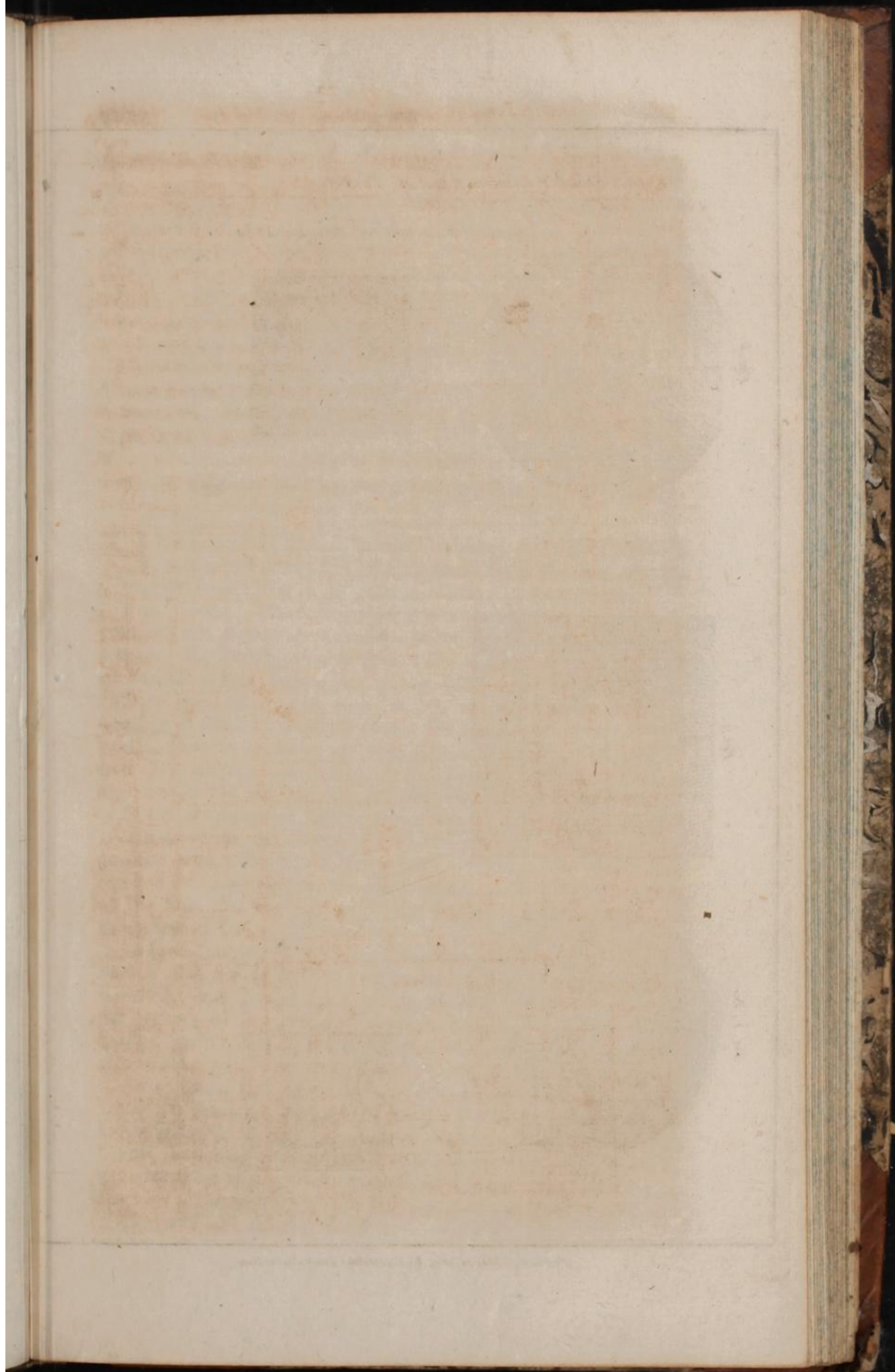




M^r. Geo. Smart's Combinations of Timber.

Commercial & Agricultural Magazine, N^o. 34.

