid, in lime and sand mortar; upon which he removed every part of the former materials, and fixed fresh beams upon a spreading of mortar, at about six feet asunder, so as to suit the piecing of the planks to pin to; between each beam he filled the space with stones and thin mortar, so that the whole was made solid with the upper sides of the beams; when the preparation was sufficiently dry, he culled the best of the remaining planks from each of the former floors, and

before the workmen laid down each plank, the space that he covered was spread with fine mortar, even upon the beams; then the plank was laid down and pinned; so that every hollow part, either in the beams, or decayed parts in the planks, was filled solid with the mortar. The floor has now laid about sixteen years without any amendment, except one of the planks being so weak in sound wood, that it started from the pins a year ago; after taking the same up and examining the underside, he found such of the plank that was sound when last laid down, was still perfectly so, and the rotten part was firmer and stronger than when laid down.

“ He has mentioned the above circumstance to several workmen, &c. but few will follow the practice without peremptory orders, which he has followed up, with twenty different floors in sixteen years; some of oak, and some of deal planks, in different situations, and all appear as if they would stand for ages, unless they wear through from the upper side.

“ About ten years ago he ordered a floor to be laid, with ash plank (in the method above) as oak could not be got without cutting down oak trees to considerable loss; the ash was fallen, sawed up, and laid down in the floor immediately, as the saw had left it; the joints did not open much before the last summer, upon which he had the floor taken up and relaid, as the plank must be well seasoned in nine years use; the under side of which was as sound as when first put down.

“ There are other advantages, he says, obtained by laying barn floors solid with lime mortar, as a barrier against rats and mice, worms, &c. It prevents the joints from wear, by quivering, &c. and also prevents any loss in the corn through the joints.

“ He is pretty confident that the same method will hold good in laying ground floors with boards, in gentlemens' houses, as he has frequently seen them rotten and eaten through with worms in a few years. Both of these maladies the lime mortar will prevent, and will make the floor warmer also.

“ It will hold good likewise to cover the lath and pin, or nail, in the under side of slate and tiled roofs, by starting or rough drawing the same, so as to cover the lath, &c. close. The writer's first observation of this simple method was about twenty years ago, being witness to the pulling down of an old timbered house, dated 1564; between each beam was pieces of ash wood, with split ash and hazel laths, and plastered on each side with lime or plaster mortar; where the plaster was free from cracks, the laths and the bark of them,

was as sound and fresh as if they had not been cut down three months, but where the cracks had admitted the air, every part of the lath, &c. was reduced to nothing. He has lost no opportunity since his first observation, to examine the old ruins, and where he has found any old timber within those walls that had been run with thin mortar, the same has been sound and fresh, though the building has been in ruins for two centuries."

These observations may be applicable in a variety of other cases of buildings.

ON THE UTILITY OF CONSTRUCTING RESERVOIRS FOR CONTAINING FLOOD WATERS FOR CANALS, AND OTHER RURAL PURPOSES.

To the Editor of the Agricultural Magazine.

SIR,

IN a country like this, there can be no doubt of great benefits being derived from the preservation of the superfluous water of the winter season, for the supply of the scarcities of the summer months. And the following observations, suggested by an intelligent engineer, place them in a very striking point of view.

It is well known that the advantage to be obtained from the watering of land, depends greatly on the brisk motion of the water, and its not being continued too long on the land; of course, the great desideratum in this sort of improvement is supposed by some, to be the use of reservoirs, constructed so as to contain large quantities of flood water; which water so collected, may be successively and at pleasure distributed upon any land below its surface, and continued with such velocity, and for such length of time, as may be thought proper.

The writer is so "convinced of the great advantages to be derived from it, that he will venture a prediction of its being in some future time practised to a great extent. The practice will be much facilitated by the construction of dams being so well, and so commonly understood, in consequence of the number of navigable canals which have been, and are still executing. A reservoir of a few acres, and of two yards average depth, may be constructed, at from ten to twenty pounds per acre, according to circumstances of situation. Such reservoirs as a fishery (under proper management) would

be equal or superior in value to an equal breadth of land, and the surface water to a certain depth may be drawn down for the purpose of watering land at pleasure."

It has been stated, "that nine parts in ten of the waters of the kingdom at present run away in waste, great parts of which might be usefully employed; and farther (putting expense out of the question), that every stream in the kingdom may be made to run equally through the whole year. This position, however extraordinary, is easily demonstrable; for if upon any given stream one or more reservoirs be made capable of containing its flood water, and through the dam or dams be laid a pipe or pipes, whose apertures will just discharge the average produce, the business is done. And though there may be no probability of this business being ever brought to so great a nicety; yet from hence some idea may be formed of the prodigious extent to which improvements by water may be carried." And it is added that with this subject, and that of forming reservoirs for the purposes of agriculture, is connected another, of great importance in domestic and commercial economy; namely, the having an extensive command of the application of water to all mechanical purposes, wherein such application will answer better than for irrigation of land, and thus, as it were, arresting every drop of water that falls from the heavens, and rendering it in the most extensive way subservient not only to the immediate subsistence of man and beast, and the improvement of land, but even having the residue solely at command for the purposes of shortening manual labour; such a system would certainly be an important addition to the powers required in many of our mechanical operations, and of great importance in a manufacturing country.

In regard to the use of flood water, it has been observed that "the rapid improvements which have for some years past been made in the agriculture and commerce of this country, and the happy effects derived therefrom, naturally excite a desire to investigate every means by which they may be continued and increased.

"Among the many causes which have combined to promote our prosperity, the facility of intercourse by inland navigation is a great and leading feature. All unite in admitting this as a general position; but many, from private motives, or mistaken opinions, have too often prevailed in preventing the execution of useful projects, which, if they could have been effected, would have greatly contributed to the national benefit derived from those already established.

"Among the obstacles that stand forward, none are more conspicuous, nor so generally urged, than the want of water

in dry seasons. It usually happens, that where canals are most wanted, manufactures or agriculture having already taken possession of the ground, and occupied the streams of water, it is plainly to be foreseen, that, unless some means are devised to reconcile this competition, those desirable improvements must be crippled in their growth, and stop long before the age of maturity.

“ It can hardly have escaped any one’s observation, that streams of water used for the purpose of working mills, or the more valuable purpose of watering meadows, in the few instances where this has been practised, while they have a scanty supply in summer, they generally discharge in winter such superabundance as frequently to do material injury.

“ There are, in some parts of this island, exceptions to this general position. Where the soil is porous, and the substrata so open as to absorb the rains as they fall, there are no floods: the pores and fistures of the earth form reservoirs or regulators to the streams; they preserve the winter waters, and so equalize the discharge, that there is but little difference between their winter and summer state; but in clay or other similar soils, so little is absorbed, and so much suddenly glides off from the surface, that the extremes of scarcity and exuberance are the necessary consequences.

“ It is now well understood, that all natural springs derive their supply from the waters of the atmosphere; and they may fairly be considered as the discharges of natural reservoirs; it is immaterial whether those reservoirs may be composed of large cavities, or minute fissures.

“ Leaving expense out of the question, it is possible to conceive (however extravagant the idea may appear), that the waters of all rivers might by art be nearly equalized throughout the year: but it will be sufficient to prove that this is practicable, if applied to small rivulets or brooks, particularly where nature holds forth a temptation, by furnishing deep ravines, or capacious hollows on the surface of the ground, capable, at a moderate expense, of being made to contain large quantities of water.

“ We are taught, from the simple instinct of animals, the provident lesson of storing up the superabundant supplies of one season for the wants of another. Necessity has compelled mankind, in many countries, to follow their example. In hot climates, the inhabitants could hardly exist without storing up the waters of winter for their use in summer.*

* At Alicant, the King of Spain has made a reservoir, the water of which, for the uses of summer agriculture, bring him in a revenue of 2000l. per annum. “ Townsend’s Travels through Spain.”

“ There are instances in this country where canals are in want of water in summer, while the brooks that supply them discharge floods, in winter, in one day, sufficient for the supply of the whole year.

“ Those who entertain doubts of the practicability of making reservoirs sufficient for the supply of canals, state their objections under three heads: the expence; the want of sufficiency of water; and the uncertainty of making such reservoirs to retain it.

“ When the necessary magnitude is ascertained, the expence is a subject of plain calculation; and it is easy to determine whether the project, to which it is to be applied, will bear the expence. There have been several instances, where the expences of repelling an opposition from mill-owners to a bill in parliament, would have been more than enough to have made sufficient reservoirs.

“ Whether they can be filled with water may be known before they are undertaken, by an inquiry and measurement of the discharge in winter.

“ The waste of water from a reservoir is in two ways; by exhalation, and by leakage. The first, in a dry summer, would consume about nine inches in depth from the surface; the making the head nine inches higher than otherwise necessary would compensate for this. The leakage would be in few cases (where it would be prudent to attempt the scheme at all), even upon small streams, more than equal to the summer supply; and whether the water may be discharged by leakage, or by a pipe or artificial discharger, if they shall both discharge into the same channel, is not very material. In clay or other soils where rushes grow, there will be no sensible leakage; and in soils more open, the pores of the soil would be an extension of the reservoir; and in cases where it might be necessary to discharge constantly from the reservoir a quantity equal to the summer stream, it would for a while supply that discharge.

“ Even in extreme cases of leaky soils, if there were any sudden floods, the reservoir would at least prevent their sudden discharge; but where the soil and strata are so close as to absorb little, and cause sudden floods (and it is to these cases that reservoirs are peculiarly applicable), there is little reason to apprehend leakage.

“ The writer has lately had an opportunity of experiencing the effect of a small reservoir (not yet completed), as a regulator to a stream. It covers at present about twenty acres, and is made on a small brook, which, in dry seasons, does not furnish more water than would run through an aperture of an inch in diameter; but is subject to floods, which can hardly be discharged by a pipe of three feet in diameter.

“ There is fixed under the head of it an iron pipe of six inches bore, which, during the last winter, has almost constantly been open; and discharged a quantity unequal no otherwise than from the difference of pressure by the rising and falling of the water in the reservoir, at the different intervals of rainy and fair weather; and when the reservoir shall be enlarged, on the one hand the meadows below will never be overflowed; and, on the other hand, the reservoir will furnish, in the dry part of summer, at least twenty times the quantity of water daily, that the brook would otherwise afford.

“ It is suggested, that the execution of canals upon this system, may tend to promote the extension and continuance of those improvements in commerce and agriculture, on which so greatly depend the prosperity of the country; and which, in many instances, already have been checked, by neglecting to use the assistance of art in remedying the defects, or rather in using or improving the bounties of nature.”

Yours, &c.

W. R.

SOME OBSERVATIONS ON THE PRICES OF COMMODITIES, PRODUCED FROM FARMS.

To the Editor of the Agricultural Magazine.

SIR,

THE following remarks contained in one of the Northern Surveys of the Board of Agriculture, seem in some measure interesting, as showing the nature of the late rise which has been made in the different articles of farm produce.

I am, yours, &c.

T. T.

It is stated by the writer, that “ the commodities derived from farms, are either the materials of manufacture, or provisions for man and subservient animals. Both these are either obtained directly by means of cultivation, or indirectly from the animals supported on farms. The money price of provisions, of the first kind, have not risen in proportion to the articles which enter into the cost of raising them; and indeed the price of the former seems scarcely to have been affected by the rise of the latter, but fluctuated only on account of temporary starts of scarcity or plenty. In the course of the last forty years, land rent, the wages of labour, the price of labour-

ing horses, &c. are nearly tripled, but the price of grain has seldom been much lower during that period, than in the beginning of the summer, 1797. On the other hand, the last kind of provisions, which require less additional cost of labour, has been regularly upon the rise, and the price is tripled, and in some instances quadrupled, in the above period. The current prices of the materials of manufacture, seem more to resemble those of the first than of the last kind of provisions."

TABLE of the former and present Prices.

	Former.	Present.
" Moorland wool per stone, from 6s. to 8s. —	from 6s. to 8s.	from 8s. to 10s.
Flax per ditto —	10s. 6d. to 1l.	1l. to 1l. 10s.
Butter per ditto —	16s. to 1l.	1l. to 1l. 4s.
New milk cheese per ditto —	8s. to 9s.	10s. 6d.
Skimmed milk do. per ditto —	6s. to 6s. 6d.	8s.
Butcher meat of all kinds } per pound —	7d. to 10d.	9d. to 1s.
Fowls per pair —	2s. 6d. to 3s.	4s. 6d. to 5s.
Eggs per dozen —	6d. to 1s.	7d. to 1s. 4d.
Hay per stone —	5d. to 8d.	5d. to 8d.

Straw sells at from one-half to two-thirds the price of hay."

SOME ACCOUNT OF THE APPLICATION OF TARE CROPS, IN THE SUMMER FEEDING OF SHEEP.

To the Editor of the Agricultural Magazine.

SIR,

THIS is a sort of crop that has long been found very useful to the farmers in the soiling of horses, and many other sorts of live stock; but which has been but lately made use of to any extent, at least in summer support of sheep. Various trials in different districts have now, however, shown it to be of considerable benefit in this application.

It is stated in the able Survey of the county of Norfolk, that the culture of this sort of crops in successions for the purpose of sheep feed, has gone to a very great extent in that district. It is stated, as the remark of Mr. Blythe, that the sowing of "tares for summer feeding sheep, is an absolutely new improvement in the husbandry of West Norfolk, and he thinks it a very great and important one; he does not know who first introduced it: he is largely in the practice himself, of sowing both winter and spring sorts, and in succession. And Mr. Young, found Mr. Hart at Billingsford, feeding off his spring tares, the winter ones, first growth, being done: the sheep were in pens moving regularly forward; brought in at night, and in the day on the layers; a piece of twenty by

thirty yards given every day to four hundred breeding ewes. They draw back on the cleared land, not resting on the unfinished tares. They were sown on a two years *ollond*, and as fast as cleared, the land was tempered for wheat. Winter tares fed off in May in the same field, are now, he says, in August, a fine crop again for the sheep, when they finish the spring ones."

About Rickmersworth and Watford, in Hertfordshire, they are likewise frequently applied in the same way.

These statements show, that this is a kind of food that deserves the attention of farmers in other parts of the kingdom in the same intention. And some of your numerous readers can probably furnish you with the particular advantages that may be thus derived.

I am, yours, &c.

D. W.

ON THE CULTURE AND IMPROVEMENT OF WASTE LANDS.

To the Editor of the Agricultural Magazine.

SIR,

THE following method of management is stated to have been pursued with much success, by Sir John Sebright, in Hertfordshire, in the valuable Survey of that county.

I am, yours,

A HERTS FARMER.

He began an improvement of a quantity of waste common, which he had power of inclosing without an Act of Parliament, and proceeded in the following manner on different portions. On the Howe's.—This field contains twenty-three acres: was in furze in 1798, and then broken up by a single ploughing with the great Hertfordshire plough, made very stout, and well fortified, and drawn by ten horses, followed by a man to grub up what roots it left; and only half an acre was done in a day. This expense cannot be estimated at less than 30s. a day, perhaps more; or 3l. an acre. Black oats were harrowed in, and the crop was bad. In 1799 it was fallowed, and slightly dressed with dung for turnips—the crop was very fine; they were eaten on the land by sheep; and in 1800, nineteen acres of it were sown with barley—the crop was very bad. Clover was sown with it, which crop also was bad. He now intends dibbling it with wheat,

On the other four acres spring wheat was sown, and sooted in the spring; the crop produced five loads an acre. It is ascertained that barley will not do on this sort of new land."

Another piece named the *St. Vincent's*, containing twenty-four acres, was thus managed. "In 1799, this piece was broken up exactly in the same manner as the other, and sown with oats. In 1800 it was dunged, and fallowed for turnips. In 1801 oats were sown, and were a good crop; clover was sown among them.

Another termed "*Nelson's*", containing twenty acres, was broke up in 1799, by paring and burning, and ploughing twice for turnips; the crop was bad: this husbandry of ploughing pared and burnt land twice, is, the writer says, uncommon. In the improvements he has examined in various parts of the kingdom, and which have been successful, it has been almost universal to give such land only one shallow earth. In 1800 it was sown with white oats; which was a fair crop. In 1801 turnips were sown, the field having been previously dunged.

"The *Warren's*, containing eighteen acres, in 1800 had half of it pared and burnt, and half broke up as before, with the great plough, for want of more hands to pare and burn: the ploughed part was sown with black oats, and the crop was good; the burnt half with turnips. In 1801 Swedish turnips followed the oats; and white oats after the turnips—both crops were very good.

"The *Pellew's*, containing twenty acres. This piece was also broke up in 1800, half pared with Sanxter's paring plough (of Horse-heath, Cambridgeshire), and burnt for oats. The other half was ploughed, as before mentioned, with the great plough, and also sown with oats: both were good crops, but the burnt was the best: the paring-plough did well, and is an excellent tool on smooth land; although it cuts thicker than the paring spade.

"The *Duncan's*, containing twelve acres, was broke up in 1799, with the great plough, as above described, and sown with black oats. The crop was very bad. In 1800 it was fallowed for turnips. In 1801 it was dunged, and sown with turnips again. This is a capital beginning for waste, as it wanted only burning.

"The *Sir Sidney's*, containing ten acres, was broke up in 1801, on one ploughing, and black oats were sown.

It is observed, that "upon the whole, Sir John is most decidedly of opinion, that the best way of breaking up such wastes, is by paring and burning; were hands to be procured, he would never do it in any other method. It is not so expensive as a single ploughing; saves much expense in clean-

ing by tillage; the crops are better: and the land is left cleaner. Of this great superiority he saw the proof in a neat stubble, half a piece after one method, and half after the other: the difference was very great indeed."

The facts are now so numerous, that there cannot be any doubt of the superior advantage of this practise in cases of rough course land.

ENUMERATION OF PATENTS LATELY GRANTED
FOR NEW INVENTIONS.

1807.

February 20. **F**REDERIC ALBERT WINSOR, of Pall Mall, in the county of Middlesex, Gentleman; for an improved oven, stove, furnace, or apparatus for the extracting of inflammable air or gas and oil-tar, acetous and ammonial liquors, from different kinds of fuel, for reducing such fuel into coke and charcoal, and for completely purifying such inflammable air or gas of its odour during a state of combustion.

March 7, John Falconer Atlee, of Wandsworth, in the County of Surrey, Distiller; for an improved apparatus to be used in fermenting of liquors.

..... 7, John Maberley, of Bedford-row, in the county of Middlesex, Gent.; for a method of making and constructing tents, poles, and other machinery, so as to expel and carry off noxious and contaminated air by a readier and more effectual ventilation than can be accomplished by the tents in common use.

..... 7, Elizabeth Bell, of Blackheath, in the county of Kent, Spinster; for certain improvements in an artificial method of sweeping chimnies, and an improvement in the preparing and manufacturing pieces used for constructing the chimnies invented by her, so as to render the said pieces capable of being better joined together, and more advantageously used for conveying smoke, water, and other fluids or bodies, in a divided and pulverulent state, in any required direction: and also certain methods, machinery, and apparatus, useful or necessary for manufacturing such pieces, and applicable for the purpose of forming various other articles of pottery.

..... 7, John Houlditch, of Long Acre, in the county of Middlesex, Coach-maker; for certain improvements in the construction of four-wheeled carriages of different descriptions.

- March 7, Henry Charles Christian Newman, Clerk, Rector of St. John's, Capisterre, in the island of St. Christopher; for a machine applicable to mills in general, and to various other purposes, but more particularly adapted to the cattle mills employed for expressing the juice of the sugar-cane, by greatly augmenting their power and execution, with fewer cattle, and by increasing the number of the revolutions of the spindle and rollers in the proportion of ten to one of the present mills, or even more if required, by means of a ring, made either of hard wood or cast iron, round the mill, and by an entirely new construction of the axis in peritrochio, the lever, and a lantern wheel or pinion, the trundles or teeth of which turn a cog wheel on the spindle of the mill, which axis in peritrochio, lever and lantern wheel, or pinion are also constructed as to revolve together with two distinct motions; that is to say, a rotatory one round their own axis, and a progressive circumvoluntary one on the ring, constantly acting upon and compelling the cog wheel and spindle with their separate and united forces.
- 20, John Day, of Camberwell-green, in the parish of St. Mary, Lambeth, Stone-mason; for a method of applying friction boxes, either with or without a perpetual screw, spindle, and cog-wheel, to extend and facilitate the power of engines, cranes, capstans, and other machines used for loading and unloading ships or vessels, and for raising anchors and other great weights or bodies, and also to the steerage wheels of ships or vessels.
- 23, Thomas Jobuson, Mechanic, in Glasgow; for a machine for weaving yarn.
- April 2, Archibald Thomson, of the parish of St. John, in the city of Westminster, and county of Middlesex, Engineer; for certain improvements (by the application of known principles) upon certain parts of mill-spinning, for spinning wool or cotton.
- 8, James Peache, of Cuper's-bridge, Lambeth, in the county of Surrey, Barge-builder; for a floating hollow buoy, on a new construction, for supporting mooring chains, cables, ropes, &c.
- 8, William Chapman, of the town and county of Newcastle-upon-Tyne, Civil Engineer, for a method or methods of reducing the wear, and prolonging the duration of ropes used in drawing coals or other minerals from pits or shafts of mines.
- 8, Samuel Williams, of Finsbury-square, in the city of London, Merchant; for new and improved machines and machinery for spinning wool, cotton, hemp, and other filamentous substances. Communicated to him by a foreigner residing abroad.