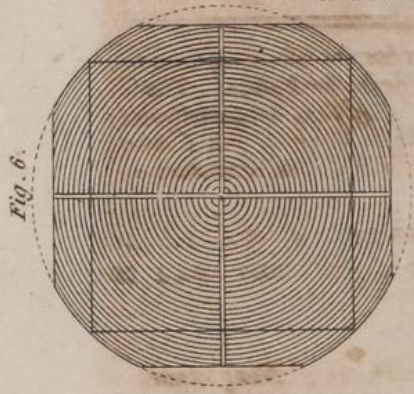


Fig. 6.

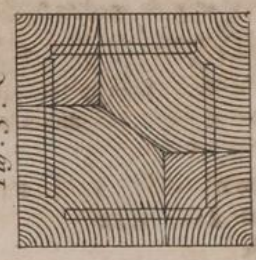


Fig. 3. C.

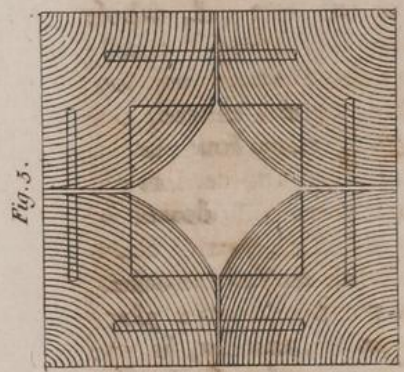


Fig. 5.

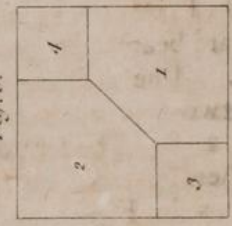


Fig. 8.

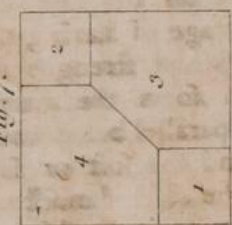


Fig. 7.

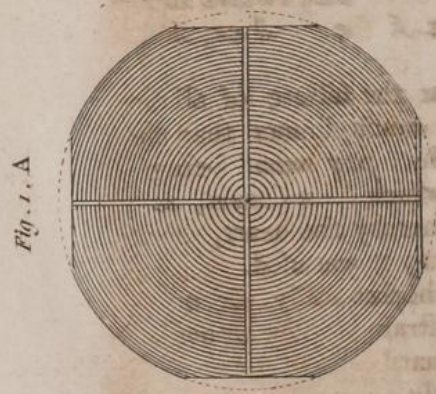


Fig. 1. A.



Fig. 2. B.

Fig. 4.

THE
Commercial and Agricultural Magazine.

No. XXXIV.]

MAY, 1802.

[Vol. VI.]

The Editor is particularly obliged to Mr. SMART for the following Communication, which will doubtless be very acceptable to the Public. The invention will, doubtless, prove of great national service, by contributing to the Durability of Buildings, preventing the Destruction of Oak Timber, and bringing into use other Timber which could not be heretofore employed for the same uses.

MR. SMART'S METHOD FOR PREVENTING A WASTE OF
TIMBER, AND FOR RENDERING IT MORE DURABLE IN
BUILDINGS, &c.

WITH A PLATE.

To the Editor of the Commercial and Agricultural Magazine.

SIR,

HEREWITH I send you a Drawing, describing a simple method of converting all Timber that is straight, and intended for square beams, to great advantage in general use.

Fig. 1—A. The section of a tree at the butt end, whose contents are two feet each side, when sawn or chopped nearly square. Fig. 2. B. The section of the top of the tree, one foot on the side when squared, cut it exactly down the centre, one cut each way, as in Fig. 1. and 2. It will produce four pieces, one foot at the butt and six inches at the top, turn the centers upwards, reverse the butts and tops two each way, and dowel or bolt them together as in Fig. 3. C. you will then form a beam eighteen inches on the side regular from one end to the other, with the advantage of having the heart of the tree in the place where hardness and strength are most wanted, namely, in the corners which form the abutments; whereas the same tree squared into a parallel beam would have been only twelve inches on the side, and the soft or sappy part of the wood exposed to the action of the air and moisture.

In flush framing it is observable, that the failure of all timbers of old buildings has commenced much sooner than they otherwise would have done, owing to the sappy wood being of the corners of the principal timbers, which soon decays, as its spongy quality attracts the moisture; whereby the heart, especially of oak, will be as sound as the first day it was used.

As all beams that take their weight horizontally, or on any transverse bearing, have their principal strain on the upper and lower surface, every workman ought to guard against having sap in beams, because if they do not immediately decay, they shrink so as to let loose all the framing, and soon cripple the building or machine; but on my plan the sappy part of the wood is excluded

Com. and Ag. Mag. Vol. VI.

T

from what would cause its decay, and the timber increased in quantity is considerably more than the extra labour and expence.

For example, a tree of oak, forty feet in length, two feet at the butt and one foot at the top, when chopped, sawn, and put together on my plan, will have its sides eighteen inches, which is equal to ninety cubic feet; whereas, on the old plan, forty would be the contents of a beam cut from the same tree. Fifty cubic feet would have been cut off as slabs, or chopped up for the fire. Such waste of so scarce and valuable an article as English oak merits attention.

The expence of sawing and putting a beam of the above dimensions together in London would be as follows, sawn on the outside and one cut each way :

	<i>l.</i>	<i>s.</i>	<i>d.</i>
Four outside cuts, taking the mean at 14 inches deep	1	3	0
Two breaking cuts — at 18 ditto			
Length 40 feet, 306 feet sawing, at 7s. 6d. per hundred			0 10 0
One hundred and twenty 12 inch dowels, at 1d. each			1 5 0
Boring 240 holes for dowels, and putting together			
	£. 2 18 0		

Allowing the fifty feet saved to be worth 6*l.* which cut into slabs would not have been worth more than the labour of preparing the twelve inch beam, then the proprietor would save 2*l.* 3*s.*

Fig. 5 and 6 are the section of a tree quartered that is parallel: there will then be a hollow, all through.

I would recommend the dowels not to go through as they would tend to weaken the timber. In an eighteen inch beam I would have the dowels come within three inches of the outer side, as in Fig. 4. But where a mortise is cut, then in place of a pin of wood, put in a small bolt of iron with a flat head from the underside with a screw nut on the upper side of the beam, to prevent the joint from opening with the pressure of the tenon; the work to be put together with strong screw cramps, for sledge hammers and mallets spoil and bruise the wood, and destroy the cohesion of its fibres for a considerable depth.

Crooked timber may be converted or applied on the above plan with the difference only that two trees must be moulded alike, and quartered as before, and a right and left opposite quarter shifted from one tree to the other. You will then have two beams on the increased principle as before, as in Fig. 7 and 8: but one curved beam cannot be made from one curved tree to have the centers placed on the outside, and the dimensions increased.

By the above method many of our larch firs may be used in building, and the importation of so much foreign fir saved to this nation.

Considering the importance of the subject to the public, although I have obtained a patent in the year 1800, for framing masts, yards, bowsprits, girders, &c. hollow so as to combine lightness with strength, and though the method here described comes under the specification, being in some degree hollow, yet as far as relates to the lessening the consumption of English oak, and introducing the larch and other firs of our own growth into general use, I shall give licenses gratuitously to all those who chuse to apply to me for them, masts, yards, bowsprits, &c. excepted.

In some former observations which have been published, I have proved the superior advantages of hollow timber, especially when exposed to sudden transverse strains or jerks, so that it appears to me unnecessary to say more on this subject.

I have endeavoured to explain my ideas in as plain and simple a manner as I can, but if I should not be clearly understood, I shall be ready to give any further information that may be wanted.

And am, Sir, your obedient servant,

GEORGE SMART.

Pratt-Place, Camden Town, May 17, 1802.

HINTS TOWARDS SECURING THE TURNIP CROP.

To the Editor of the Commercial and Agricultural Magazine.

SIR,

AS the Turnip sowing season is at hand I shall presume to give a few instructions towards securing of that very casual, but, at the same time, very valuable crop. In securing my turnip crop I have, of late years, been rather more fortunate than my neighbours, and if I can secure this, I reckon that the two following crops will prove fruitful of course. This crop, I am persuaded, has more enemies than are generally reckoned in that number. In my opinion, there is scarcely an insect, that either takes its flight over, or that creeps upon the surface of the ground, that does not delight in feeding upon the tender leaves of this plant. It has, likewise, one enemy, at least, I mean the Grub of the Cockchafer, that does not appear above ground: but I believe that its greatest foe is the intense heat of the sun. And this heat is not only an enemy of itself, but the grand encourager of others: for the warmth of the sun enlivens every species of insect for the attack, and at the same time checks the growth of this plant, and probably makes it still sweeter food for its devourers. I always observe young turnips fail first, and in the greatest degree, under a hedge that faces the south: there, a free circulation of the air is obstructed, and there, the heat is increased by reflection.