- April 8, Richard Francis Hawkins, of the parish of St. Ann, Limehouse, in the county of Middlesex, Gentleman; for certain improvements to all kinds of gun and cannonade carriages, so as to facilitate the working or using, securing, and housing thereof, particularly adapted to ships.
- 8, William Southwell, of the city of Dublin, Musical Instrument-maker; for certain improvements upon a piano forte, which is so constructed as to prevent the possibility of its being so frequently out of tune, as piano fortes now generally are, which he denominates "*A Cabinet Piano Forte.*"
- 11, William Chapman, of the town and county of Newcastle-upon-Tyne, Civil Engineer; for a method or methods of putting coals on board of ships, lighters, and other vessels, so as to prevent a great portion of the breakage of the coals which takes place in the usual method of shipping them by spouts.
- 11, Alexander John Forsyth, clerk of Belhelvie, Aberdeanshire, in Scotland; for a method of discharging or giving fire to artillery and all other fire-arms, chambers, cavities, and places, in which gunpowder or other combustible matter is or may be put for the purpose of explosion.
- 11, Thomas Patty, of St. Thomas's Watering, Kent road, in the parish of St. Giles, Camberwell, in the county of Surrey, Manufacturer; for a method of dying, spinning, weaving, and manufacturing of East-India sun-hemp into carpets and carpet rug-matts, which will be more durable and less expensive than any now in use.
- 15, Anthony Francis Berte, of the parish of St. Dunstan in the West, in the city of London, Merchant; for certain improvements in casting printer's types and sorts, and other articles of metal. Communicated to him by a certain foreigner residing abroad.
- 21, James Forbes Dalton, of High Holborn, in the county of Middlesex, Coach-maker; for certain improvements in the construction of four-wheel carriages.
- 21, William Shotwell, of the city of New York, in America, now residing in London, Merchant; for certain machines and improvements upon machines, for the purpose of bleaching, washing, and cleansing linen, and every other article that can be done by hand.
- 21, Abraham Matterface, of the parish of Christ Church, in the county of Surrey, Mill-wright; for certain improvements in the construction of a machine for mashing and mixing malt.
- 25, Mark Noble, of the parish of Battersea, in the county of Surrey, Engine-maker; for a chain-pump, hand-pump, and an improved extinguishing fire-engine.

CRITICAL CATALOGUE.

The Experienced Farmer, enlarged and improved; or, Complete Practice of Agriculture, according to the latest improvements: the whole founded on the Author's own Observations and his Experiments. With four Plates. By Richard Parkinson, late of Doncaster, in Yorkshire, Author of "The Experienced Farmer's Tour in America," and "The English Practice of Agriculture exemplified in the Management of a Farm in Ireland." In two volumes 8vo. London: Printed for Longman, Hurst, Rees, and Orme, Paternoster-row; and J. Harding, St. James's-street. 1807.

IN examining the former edition of the Work now before us we gave our opinions and observations on its merits and defects, with that freedom, which they seemed to deserve. In the present edition the author appears to have altered and new arranged the greatest part of the materials, and made such additions that it may be almost considered a new work. The whole of what related to live stock, which occupied nearly a third of that edition has been here wholly omitted, with the intention, we are told, of offering it to the public in another form. It is, however, remarked, in the address prefixed to the volumes, that, notwithstanding these omissions, they contain *double the quantity* of the first edition. Even such parts of that edition as are now again given to the public, have all, the author says, been *fresh written*, as any person who has the old edition may perceive. The experience he has had since he first published that edition, by living some time in the different countries of America and Ireland, as well as the numerous opportunities which he has had in England of making valuable remarks, in consequence of the capacity in which he has been actively employed by the Honourable Board of Agriculture, have enabled him to view many important subjects in very different lights, and to form his system on the latest *real* improvements. Besides this, all the sections in the present edition have, he says, been *arranged in a regular and natural order*, so as to form, in reading from the beginning of the work to the end, a complete course of agriculture from first inclosing the ground, to getting in and disposing of the crop, with separate sections on a variety of miscellaneous and useful matters. There are also added now for the first time, a *Table of Contents* at the beginning of each volume, and a *very full Index* at the end of the second; and by means of these, with the *titles at the top of every page*, the reader may easily find any subject he wishes to refer to."

It is unnecessary for us to go over the work again, but a passage or two may be presented to the reader from those parts where useful additions have been introduced.

On the nature and management of India Corn we have the following account:

“As Lord Selkirk has lately introduced this kind of corn to the notice of the Board of Agriculture, and the Board having expressed a wish that it should be tried in this country, it may perhaps be acceptable to some of my readers, to have the method of its cultivation explained, as it cannot be supposed to be generally understood here; and this I am enabled fully to do, from having lived two years in America, where this sort of corn is much raised, I have also, since my return to England, planted a small quantity of it in my garden, and it turned out superior to my expectations.

“I am of opinion this crop may be raised to advantage in some light soils, particularly the poor sands in Norfolk and Suffolk; or on any hot burning land: as the countries where it grows naturally are light hot soils. The process of cultivating it is as follows:

“In the month of December fallow the land: and in April scarify and harrow it, and burn all the refuse stuff. The mould must be very finely pulverised. Then *list* it: that is, plow two furrows, back to back, six feet asunder; and afterwards plow two furrows, back to back, the other way; and at the place where the furrows cross each other, they will form a hill. Take a large hoe, and pulverise this hill very well; if possible, as fine as mould in flower pots: leaving a hollow in the middle, like the hills which the gardeners make for cucumbers. As this is supposed to be poor soil, a shovelful of compost-dung added will make the hill much better. If the corn is set in drills six feet asunder, about four cart loads of dung will be sufficient for an acre. The drills must be made in the manner I have described in the section beginning at page 325 of the first volume. I prefer the drill method in this country; as the small hillocks in planting the seeds separately make the land unsightly, and improper for other crops. In planting them on hillocks, there must be four or five corns put on each; but if in drills, the corns must be set fourteen or eighteen inches apart. To raise the greatest produce in corn, the hills are the best way; but if the crop is intended chiefly for fodder, the drills are the best.

“The seed is to be put about an inch deep in the ground. When the corn first appears above the surface, the hillocks or drills must be examined, to see whether it has all come up properly: and if it has not, there must be fresh seeds put into the vacant places, to prevent a loss in the crop. As soon as the plants take root in the ground, the crop must be examined again to see whether any have died away, or the birds have taken the seed. Then on those hills where five corns have been planted, pull all up but two, and lighten the earth about these two with the hoe: and if any of the hills have not got two good plants on them, remove some others to them; or if there are any weak plants on the hills, pull them up, and put better ones in their places. In the hill method, the hoe must be used at every operation in managing the plants, and earth must be given to them, as the land cannot be made too light for this crop.

“ If it is in drills, the corn must be hoed in the same manner as garden peas. Draw some fine mould to it; for there ought to be no clods, as it does not thrive well on rough ground: and then draw the hoe between the plants. It will then be time to *succour* those plants: that is, break off all the tillers, so as to encourage only one stem from a root: as the tillers will prevent the ears of the corn from coming to perfection, and will raise nothing but *cobs*. Then with one horse plow a furrow *from* the corn, and let the mould lie a day or two; then plow *to* the corn: plow all the land between the rows, and harrow it; as it is common for the roots to extend from hill to hill. After this, if the corn is in hills, plow the other way, in the same manner as before, and harrow. When the corn gets out of the milk, the blades below must be all pulled off while green: tie them up in small bunches, about the size of a birch-broom, and hang them on the top of the stalks of the corn; for at the same time that the blades are pulled the tops must be cut off, set up in round bunches to dry, and tied round the topmost part to keep them from falling. When these are dry, they must be harvested. The blades are generally ready in four or five days, but the tops take longer. When these blades and tops are properly harvested, they are excellent fodder.

“ These processes will be finished about the end of August; and then the land might be plowed, and sown with rye. If seeds were required, I am of opinion it would be very proper to sow the seeds at that time on this poor hot land; as the warm season would be over, and the seeds would have sufficient time to take root before winter. If only rye was wanted, I would eat it with sheep in the spring or during the winter.

“ The stalks must stand for the corn to ripen, after the rye is sown; and the corn ought to hang on the stalk till it is hard. In America, it is often December before the white corn can be pulled, or September for the yellow corn: if it is pulled before it is hard, and the cob is perfectly dry, it will mould and spoil: and the corn will be apt to rot; therefore great care ought to be taken not to pull it too soon. This corn is excellent for fattening pigs and fowls, cattle, sheep, and horses; and the blades and tops also make fodder for horses and cattle when well harvested, but they are very liable to be damaged by wet. It is given to horses, cattle, and hogs, without shelling, and only husked, in the ear; but when given to fowls, or intended for sale, it is rubbed off by burning a cob in the fire till hard, and then rubbing the corn with it.”

On the rising of the rape in Holland, a very beneficial crop for feeding in many situations and circumstances, Mr. Parkinson presents us with the following remarks, on the authority of the Earl of Winchelsea:

“ They sow, (says he), the seed at the proper season, on a piece of land, to raise the plants in the same manner as we do cabbages in England; and when the corn has been reaped, they plough and harrow up the land, so as to prepare it for the crop. They make a sort of liquid compost of night soil and water mixed; which is put into a large cask on a pair of wheels, like a water

cart, with a plug or spigot that lets it out behind. This is drawn out into a small vessel (holding a gallon or more) with a shaft or handle of some length; and they sprinkle the land with this, and then set the rape plants; and by this process they raise very excellent crops of rapes for the seed crop. His Lordship observes, however, that the operation is of such a nature, that he stood to look at the workmen till he was sick, and no labourer in England would be found to do it. Yet it might be done by a water cart, formed in the same manner as those which we use for the watering of streets; and I am of opinion that it would be a very beneficial proceeding: for this liquid compost would have two good effects; by enriching the land, and by giving to the soil a moisture which would make the plant take root more quickly, But there is little hope of this practice being used in England. from its being so nauseous, though it would certainly prove very profitable.