I have generally secured my crop, or a considerable part of it, by sowing it very early: before the days become intensely hot, and before the various tribes of insects have gained their summer strength. I generally sow a small portion of my turnips in the first week of the month of June, and the remainder very soon after, as occasion presents itself. When the first sowing fails, I repeat it, again and again, even to the fourth or fifth time. I frequently, first sow one half of my seed and then plough the land, and afterwards harrow-in the other half. By this means, the seed is deposited at a variety of depths, and therefore some part of it is likely to vegetate, be the season wet or dry.

"The turnip crop, (says Mr. Miller in his *Gardener's and Botanist's Dictionary*,) is precarious, principally because the farmer is obliged to depart from the common course of nature, in accommodating it to his wants: instead of putting the seed into the ground in the spring months, when there would be as great a certainty of a crop as of any other vegetable, he is obliged to defer sowing until the hottest season of the year comes on, when unless he is so fortunate as to have a few rainy days, or cloudy weather with frequent showers, he can have little hopes of success."

This is a very just observation of Mr. Miller's, and is confirmed by the very ingenious and intelligent Dr. Stacy, who has communicated many very sensible remarks on the culture of the Turnip crop. "The sowing season, (says he,) being usually dry and hot, the land brought to a fine tilth, the seed sown on the surface, and harrowed in, there is scarcely sufficient moisture to make it sprout, and unless the seed is placed at a proper depth, to screen it from the heat of the sun, its vegetative powers will be destroyed. But a great part of the seed will generally imbibe sufficient moisture from the dews and dampness of the surrounding earth, during night, to make it vegetate; even then its progress will be checked by the heat of the succeeding day, and by being alternately moistened and dried, its vital principles will be much weakened, if not wholly destroyed."

If, as is sometimes the case, the seed finds moisture sufficient to enable it to produce both its radicle and germ, and even to raise its seed-leaves above the surface of the ground, still the same destructive effects may be ultimately produced; the heat will then exert its influence on the external parts of the plants, by evaporating its moisture faster than it is supplied by the radicle, by which it either withers away, or is so much injured, that it never completely recovers itself; and there is no doubt, but that many acres of turnips are thus annually spoiled.

The first process towards vegetation is the swelling of the seed, by having imbibed a certain quantity of moisture; it is then able to exert its vital powers, and in order to secure its future increase, when the demand for nourishment will be in proportion to its growth, it sends forth its radicle or little root,

which, as it lengthens, begins to branch out, being covered with very fine hairs resembling down. When the radicle has proceeded about half an inch, it sends forth its germ, consisting of the stem and seed-leaves, with the bud of the future plant in embryo. These seed-leaves are supposed to contain proper nourishment for the plant during the first stage of its growth; the radicle being then too small and weak to furnish food sufficiently delicate. Every injury, therefore, done to these leaves, either from being punctured by insects, or deprived of a supply of moisture, must assist in checking the growth of the plant; and if it appears that one of these may be prevented by particular management, a considerable part of the evil will be removed.

The Rev. Dr. Stacy suspecting that a lack of moisture was the grand cause of the failure of this crop, a few years ago, made the following experiment, in order to discover what depth of sowing the seed of the turnip, is most favourable towards its obtaining a due proportion of nourishment in the early stage of its growth.

"In order to ascertain, (says he,) whether any advantage would be derived by sowing the seed deeper, under an idea that the germ would require more time to force its way to the surface, and the radicle would at the same time be increasing its powers downwards, and consequently be more capable of withstanding the sun's heat, thirty-two turnip seeds were sown at different depths, in glass-vessels, filled with common garden mould, and sunk into the earth; on the fourth day after sowing they were examined, and the result was as follows:

Seed sown at 4 in. depth, had shot forth a radicle 3 in. long, a germ 1 in.
3 ditto ditto 2½ ditto ditto ¾
2 ditto ditto 2 ditto ditto ¾
1 ditto ditto 1½ ditto ditto ½

on an average.

Indeed, most writers on this subject have allowed that the heat of the sun is instrumental in a certain degree in causing this unhappy failure, but not one of them, in my opinion, attributes to this agent a sufficiently powerful influence.