“ The above method would have several advantages. In the first place, there would be no time lost, as has been always the case in England, in raising a rape crop for seed; as from its nature there have generally been two years rent on the land; and thus there has been the loss both of a crop, and consequently of a dung-hill. This crop lost may be valued at from five to ten pounds an acre, but I will take the average of 7l. 10s. : and supposing it to be in a six years’ rotation, this will be five-and-twenty shillings an acre profit each year; besides the great advantage of keeping the land covered to prevent exhalation, &c. which is so necessary to be attended to, as I have frequently remarked in the course of this work.

“ Now let us suppose the crop before this to be wheat, according to a rotation which I have given to the reader before; namely, on turnip-land, first year turnips, second barley and clover, third clover, fourth wheat, *fifth rape for seed*, and sixth either wheat or oats: in this case I would recommend to set fire to the wheat-stubble, and then plow it, scarify, harrow, &c. as I have already described in another section: then make drills with the plow, as I have described for peas, &c.; and put the compost recommended in this work, twelve cart-loads to an acre, as land cannot be too rich for a rape-crop for seed. After the compost is put into the drills, harrow the ridges down upon it; and then set the rape plants in the compost, according to the method which I practised with my excellent crop of cabbages mentioned above. When they have taken root, it will be well to give them a hoeing to destroy any weeds, and give them a small quantity of earth before the winter. The middle of October will be quite soon enough to set the plants: and by the above process it will happen that during the winter they will stand in a sort of hollow, and be shaded from the severe winds; and in snowy weather the snow will gather in the low space of each drill, and thus will cover them: all will be found of wonderful advantage.

It will be proper to sow plenty of seed on the beds, so that you may have the choice of the best plants; and I am of opinion that the drills might be made eighteen inches asunder, without injuring the produce of the crop. In this case, the crop might be cleared from weeds and earthed with a horse and plow; which would not only be cheaper than hand-weeding, but would make the land cleaner than any other proceeding: for this might be done to advantage when the rapes are four inches high; and as the expence is so small, I would advise to do it again when they have come up twelve inches. I am of opinion that by this proceeding there would be more rape-seed raised on an acre than has been hitherto done, for no weed except couch could grow; and it seems likely to prove the most advantageous process that has yet been contrived, by making a complete fallow, and at the same time producing a profit of from twelve to twenty pounds an acre.

“ Now perhaps it may seem to the reader to be expensive, as indeed I own that it once did to me. But supposing the land to be twice plowed, once scarified, and twice (or as many times as may be necessary) harrowed, to get the couch out of it, certainly it makes no difference to the farmer whether this is done in the course of a fortnight or of a twelvemonth, as the necessary cleaning is still the same. The dunging also is the same. Then there is the business of setting the plants, which is the only additional charge.— The highest rate this can be reckoned at in any county, is half-a-guinea an acre; as cabbages are planted in the neighbourhood of London at that price. It may here be proper to observe the method of planting crops of this sort with the greatest dispatch: by the drill being made there is no line wanted; but women or children should drop them on the side of the drill, so that the man who plants them may never have more than one in his hand at a time. The expence of seed for this crop in the above way cannot be estimated at more than nine-pence or a shilling an acre; and therefore the seed and planting will be only eleven shillings and sixpence. The dibbling of wheat, ten pecks (which is the proper quantity), at nine shillings and sixpence a bushel, is 1l. 3s. 3d. an acre; and the broad-cast sowing, at four bushels to an acre, is 1l. 18s.: but a good crop of rape brings as much money as a good crop of wheat does; and consequently as dibbling the wheat in seed and labour together will cost 1l. 13s. 9d. an acre, and rape will cost only eleven shillings and three-pence, there will be a saving of 1l. 2s. 6d. an acre on the rape crop, which is a sum equal to the rent of most land, even in this planting process. Besides all this, the crop itself will certainly be very much superior to what is common: for every body knows from the culture of cabbages, what an advantage earthing is to them; and rapes being of a similar nature, there is reason to expect it would have the same effect on these. There is also the great advantage of standing in the compost, by being inclosed in the drills; which is sure to make the plants branch out, and yield much bolder seed.

“Now to return to the expence and profit of other white crops, to complete the system. I have shewn above, that there will be a superior advantage of 1l. 2s. 6d. in favour of the rape; and if sown broadcast, this will be 1l. 6s. 9d.: so that the farmer need not hesitate at the expence of planting this crop. If on strong clay, the rotation may be as follows: first year, rape; second, wheat; third, peas drilled, and rapes sown to eat with sheep afterwards; fourth, barley and clover; fifth, clover mown twice; sixth, wheat; seventh, flax, and rape sown to eat with sheep; eighth, wheat or oats. But if it is not found necessary to cross-crop, where straw is not wanted, the farmer may sow alternately rape for seed, and wheat: as the burning of the stubble will be found equal to a good dressing, and the wheat-straw will give a sufficient quantity of manure (if made into compost) to put into the drills every other year; and the process of *planting* the rape crop, besides its uncommon profit, will improve the land very greatly.

“On stiff clay it may be necessary, if the land is ridge-and-furrow, lying high and low, to make the drill crosswise: and then the hollows, where the plants stand, will let the water off into the furrows more readily, and will put the ridges into a proper form for working the scarifier and harrows after the rape-seed crop is reaped. In this method of planting rape, there may be an abundant crop of it raised for sheep after the pea or flax crop: as the seed may be sown so early as for the plants to be set in August, and by that means be as forward as they would have been on land that in the old way of fallowing has been without a crop; and if the farmer chooses he may plant borecole, or curled Scotch cole, or any other vegetable that stands the winter well, for spring-eating. I would not have the reader to look on this proceeding lightly, but recommend him to consider it with proper attention.”

There can be no doubt of the great advantage of making use of night soil, or other substances of the same kind, which abound with ammonia, in the culture of these sorts of crops, as all plants of the *crassia* tribe have been long known to succeed in an admirable manner under such management. Even the cauliflower may be grown to a larger size in this way, perhaps, than by any other means. Care must, however, be taken that the dose be duly apportioned, otherwise the plants may be destroyed. The best method in this application is probably that of compost with rich vegetable mould.

On the whole, the work has undergone such improvement, that it cannot fail to afford useful lessons to the less informed English farmers. The observation and comparative estimates on the old and new systems of husbandry, as well as on the nature and cropping of tillage farms, demand their serious and particular attention.

Although Mr. Parkinson appears to have had no very strong relish for either American or Irish farming, he seems to have infused a specie of both into his British husbandry.

HISTORY

OF

Agriculture.

KENT AGRICULTURAL SOCIETY, &c.

LONDON, MAY 31.

AT the Anniversary of the Kent Society, for the encouragement of Agriculture and Industry, holden at the Fountain Tavern, Canterbury, on Friday, the 22d of May, 1807, the following premiums were given:—

CLASS I.

SERVANTS IN HUSBANDRY.

Married.—To Richard Norris, waggoner to Mr. John Dilnot, and his father, of Patrixbourne, 33 years, Two Guineas.

To Edward Bull, bailiff to the Rev. Wm. Cornwallis, of Witterham, in Oxney, 22 years, Two Guineas.

Single.—To Wm. Saunders, allworks to Mr. Richard Wraith, of Chillett, seven years, Two Guineas.

No other claimant as a single man servant.

Female.—To Sarah Kemp, dairy-maid to Mr. W. Nethersole, of Northbourne, 13 years, Two Guineas.

To Lydia Fagg, allworks to Mr. Daniels, of Lower Hardres, 12 years, Two Guineas.

No claimant for the boy's premium.

CLASS II.

LABOURERS.

To Humphry Banks, labourer to Mr. Hunt Jeffry, of Naccolt, in Wye, 43 years, Two Guineas.

To George Bennefield, labourer to Mr. Foord and predecessors, at Patrixbourne, 39 years, Two Guineas.

To John Moore, labourer to Mr. William Chapman, of Badlesmere, 39 years, Two Guineas.

CLASS III.

COTTAGERS.

To W. Kingsford, of Ronington, 19 children born, twelve brought up without relief, Two Guineas.

To John Folwell, of Patrixbourne, 11 children born, 10 brought up without relief, Two Guineas.

To Christopher Manuel, of Chartham, 10 children born, nine brought up, with some relief, Two Guineas.

WIDOW OF A LABOURER IN HUSBANDRY.

To Elizabeth Coombs, of Petham, for eight children born and brought up, with very little relief, Two Guineas.

BEE PREMIUM.

To John Austin, of Bridge, for eleven stocks of bees, **Two Guineas.**

BEST CART STALLION.

To Mr. John Roalfe, of Canterbury, for his black horse Waxwork. **Five Guineas.**

For the premium of Five Guineas for the best two yearling cart colt, or filly, bred in Kent, two colts were produced, but neither thought to have sufficient merit.

BEST SHORT-WOOLLED RAM TAG.

To the Rev. Ralph Price, of Lyminge, for his Southdown ram tag, **Five Guineas.**

BEST PEN OF THREE SHORT-WOOLLED EWE TAGS.

To John Boys, Esq. of Bethanger, for his pen of Southdown ewe tags. **Five Guineas.**

THE OFFICERS FOR THE ENSUING YEAR.

The Right Honourable the Earl of Thanet, re-appointed President.

Edward Darell, and Wm. Cantis, Esqrs. appointed Stewards.

Allen Grebell, Esq. Treasurer and Secretary.

COMMITTEE.

Sir Henry Oxenden, Bart.

Rev. Sir John Fagg, Bart.

W. Honeywood, Esq. M.P.

Lieutenant-General Harris

E. Taylor, Esq. M.P.

Rev. Ralph Price

Rev. J. C. Beckingham

Rev. Thomas Downe

John Plumtre

William Hougham

Thomas Brett

James Wyborn

William Wightwick

James Tillard

George May

George Carter

Carr Culmer

John Boys

Thomas Gibbs Hilton

Robert Rich

George Morgan

Thomas Cattle

Thomas Neame

Austin Neame.

A Committee of superintendance, consisting of nine Members, of the above were named, three of whom the President or Deputy being one, to be a quorum, to Act between the Quarterly Meetings, and to be responsible to the Society for their proceedings.

ALLEN GREBELL, Secretary.

Society for the Encouragement of Arts, Manufacture, and Commerce.

ADELPHI, May 25.