Mr. Ellis in his "*Chiltern and Vale Farming explained*," after maintaining the depredations of the slug, the fly, and caterpillar, concludes, "and sometimes the scorching heat of the sun."

In the new edition of *Miller's Dictionary*, under the article "*Brassica*," are these observations, extracted chiefly from agricultural writers of the present day. "The destruction, however, which is imputed to the fly, or to speak more properly the Turnip-beetle, sometimes originates in the season. When the soil is fully and permanently moistened by a steeping rain, the seed will vegetate, the plants will push into rough leaf, and rise without a check, though the beetle, and their other insect ene-

mies be in full force; but if the Turnips have only showers to depend upon in hot and dry weather, the seed will vegetate; but by the time the seed-leaves are formed, the moisture will be wholly drawn off by the intervening days of drought, and the plants, deprived of nourishment, pass away, parched up as in an oven." In speaking of the cultivation of Turnips by drilling, (which is here recommended on various accounts,) the Editor says, but the principal advantage seems to consist in depositing the seed at a proper depth in the soil, namely, about two inches, where there is a moisture, even in a dry season, to send the plants up in a few days; whereas, when they are sown broadcast, in a time of drought, the seed may remain several weeks waiting for rain to make them vegetate, and the seed being all deposited at the same depth, will vegetate at the same time; and by getting into rough leaf sooner, will stand a better chance of escaping the fly." The fact is, when the plants are so far advanced, they are able to overcome many obstacles which occasionally impede their growth, for the fly unquestionably feeds upon the rough leaves, although it may prefer the seminal leaves, but the misfortune not being of so much consequence, it has escaped observation. Both the black Turnip-beetle (*crisomela oleracea*) and the striped Turnip-beetle (*crisomela nemorum*) have repeatedly been seen by myself and many others, casting the rough leaves of the Cabbage tribe, such as Savoy, Borecole, Cails, and Brocoli, as well as Turnips; therefore the plants, when in rough leaf, are only safe, by being better able to bear these ravages, than during their infant state.

Mr. Kirwan's Essay on Manures throws much light upon this subject, as well as many others, by proving that the food of plants consists chiefly of decayed animal or vegetable matter, and many of those substances directed to be used to prevent the ravages of the fly, serve either to render this carbonaceous matter fit to nourish the plants, or to afford that nourishment in themselves. A certain quantity of water is also requisite to be mixed with the food of plants before they can receive any benefit from it, therefore, whatever promotes either of these purposes, will accelerate the growth of the plants. For instance, rolling the ground at midnight, (which is the method recommended by Mr. Vagg, and supposed to be effectual, by destroying of slugs, which are often found abroad in the night) prevents the evaporation of moisture in a certain degree, and probably retards the germs of the plants from coming so soon to the surface, by which their roots have more time to extend themselves, and to seek nourishment from a deeper and more moist part of the soil. Sowing vegetable ashes, from their power of becoming moist, and also containing the carbonaceous matter, operates in a double way. So also steeping the seed in train or other oils, sowing foot or other manures, is useful by supplying additional food,

and not by operating as a specific remedy. The great desideratum seems to be a due supply of moisture, by which the plants are enabled to receive the food previously prepared in the ground, for if they have food and moisture also wherein to take up that food, they will soon shoot forth such a length of root, as is requisite to furnish nutriment sufficient for their supply, notwithstanding the demands made upon them by insects and heat.

If the above observations and propositions are founded in truth, it appears, that it is of great moment to place the Turnip seed pretty deep in the ground. And by the experiment of Dr. Stacy, of sowing the seeds at different depths, it is proved, that those seeds which were sown at the depth of four inches, had the strongest radicle, and if they had been sown on a large scale, it is presumed they would have stood the heat, and produced a crop; if, however, that depth should be thought too great, from two to three inches may be adopted, and how this is to be effected every Farmer will judge for himself.

The peculiar method used in Scotland for the planting of the Turnip crop, though not intended to guard the plants against the attacks of the fly, but to preserve them from too much wet or the severity of frost, seems well calculated to answer our present purpose; I shall therefore take the liberty of stating it here, although I am not quite sure that it has not already appeared in your Publication.

The land, for this purpose, is divided into ridges three feet wide, the manure is spread in the furrows, then harrowed, and the Turnips sown from a revolving cylinder, pierced with holes at regular distances, to drop the seeds along the furrow, upon the manure, which is slightly covered with earth from the harrowing; the land is then plowed shallow back again, throwing the two first furrows in that into which the manure was placed, thereby covering the seed. The land is afterwards twice lightly ploughed to kill the weeds, and the last ploughing earths up the plants, and protects them from the frost, the furrows between every row keeping them dry.