This being the anniversary for the distribution of the premiums and bounties, awarded within the year past, by the Society for the Encouragement of Arts, Manufactures, and Commerce; in less than a quarter of an hour after the doors of the Society's House, in the Adelphi, were opened, every seat in the great room, were filled mostly with elegantly dressed ladies. Exactly at twelve o'clock, his Grace the Duke of Norfolk, the President, took the Chair, and the business commenced, with the usual oration from Dr. Taylor, the Secretary, in which he traced, in a perspicuous manner, the progress of this patriotic Society, from its foundation in 1754, through the laudable exertions of Mr. Shipley and others, until the present time; and went through a succinct review of the labours of the Society, in the several departments of its business within the year past.

Mr. David Day, from near Rochester, was then called on, in the Class of Agriculture, to receive his letter or order, for the silver medal awarded to him, but which the Noble President informed him and the other Candidates,

was not yet ready for delivery, owing to a very recent accident with the die, when striking the medals for this occasion.

Mr. Day, at the request of his Grace, stated several particulars relating to his long experience as a planter of ash, (having been almost among the first of those rewarded in this class by the Society), and said, that in particular small spots, the produce of his plantations have increased in value no less than 480*l.* per acre in three years! This veteran planter stated, that neither chalk or clay are well adapted to the growth of ash, but that sand is highly so; that comparatively, poor land will pay the best for planting, although he had succeeded in most soils with ash, which pays better than oak in general.

In the absence of Major Spencer Cochrane, of Scotland, a Member of the Society appeared, to receive his order for a silver medal for the culture of spring wheat, and for receipts for medicines for cattle, to be made from white poppies, to be grown by the farmers.

A Lady, who is a Member of the Society, was called on to receive an order for a silver medal awarded to Miss D'Oyley, of Yorkshire, for her improvement on the Egyptian mode of raising chickens by art. This was stated to consist principally in causing the same hens to sit upon, and hatch, successive sets of eggs, and raising the chickens by means of apparatus, called "artificial mothers," calculated to give the shelter and warmth to these tender little creatures, usually derived from the wings and feathers of a hen.

In the absence of Lord Ribblesdale, Mr. John Taylor, a Member of the Society, received his order in the class of Chemistry, for a silver medal, for the discovery and account of, an Ore of Zink, of three to six feet in thickness, found in certain caverns on his Lordship's estate, at Malham Moor, in Craven, Yorkshire, which is either applicable in its present state for making paint instead of white lead, or for preparing metallic zink, for the many purposes to which the same is now applied in the arts.

Mr. Edward Turrell, of Rawstone-street, received an elegant Morocco purse, containing ten guineas, for his new contrived muffles, for chemical purposes; the novelty of which consists, in forming them in moulds in the cylindrical form wanted, instead of bending flat pieces of a soft composition over a mould for this purpose.

In the class of polite arts, J. Flaxman, Esq. R. A. received an order for the first impression in gold of the new medal, from the new dies, necessary to be sunk after his elegant and truly classical designs, presented to the Society, in consequence of the accident above alluded to; his Grace, in delivering the same, paid a handsome tribute to the merit of this celebrated artist.

To Miss Maria Denman, sister-in-law to the artist last named, an order was also delivered by his Grace, for the first impression in silver of the new medal, which she had drawn in so chaste and correct a manner for the use of the Society.

Miss S. C. Day, of Lower Braynstone-street, was next ordered a silver medal for an original drawing of "The Teacher Taught."

Miss Barrow, of the Navy Pay Office, a very fine young lady, received her order for a silver medal, for a correct drawing of Cattle Acre, Priory; on which his Grace was pleased to compliment her, by saying, that much as these antique remains had lately engaged the attention of the public, they were likely to derive new interest, from the labours of such a fair artist.

Miss E. L. Jones, of Leadenhall-street, was ordered to have a silver medal for her drawing of a mill at Redborne Berry.

On delivering the order to Mr. Edward Berry, for a silver medal, for his landscape in oil, a view from King's Weston, his Grace lamented that the late arrival of the same, had prevented its competing for the gold medal, to which otherwise, its merits might probably have entitled it.

Mr. Joseph Woollett, of Gould-square, for a view in water colours, in West Hasley parish, received his order for a silver medal.

Mr. Henry Parke, of Dean-street, Soho, was next ordered a silver medal for his drawing of ships.

Miss Brooke, of Cork street, a most beautiful young lady, next appeared before the Noble President, and received an order for a silver medal, for a miniature painting of Angelica and Medora.

Miss L. George, of Park-place, received the like order for a drawing of King Edward VI. and Lady Grey.

Miss Aspinal, of Quality-court, was alike honoured for a drawing of a dying Warrior.

Miss Hannah Hancock, of Norwich, an interesting young lady, received an order for her silver medal, for a copy in oil, derived from the famous altar-piece of Reubens, at Antwerp, the original of which his Grace stated to have been materially damaged in taking down, during the ravages of the late war.

Mr. J. B. Lane, of South-street, a gold medal, for his drawing from the Revelations, of the Four Angels unloosed.

Mr. W. F. Pocock, architect, of Southampton-street, received the silver medallion, provided in pursuance of the will of John Stock, Esq. for an Architectural Design, whose variety, as his Grace observed, was highly conspicuous.

Anthony Cardon, Esq. of London-street, received an order for a silver medal, set in gold, for two superb engravings, in the stroke manner of The Battle of Alexandria, and the portraits of the officers engaged on that memorable occasion.

Lewis Schiavonetti, Esq. the like, for his engraving of the landing of the British troops in Aboukir Bay.

Mr. R. Brantton, of Wynyat-street, received an order for his silver medal, for a wood-cut engraving of a scene in the play of King John. In answer to some enquiries from the President, this artist stated Turkey-box to be preferable to English, for engraving, and better than Brazil, or the harder woods.

Mr. Robert Carpenter next explained, at the request of his Grace, why he preferred lime-tree wood for carvings, similar to those by Gibbon, which ornament St. Paul's Choir, and other public buildings, and received a silver pallet for his carving of the Story of David and Nabel's wife; which, with a specimen, carved under the inspection of the Society's Committee, were much admired.

Miss Warren, as deputy for Miss Hollier, received the greater silver pallet, for a drawing of a sycamore branch.

Miss F. H. Barlow, of Somerset-house, the same, for a drawing of flowers.

Miss H. Barlow, an interesting young lady, the same, for a landscape.

Miss Maria Denman again appeared, to receive her order for a silver medal, for a most beautiful and chaste plaster model of a Cupid's head.

Mr. Thomas Denman, of High Holborn, received the smaller silver pallet, for a plaster model of Antonius.

Mr. Henry Sals, of King-street, received an order for a silver medal, for his outline drawing of The Laocoon.

Mr. H. D. Thielche, of Stafford-place, the like for a drawing.

Mr. W. Flinden, of Warren-street, a greater silver pallet, for ditto.

Mr. Denis Deighton, of Charing-crofs, a smaller silver pallet, for ditto.

Mr. Jamelson, ditto, for a view in Westmoreland.

Master W. C. Ross, of Bow-street, an interesting lad, only twelve years of age, was presented with the greater silver pallet, for his historical drawing, copied from a painting of the death of Wat Tyler: the attention of the company being much fixed on this clever boy, Mr. Flaxman, the artist,

rose, and mentioned the great merit of the specimen which the candidate before them had given in that room, in the presence of the Committee, (an indispensable condition with all the Candidates in this class) far surpassing the drawing for which he was rewarded, as did also several others of his drawings, which he had seen, of flowers, landscapes, &c. This interesting youth was much and deservedly applauded.

In the class of manufacturers, Mr. Alexander Duff, of Gracechurch-street, Bethnal-green, received, what some seemed to think rather an inadequate reward, fifteen guineas, for his improved loom for weaving figured goods, without draw-boys, of which looms, he stated that 300 were in use, and that two hundred of them had been made since Christmas last for silk-weaving; but that they were alike applicable to cotton or thread-weaving.

The distribution of premiums, &c. in mechanics, commenced with Mr. George Smart, of Westminster-bridge, who received an order for a second gold medal, for his Chimney-sweeping Apparatus, for obviating the necessity of employing climbing boys. Mr. S. at the request of his Grace, stated that his brush, made of the same material as whisks and carpet-brooms, is found capable of ascending almost any chimney, if only six inches square, not one in an hundred being found, on trial, not adapted to the Apparatus: that he has for years past constantly had two men employed in using these apparatus, and others in making them for sale; that notwithstanding the prejudices which professed Chimney-sweepers still appear to entertain against them, philanthropic individuals crowded their orders so increasingly upon him, that the best prospects now appeared of the prejudices on this head giving way, and of the mechanical sweeping of chimneys being very generally adopted. It is with pleasure we record, that Mr. S. stated, that scarcely a great town in the kingdom is now without one or more of his machines, of which he has sold more than one hundred.

His Grace rose, at the conclusion of Mr. S.'s statements, and made a very feeling address to the company, on the inhumanity of the practice of binding apprentices from parish work-houses, hospitals, &c. to the shocking trade of chimney-sweeping, whereby disease and decrepitude was entailed upon them, unnecessarily as now appeared, by the success of the mechanic means, now before the company, for the purpose of cleansing chimneys. This speech of his Grace's was warmly applauded.

Mr. Joseph Davis, of Kingland Road, was next presented with an order for a silver medal, for the next Machine, in point of merit, among a great number, which, like Mr. Smart's above, were in 1803 presented to the Society for sweeping chimnies. Mr. Davis, on being questioned by his Grace, candidly acknowledged the great merit of the last invention for general use in sweeping chimnies, and principally recommended his Machine, to be kept in private houses ready for extinguishing chimnies, when on fire, or for those who chuse to have their chimnies often swept by their own servants; the difference of the two methods principally consist; the former in inflexible rods and flexible joints, and the latter in inflexible joints and flexible rods, for elevating the brushes, which also differ somewhat in construction.

Mr. Christopher Wilson, of Richard-street, received his order for a gold medal; for a secure sailing boat, or life boat. Mr. W. explained, in answer to the enquiries of the President, that his boat differed from Greathead's life boat, in its buoyant property being derived from air—tight lockers in the sides of the boat instead of a cork, and which, by widening the upper part of his boat, made her capable of carrying more sail, of bearing greater inequality of weight on her different sides, without over setting, and of using longer oars; another peculiarity in his boat, which made her light and fair, or flush withoutside, consisted in the manner in which her boards or planks were jointed together; it was added, that she was found, on trial, to sail one-

third faster than other boats of the same tonnage, and she had been tried with perfect success at Newhaven, Suffex, and other places.