The above mode of sowing, and the several methods of prevention, which I have recited, may be useful to those who either have omitted or have not had it in their power to sow their Turnip seed very early. But, by adopting the early plan, I have seldom had occasion to use any but the common broad-cast method. There is one great objection, I grant, to very early sowing; that the Turnips are not quite so sweet and nutritious, and require in general to be eaten off at a more early period than the last sown ones. This inconvenience, however, I have been able, in a good measure, to remedy by not hoeing my Turnips so freely, or not leaving them so thin or distant from each other as is generally the custom; but retaining two in the place of one; by which means they are neither so quick in their growth, nor

attain the size nor that coarse stringiness which is too common in those which are set off very thin. To enable me to avail myself of the advantage of early sowing, of course I always plough or prepare my Turnip-land as early as possible in the preceding autumn. The land which I cultivate is poor, dry, stone-brash land. My practice, in this branch of husbandry, I am proud to say, very much resembles that of your valuable Correspondent, *Castor*, in the cultivation of the Swedish Turnip, as described in a former Number of your Magazine.

I am your's,

A HILL FARMER.

A CAUTION AGAINST PLOUGHING FOR WHEAT IN THE HEAT OF SUMMER.

To the Editor of the Commercial and Agricultural Magazine.

SIR,

I WISH to transmit, to farmers in general, a caution, not to plow their land, which is intended for wheat with one furrow, during the scorching heat of summer; for the extreme of dryness, when land is plowed, seems, in one instance, almost as hurtful to the crop as to plow when it is extremely wet.

I last summer plowed up a few lands of a clover field, in the hottest part of the month of July, when the land was very dry and harsh. I then desisted, till the ground was a little softened by a shower of rain. The whole field was afterwards, sown at the same time and in the same manner; and I observed to my sorrow, that that portion which was plowed up in the hot weather, does not produce more than half the crop of that which was plowed after the rain.

This seems to contradict the general idea that in a fallow, the land cannot be worked too hot: but it should be observed, that the cases are different, and the objects different.

I am yours, &c.

A PRACTICAL FARMER.

ON THE PADDINGTON AND SMITHFIELD MARKETS.

To the Editor of the Commercial and Agricultural Magazine.

SIR,

I HOPE and trust, that this Market for Fat-Cattle now held at Paddington, on every Thursday, under the authority of Parliament, will prove the forerunner of my favourite plan, that is, of establishing a market on every great road leading to London. The salutary effect of the Paddington Market, if a fair trial is allowed, I doubt not will induce the Mayor and Corporation of London to withdraw their hostility to this new market

and incline them even to look with a favourable eye on the formation of such markets as I, last year, took the liberty of suggesting. I do not, however, wish to see the Corporation deprived of any of its rights without an ample compensation being made for every species of loss which it may thereby sustain.

Only consider, Mr. Editor, what a saving of substance takes place in the cattle which are sold at this market. They are brought from distant parts of Buckinghamshire, by water, in large vessels constructed for the purpose, without a loss perhaps of one pound of their weight, whereas if they had been driven in the usual way, and had undergone the numberless severities of a long journey, and the still greater hardships and cruelties of Smithfield Market, every beast would have lost, at least, two hundred pounds weight of his meat. Only view this loss as extended to thousands of fat cattle, and what an immense waste presents itself! And what can be a recompense for so extensive a defalcation? What deep rooted prejudice in favour of the old customs, what silly dread of forestalling and regrating, and what imaginary inconvenience and caprice of wholesale butchers are of sufficient magnitude to be set in competition with such a loss as the above? And this diminution, when applied to sheep and lambs, is of still greater extent than in cattle.

In various conversations on this subject I have heard no plausible argument urged, but that of the advantage arising from the absolute necessity of the cattle being sold which are brought to Smithfield. But this necessity is not so absolute as may be imagined by some; for hundreds on every full market are driven back to their last resting place, there to pine and waste three or four days longer. And allowing, that this necessity may sometimes cause a very low market, it ought to be known, that this one very low market is almost sure to produce a multiplication of very high ones. And this extreme instability of this market is an evil of the greatest magnitude to every consumer of the food there purchased.

I know I have many advocates in this cause, and if I could but prevail upon them to support with their arguments my feeble endeavours, this subject might at length receive that consideration which it appears to me to deserve.

I still omit to detail numberless barbarities, the unparalleled confusion, the shocking profaneness, and that most abominable of all amusements called Bullock-hunting, which might in a great measure be prevented by the removal of Smithfield market.

Since writing the above, I have read an honourable exculpation of the City of London, in the opposition which they have given to the establishment of the Paddington Market, which, as it appears, from the circumstantial manner in which it is given, to come from authority, and as it contains information which may

be generally interesting, is worthy of insertion in your Magazine, and is as follows. "Considerable pains are evidently taking to induce an opinion that the City of London is opposing a new Cattle Market, from selfish purposes; a short statement of the fact will shew the contrary, and that the City is acting from the most laudable public motives. Nothing can be more evident than that a strong authority should exist somewhere respecting public markets. It would not be very grateful to the inhabitants of Mary-le-bone, Oxford-street, Bond-street, and Pall-Mall, to see the way continually choaked up or annoyed by droves of horned cattle, accompanied by drivers more furious than the beasts they worry; neither will it be denied that many regulations are necessary for the government of such markets, with respect to their days of receiving cattle, the hours of driving through the streets, the periods and places for slaughter, the wholesomeness of the beasts, &c. For these purposes, the authority to license markets in London and within seven miles thereof, has been, time out of mind, with the Corporation of London.

The authority, has also been specifically invested in them by divers Charters and Acts of Legislature; whether this trust has been honourably exercised or not during the last 500 years, is perhaps best answered by the wonder which has been excited, that so vast a metropolis, in addition to the King's service, should have been supplied from a single market, with so little annoyance to the public, and with so few circumstances of general inconvenience. Whether the City has ever perverted this privilege to their own private advantage, is answered, by the permission lately given to Earl Darnley to erect a spacious market in the neighbourhood of Finsbury-square, and by their own liberal plan for adding above 3 acres of ground to Smithfield market, fixing the reception of cattle to particular avenues, and other important regulations, previously to the City's late discovery of the word *Markets* having been inserted in one of the clauses of an Act, professedly for very different purposes, although it is now necessarily suspended on that account. With respect to the erection of markets without the City of London and its environs, the invariable mode has been to petition his Majesty for license, who refers the same to the law officers of the Crown, to report if the same will injure his Majesty or the Public."

So rests this business for the present, and I anxiously look forward towards the result.

And am, Sir, yours,

T. WESTON.

Piccadilly, May 24, 1802.

ON TURF WEDGE DRAINING.

To the Editor of the Commercial and Agricultural Magazine.

SIR,

IN your Magazine for March, I observed one of your Correspondents has communicated a method of draining with chalk, as practised by a friend of his, for which I think the public is highly indebted to him.

On the importance of draining, my opinion entirely coincides with his, for however much it may have been neglected, as he very justly observes, there are very few branches of husbandry, more deserving the notice of every man who is engaged in the improvement or culture of land.

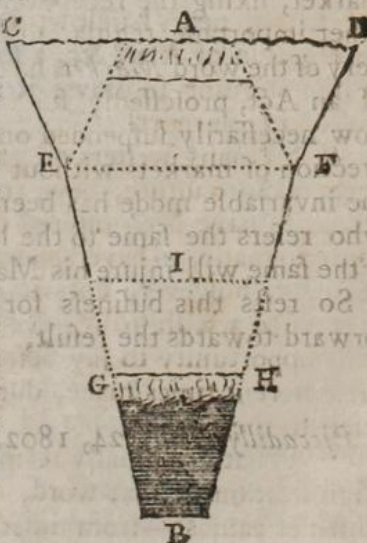
If, however, I may be allowed to give my ideas on the subject, the mode of draining with chalk appears to me liable to one very great objection, namely, that it too frequently happens, (supposing chalk could be obtained at a moderate expence), that those very lands which stand most in need of it, are generally the very worst on which the farmer can cart the chalk, and unless it should be a very dry summer, it would be both highly imprudent and unprofitable to attempt it.

It would, however, be very uncandid to depreciate the method alluded to, without, at the same time, endeavouring to point out some other as a substitute, which might not only be as cheap, but less liable to the objection I have mentioned.