Mr. J. W. Boswell, of Hatton Garden, received the like order, for his contrivance for avoiding the surging of a cable or messenger, during the heaving of the anchor of a ship; by the common method of doing which, limbs, and even the lives of seamen were sometimes lost. Mr. B. rather indecorously, as appeared to us, went on, after answering the President's question, to say, that he laid claim to the lastmentioned part of the preceding candidate's invention; to which his Grace answered, that this subject having been very maturely considered by a Committee, it would be wrong in him, who did not understand the subject, to suppose otherwise, than that they and the Society have done what is right and proper.

Mr. F. C. Daniels, of Wapping, received an order for a gold medal, for his Life-preserver; or Leathern Air-tight Bag, which, according to his printed bill, liberally distributed in the room, is the same which has lately been exhibited to the astonished audience at Sadler's Wells Theatre. In true theatrical style did Mr. D. put on and blow up his machine before the company, and received the accustomed tribute to successful actors. It was stated, that had one of these machines, (or a cork jacket, either, we suppose,) been on board the *Abergavenny*, when she struck off Weymouth, information would have been obtained in time, to save a great part, or all of the unfortunate crew; it was added, that the Royal Humane Society are strenuous advocates for the use of Mr. Daniel's Life Preserver.

Mr. William Hardy, of St. John-street, received his orders for a silver medal, for his method of occasioning the long and short vibrations of the balance of a watch for nautical purposes, to be performed in equal times.

In the absence of Mr. Henry Ward, of Blandford, Dr. Taylor, the Secretary received the like order, for a new compensation pendulum of a clock, to vibrate equally in hot as in cold weather; consisting of two iron rods, with one of zink between them, which will cost, it was said, only two-fifths of the price of a gridiron pendulum for the same purpose.

M. S. Mendham, of counter-street, the like, for a new watch escapement, whereby, as Mr. M. stated, friction in this essential part of a chronometer, is entirely obviated.

Mr. J. Broad, of Downing-street, the like, for a gauge or long pair of callipers for taking the dimensions of standing timber: two rods, 14 feet long, turn on a pivot, and when one end embraces the tree, at the girding-place, the other end shews the quarter-girt, or a graduated arc. The prospects are held out to gentlemen, by the use of this machine, of knowing easily the quantity of their growing timber.

Mr. A. Stafs, of Porter-street, the like, for a machine or working-table for boot-closers and others, who sew flat seams in leather, to enable such to work quicker, and in a standing posture, instead of sitting almost double, to the great injury of their health. A former reward of the Society to this ingenious German workman, was for a work-table for performing the last-work of shoe and boot-makers.

A letter was read from Mr. Gilbert Gilpin, near Shifnal, naming a gentleman as his deputy, but who not appearing, Dr. Taylor received the purse of twenty guineas, for the candidate, for a machine for winding coals out of mines, by the help of chains instead of ropes, and balancing the unequal weight of suspended chain in different parts of the ascent.

Mr. Charles Le Caan, of Llanelly, had a purse of twenty guineas delivered to the same gentleman, in his absence, for an improved method of fastening tram plates to the bearing stones, without wooden or wrought iron pins. The use of these in some new rail ways in South Wales, are said to answer effectually.

Mr. Joseph Collier, of Crown street, Soho, received a purse of fifteen guineas for a portable iron stove, or fire place, applicable to ships, where it can be instantly shut up, on any sudden squall of wind, and yet kept safely burning. Mr. C. at the request of the President, shewed the different uses of his model to the company.

Mr. Richard Drew, of Great Ormond-street received a purse of ten guineas for a portable balance level, applicable to the setting out irrigation works, draining, paving, and other works, where the distances and accuracy required is not so great, as to need the use of a telescope and spirit level.

Mr. Martin Furniss, of the Strand, received a purse of ten guineas for a leather air tight hinge for doors, screens, &c. The uses and peculiarities of this invention are explained by Mr. F. to his Grace, but in such a complete whisper, that we were unable to collect one word which passed.

Mr. Joseph Davis again appeared before the Chair, to receive ten guineas for his contrivance of introducing tempered steel wires through the stiles and pannels of doors and window shutters, to prevent house-breakers from cutting large holes through them for their nefarious purposes. The pannels were stated to derive additional strength from these steel bars.

In the last class, or that relating to Colonies and Trade, a silver medal was delivered to Mr. William Bond, of Canada, in North America, but now in England, for his model for a simple machine to be worked by a stream of water, and removed before the frost sets in, for beating and preparing of hemp; also for his useful information respecting the timber and warren rabbits of the British Colonies in Canada. His Grace observed, that the present state of Europe, made the timber and hemp of Canada appear objects of greater probable importance to this country, than heretofore.

Dr. Taylor concluded the reading of his address to the company, by acknowledging very valuable presents of scientific and useful books for the Library of the Society, of which the members have the use, to read at their own houses. He noticed the recent and additional privileges granted to ladies who are members of the Society of Arts, and, after recommending to the fair part of his audience, to grace the list of the Society's Members with their names, he mentioned, that 142 new members had been elected within the year past, among whom were, the Duke of Richmond, Marquis of Stafford, Earls of Bridgewater, Dundonald, and Percy; Lords Valentia and Cochrane; Miss Harriet Gouldsmith, Miss Esther Macatta, &c. &c.

The business closed soon after two o'clock, by a short but neat address from the Noble President, thanking the company for their numerous and splendid attendance, with particular acknowledgments to the Portuguese and American Ambassadors, and other Foreigners of distinction, who were present; and to the fair part of his audience, whom he hoped he should see again on the next anniversary, and many more of them, in the capacity of members, of a society, so distinguished for its public spirit and usefulness.

Amidst a war which has desolated Europe, and put to trial the resources of the British Empire, it is fortunate that the enterprising spirit of a few enlightened persons has enabled the landed interest to bear with its increased burthens, by improved modes of cultivation. The names of Young, Sinclair, Bakewell, Russell, Coke, Sheffield, Billingsley, Duckett, Culley, Dickson, Somerville, and Carrington, will ever rank as patriots among our most illustrious statesmen and warriors; and their achievements, if less brilliant, are more solid and useful, entitling them as benefactors of the human race, to the gratitude of the latest posterity.

We are, perhaps, indebted at this moment, to the labours of these illustrious characters, for the ascendancy which we hold in the scale of nations, and for the internal prosperity which we enjoy above that of all other people.

Among these means which have in the highest degree, contributed to give effect and currency to the improvements and discoveries in modern husbandry, may be mentioned the establishment of the Board of Agriculture, and of the Societies which flourish in every enlightened district of the island, and the publication and diffusion of their reports and proceedings. The Board of Agriculture in particular, distinguished itself at an early period of its existence, by causing surveys to be made of every county, in which the state of its husbandry, its produce, soil, and general industry were to be described—it circulated these surveys in the manner of proof sheets for correction, and it is now employed in preparing, under able editors, corrected editions and improved surveys, and in laying them before the public, with all the dispatch which is consonant with accuracy.

These improved and corrected County Surveys, as published by the Board of Agriculture, may be compared with the famous Domesday Survey of the Norman Conqueror, as far as the enlightened views and superior policy of our own times can be compared with the imperfect conceptions of a dark age. Doubtless this great undertaking will continue to be justly appreciated, and will become the Domesday Book of distant ages, conferring distinction on the reign of George the Third; and transmitting all the past experience of husbandmen in every kind of soil, and under every variety of circumstance, for their warning and example.

Every British subject is interested in knowing the progress which the Board of Agriculture has made in this grand work, and we have subjoined a list of the corrected Surveys which have already been published, and have annexed the names of their respective editors.

Argle, by Dr. Smith.

Clydesdale, by John Naismith, Esq.

East-Lothian, by R. Somerville, Esq.

Essex, by Arthur Young, Esq.

Fife, by Dr. Thomson.

Gloucestershire, by Mr. Rudge.

Hertfordshire, by Arthur Young, Esq.

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Kent, by John Boys, Esq.

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Norfolk, by Nathaniel Kent, Esq.

Norfolk, by Arthur Young, Esq.

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Salop, by Mr. Plymley.

Somersetshire, by John Billingsley, Esq.

Staffordshire, by W. Pitt, Esq.

Suffolk, by Arthur Young, Esq.

Yorkshire, (the West Riding) by Robert Browne, Esq.

Yorkshire, (the North Riding) by John Take, Esq.

Other Surveys will follow, at the rate of six or eight per annum. Essex by Mr. Young, and Gloucestershire, by Mr. Rudge, will be published in a few days; and Inverness-shire and Devonshire are in the press. We are happy to observe, that several of them have already arrived at second editions, and indeed as such a practical and useful work, either entirely, or relating to particular counties, addresses itself to the curiosity, the self-interest, and the patriotism of every Englishman; it will necessarily constitute a permanent feature of every ENGLISHMAN'S LIBRARY.

Second Series, Vol. 2.

2 X

LONDON PRICES OF GRAIN for May, 1806.
MARK-LANE, Monday, May 4, 1806.

Though but moderately supplied with Wheat for this day's Market, owing to large arrivals of American Flour, and no inconsiderable quantity of our own, the Mealing trade experienced much heaviness, with a decline in prices of 3s. 4d. per quarter on best samples, and more on second or inferior sorts.—Barley arrives in plenty, and is, with Malt, lower.—Pease and Beans, of the various kinds, have likewise rather fallen in value, as may be noted in our currency below. We have good supplies of Oats, including several Foreigners—the article dull, but very little cheaper.—A reduction in Fine Flour has taken place, in consequence of the fall in Wheat,—Prices annexed.

Price of Grain, on board Ship, as under.

Wheat..... 50s 60s 68s	Malt..... 66s to 69s	Beans, old... —s to 46s
Fine..... 74s to 78s	White Peas.. 55s to 70s	Ticks, new.. 30s to 37s
Superfine... 80s to 83s	Boilers..... 78s to 84s	—, old... —s to 42s
Rye..... 34s to 42s	Suffolks..... —s to 83s	Oats..... 21s 26s 30s
Barley..... 28s to 36s	Grey Peas... 38s to 43s	Polands..... —s to 32s
Fine Norfolk —s to 38s	Beans, new.. 38s to 44s	Potatoe ditto —s to 34s

Monday, May 11.

We had not much Wheat in for this day's market, and but very few prime samples; hence those of a superior quality fetched rather more money than last Monday, while the second and every other sort experienced no advance whatever.—In Barley we were rather scantily supplied, and prices full as high as last week.—Beans, and Pease of the different sorts, were not much in demand, and have varied very little in their value.—Good Oats, of which we have not many at market, are rather dearer.—Fine Flour somewhat brisk, and best marks up at 65s. per sack.

Wheat..... 50s 60s 70s	Malt... 60s to 69s	Beans, old... —s to 47s
Fine..... 74s to 78s	White Peas.. 50s to 68s	Ticks, new.. 30s to 38s
Superfine... 80s to 83s	Boilers..... 78s to 84s	—, old... —s to 42s
Rye..... 36s to 43s	Suffolks..... —s to 86s	Oats..... 22s 26s 31s
Barley..... 28s to 36s	Grey Peas... 38s to 42s	Polands.. —s to 32s 6d
Fine Norfolk —s to 38s	Beans, new.. 38s to 44s	Potatoe ditto —s to 35s

Monday, May 18.

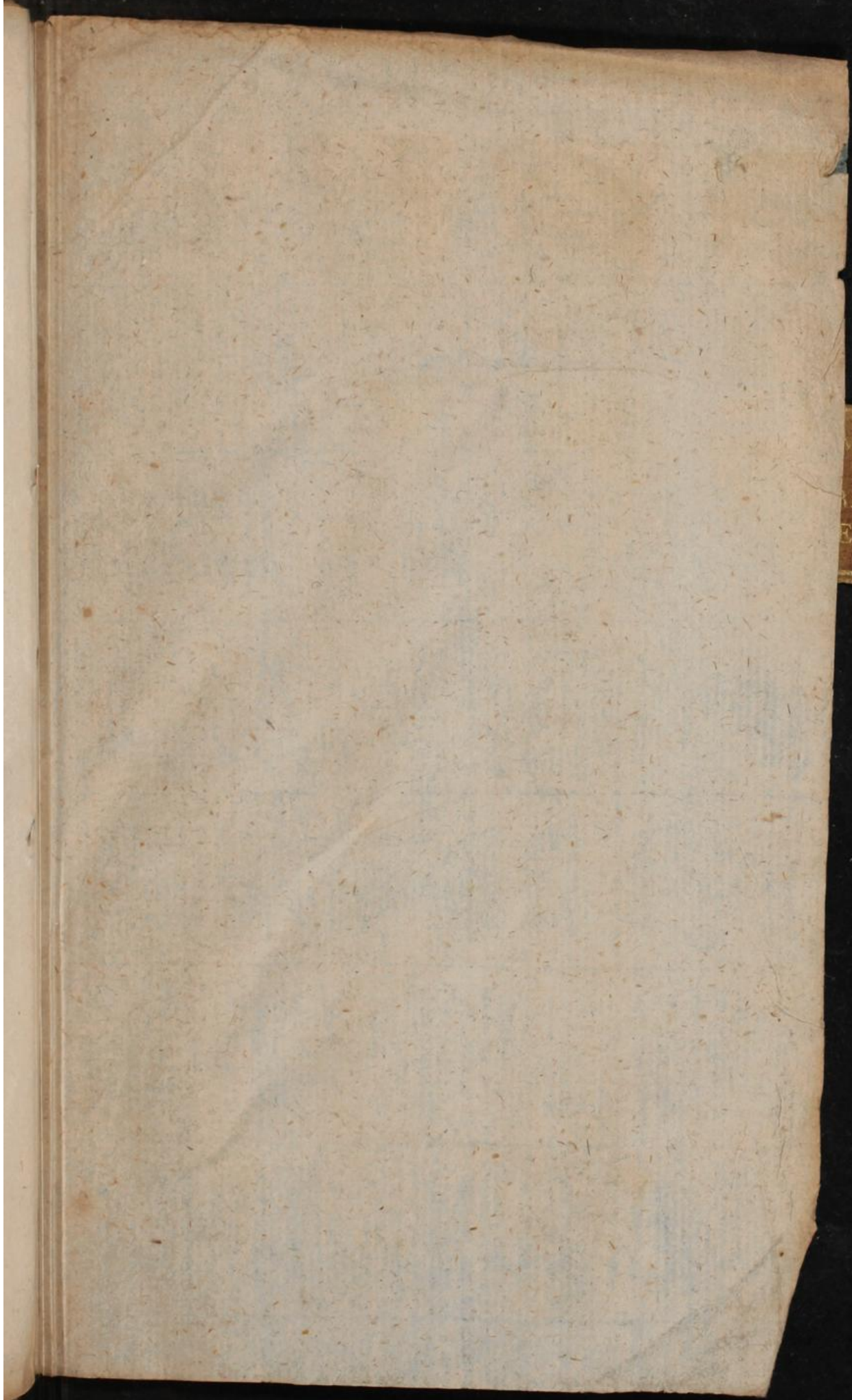
We have had another heavy Wheat Market to-day, the supply was a pretty fair one, but there was no briskness in the sales, nor could last Monday's terms be obtained even for the finest samples.—Barley and Malt likewise have a declining aspect; nor has Pease or Beans, of either kind, acquired any advance in price.—We have not many Oats arrived; their currency remain nearly unaltered.—Fine Flour is slack in sale, and 65s. per sack hardly to be obtained for the best.

Wheat..... 50s 60s 65s	Malt..... 56s to 68s	Beans, old.. —s to 46s
Fine..... 70s to 76s	White Peas.. 48s to 70s	Ticks, new.. 30s to 38s
Superfine... 77s to 80s	Boilers..... 78s to 82s	—, old... —s to 42s
Rye..... 36s to 42s	Suffolks..... —s to 85s	Oats..... 20s 25s 29s
Barley..... 28s to 34s	Grey Peas... 36s to 42s	Polands..... 30s to 32s
Fine Norfolk —s to 37s	Beans, new.. 38s to 42s	Potatoe ditto —s to 34s

Monday, May 25.

Our Wheat market to-day was but moderately supplied, yet, on account of the great influx of American Flour, and the stock on hand from our own mills, we had but very few buyers; in this state of dullness, prices have declined, viz. on fine samples 2s. and on the inferior sorts 3s. and 4s. per quarter.—Barley has fallen about 1s. per quarter, and White Pease are cheaper; the demand for this article not so brisk as hitherto.—The two sorts of Beans also partake of the general heaviness.—Good Oats keep their price. Some Foreign Cargoes are arrived.—Flour is cheaper; good Red Wheat 72s. per quarter.

Wheat..... 48s 56s 60s	Malt..... 56s to 66s	Beans, old.. —s to 46s
Fine..... 65s to 70s	White Peas.. 46s to 60s	Ticks, new.. 30s to 36s
Superfine... 72s to 78s	Boilers..... 70s to 80s	—, old... —s to 40s
Rye..... 34s to 42s	Suffolks..... —s to 82s	Oats..... —s 20s 30s
Barley..... 28s to 34s	Grey Peas.. 36s to 42s	Polands..... —s to 32s
Fine Norfolk —s to 36s	Beans, new.. 36s to 42s	Potatoe ditto —s to 35s











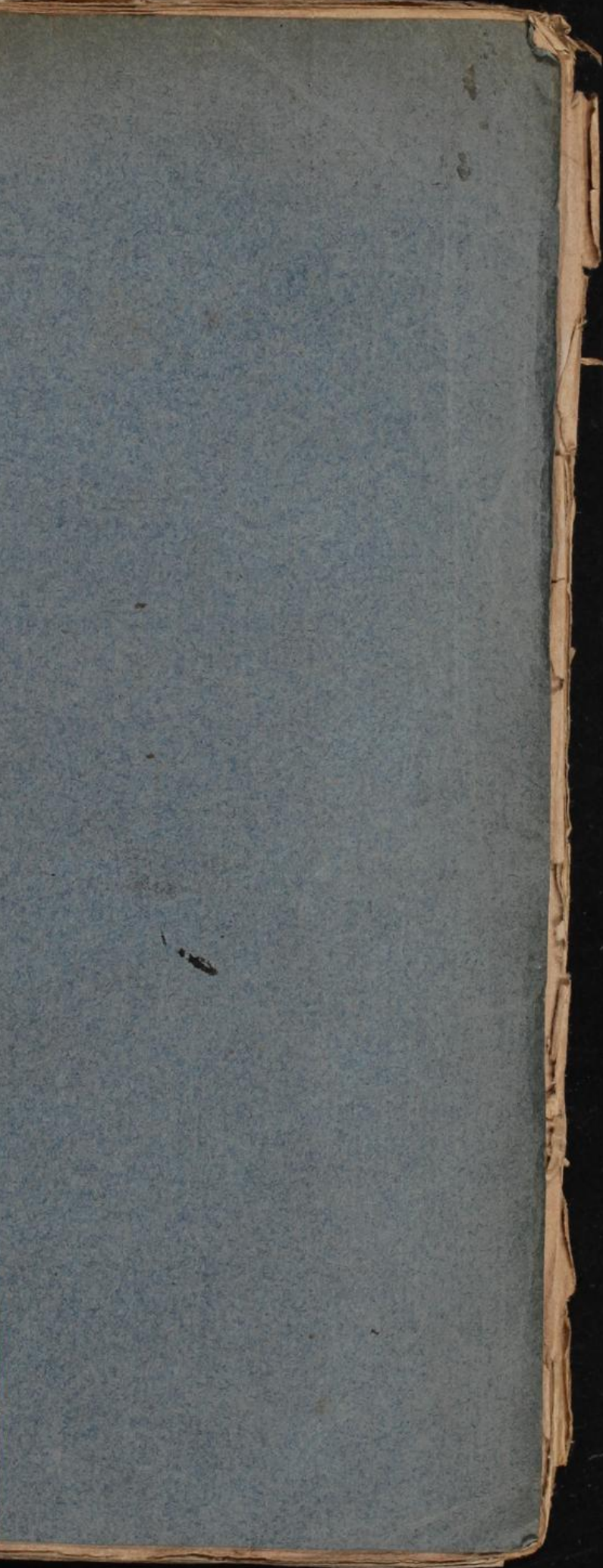


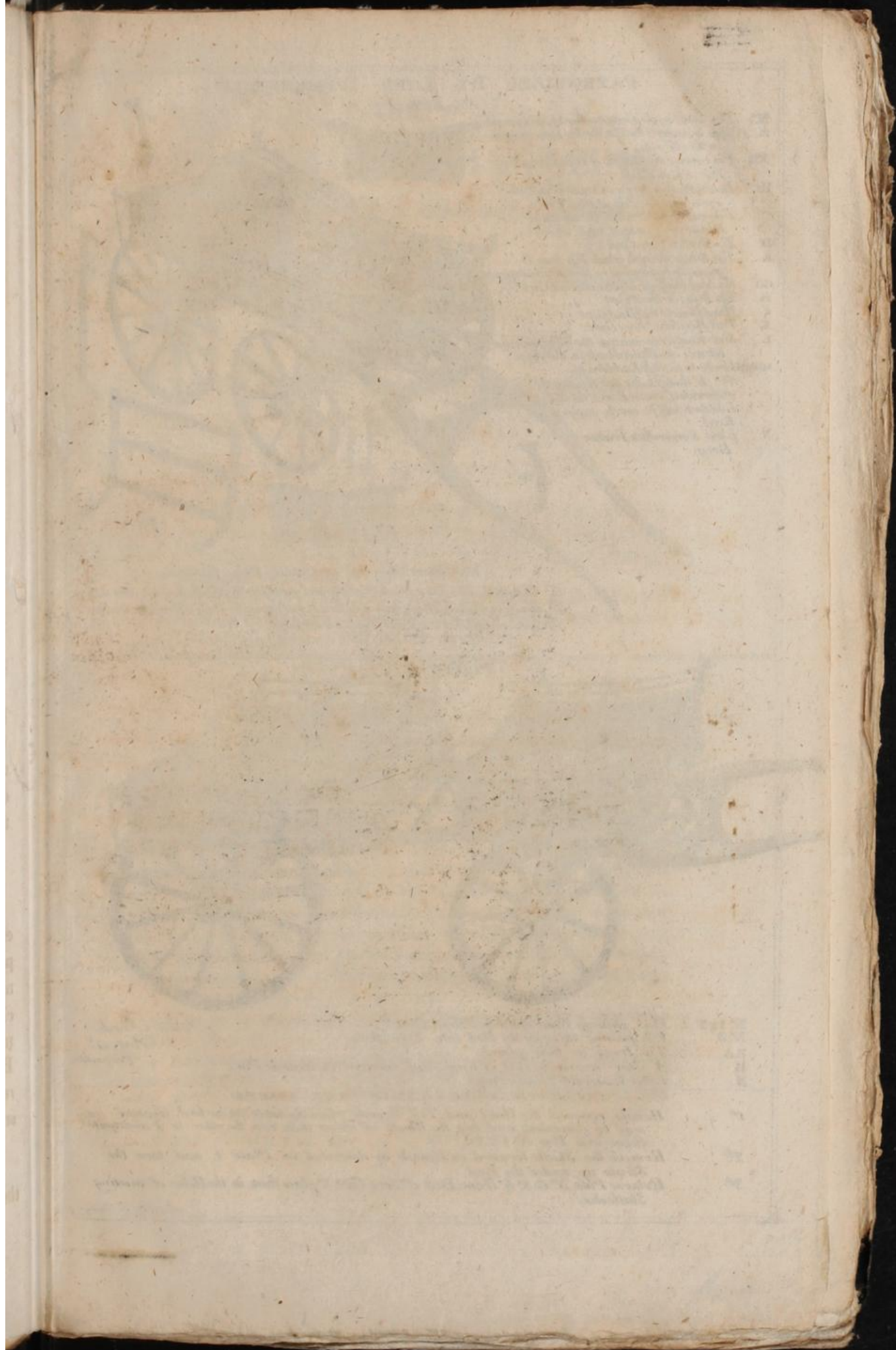
Inches 1 2 3 4 5 6 7 8
Centimètres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

B.I.G.

Farbkarte #13

Blue	Cyan	Green	Yellow	Red	Magenta	White	3/Color	Black
Light Blue	Light Cyan	Light Green	Light Yellow	Light Red	Light Magenta	White	Light Gray	White
Dark Blue	Dark Cyan	Dark Green	Dark Yellow	Dark Red	Dark Magenta	White	Dark Gray	Black

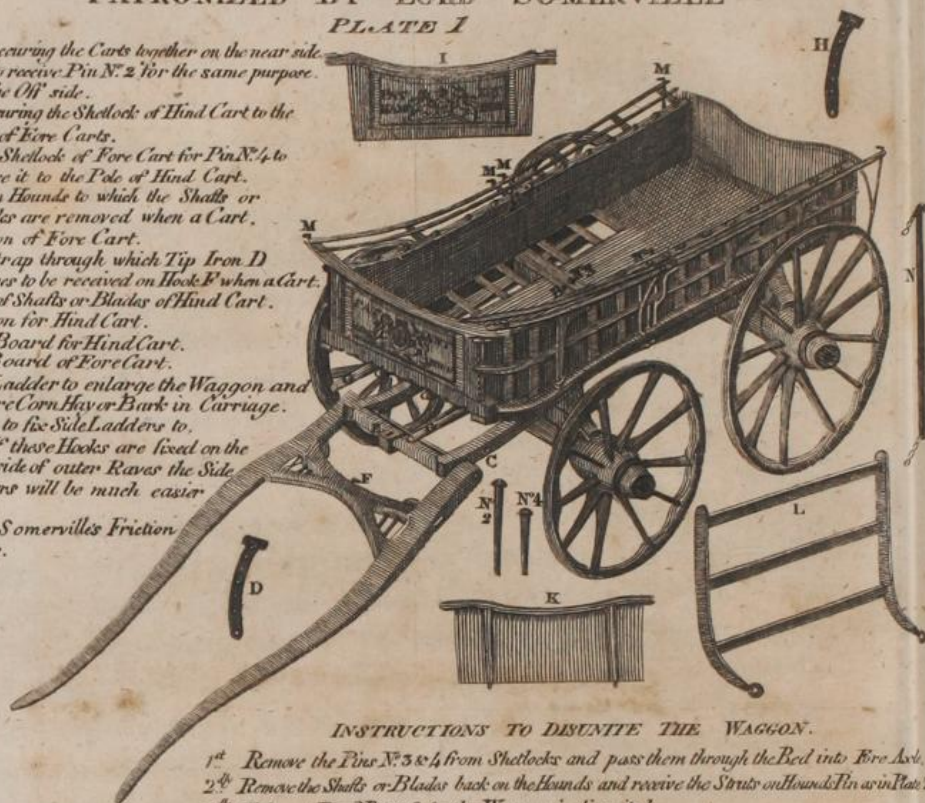




PATRONIZED BY LORD SOMERVILLE

PLATE I

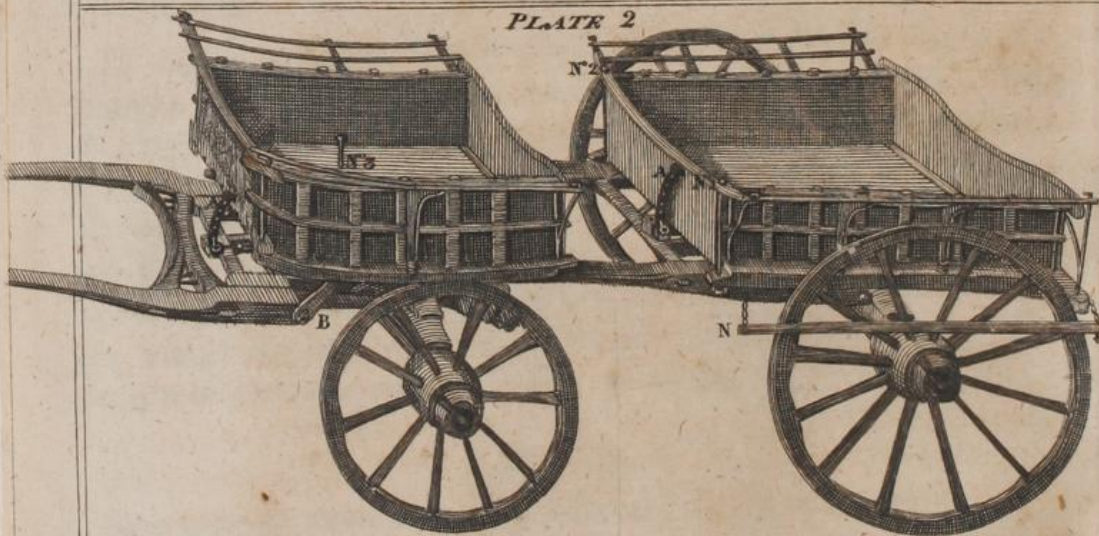
- N^o 1 Pin securing the Carts together on the near side.
- A Eye to receive Pin N^o 2 for the same purpose on the Off side.
- N^o 3 Pin securing the Shetlock of Hind Cart to the Pole of Fore Carts.
- B Hole in Shetlock of Fore Cart for Pin N^o 4 to secure it to the Pole of Hind Cart.
- C Hole in Hounds to which the Shafts or Blades are removed when a Cart.
- D Tip Iron of Fore Cart.
- E Tip Strap through which Tip Iron D passes to be received on Hook F when a Cart.
- GG Ends of Shafts or Blades of Hind Cart.
- H Tip Iron for Hind Cart.
- I Head Board for Hind Cart.
- K Tail Board of Fore Cart.
- L Side Ladder to enlarge the Waggon and secure Corn Hay or Bark in Carriage.
- MM Hooks to fix Side Ladders to.
- AB If these Hooks are fixed on the underside of outer Raves the Side Ladders will be much easier fixed.
- N Lord Somervilles Friction Drag.



INSTRUCTIONS TO DISUNITE THE WAGGON.

- 1st Remove the Pins N^o 3 & 4 from Shetlocks and pass them through the Bed into Fore Axle.
- 2^d Remove the Shafts or Blades back on the Hounds and receive the Struts on Hounds Pin as in Plate 2.
- 3^d Take out Pins N^o 1 & 2 & the Waggon is disunited.

PLATE 2



- N^o 1 & 2 Pins securing Head Board of Hind Cart.
- N^o 5 Pin passing through the Bed into Fore Axle.
- AA Tip Irons in their places.
- B A Stay secured to Bed of Cart and received on Hounds Pin.
- N Lord Somervilles Friction Drag.

John Rood.
Portsmouth
Patente.

INSTRUCTIONS TO UNITE THE CARTS

- 1st Having removed the Head and Tail Boards place the Carts on so level Ground as may be convenient and try the Wheels of either then run the other to it and unite them with Pins N^o 1 & 2.
- 2^d Remove the Shafts forward on Hounds as described in Plate 1. and turn the Struts up under the Bed.
- 3^d Remove Pins N^o 3 & 4 from Bed of Fore Cart & place them in the Holes of meeting Shetlocks.

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