In my opinion the following is unobjectionable, (except on very stony land), is cheaper than any other I ever saw, is very durable, and is more quickly performed—it may at first sight be supposed improper for land grazed by heavy beasts, under the idea that they would injure the drains. Experience after a fair trial of land so drained for seven years, authorises me to say that such supposition is perfectly groundless.

The following are the dimensions of the Turf Wedge Drains in general:—From the surface A to the bottom of the drain B, 3 feet depth. Breadth of the surface C A D, two feet. Breadth at E F, one foot six inches. Breadth at G H, 9 inches. Breadth at B, 6 inches.

It is evident if the turf or surface be cut out of the dimensions in the drawing, half a spit or six inches deep, and of such width as may be most convenient to the workman, it may be easily formed into a wedge of the size and shape represented by the dotted lines A E F, the earth in



the remainder of the trench, viz. from E F to B must be dug out, and the wedge A E F with the turf turned downwards, put into the drain, and afterwards well rammed down as low as G H, where it will leave a perfect hollow drain as represented by the shade G H B, and then filled up with the remainder of the earth taken out as directed.

Should this sketch be the means of at all promoting this most useful branch of Agriculture, it will give me the greatest pleasure; not, but the most difficult part of draining would be still wanting; I mean that degree of skill and knowledge which would enable the farmer to know, with certainty, where to cut his drains to the greatest advantage, as without it, the land might perhaps be but little improved, although a great expence should have been incurred. Perhaps at some future period I may trouble you with a few more hints on the subject.

I am, Sir, yours,

T. P.

ON THE DESTRUCTIVE EFFECTS OF THE APHIS, AND BLIGHTS ON FRUIT TREES.

To the Editor of the Commercial and Agricultural Magazine.

SIR,

I highly approve of your plan of suiting your communications, as much as possible, to times and season. And the information which I now send you is, I am sorry to say, too seasonable: for the effects of, what is called the blight have already been very destructive. I do not pretend to claim what I have transmitted as arising from discoveries of my own: it comes Sir, "from higher authority, from head-quarters, or from the land of cyder," from whence information respecting fruit or fruit trees, may be exposed in its greatest perfection. It consists of the observations of a most intelligent man, Thomas Andrew Knight, Esq: of Elton, near Ludlow, communicated, to the Society for the promotion of Arts, &c. a source, from which, it seems, you have a liberal grant to draw: it is inserted in the 19th volume, to the following purport.

"So many writers on gardening, (says Mr. Knight,) and on general agriculture, have treated on blights, and so many different theories have been offered to the public, that the subject may appear to many, to have been already sufficiently investigated. The Society, however, entertained a contrary opinion: and having expressed a wish to receive further information, I avail myself of this opportunity to lay before them some remarks, which I have at different times made, during several years of rather close attention to the subject.

"What are usually termed blights, in the vague and extensive signification of that word, appear to me to originate from three distinct causes:—from insects, from parasitical plants, and from unfavourable seasons.

" The destructive effects of the aphis on wall-trees are so well known to every gardener, as scarcely to require description. The leaves curl up, the fruit drops off, and the progress of vegetation is almost totally suspended. Much ill-applied labour is often used by the gardener to destroy these insects, though they are not very tenacious of life. Another more extensive, but less fatal disease in plants, the honey-dew, is produced by this insect (as described by the Abbé Boissier de Sauvages). It has, however, been contended, that the honey-dew is not produced by the Aphis, but that it is a morbid exudation from the plant; at least that there are two kinds of it; because the leaves are often covered with honey on trees where the Aphis is not found, and because the Aphis is sometimes found without the honey-dew. But to this it may be objected, that honey, not being a volatile substance, will remain on the leaves, till it be washed off by the rain; and when moistened by the dew, will leave the appearance of a recent exudation; and that the Aphis certainly does not afford honey at any period of its existence. I have frequently placed plates of glass and of talc under the leaves of fruit-trees, on which different species of the Aphis abounded, and I have found these substances to be in a few hours covered with honey: and I have at other times distinctly seen the honey fall from the under-sides of the leaves, where the insects abounded, by the following means. Having placed a small branch, containing a numerous colony of insects, in the window of my study, where the sun shone strongly upon it, I closed the shutters so as to exclude all the light, but that which fell directly on the branch. In this situation the descending drops of honey became extremely visible by refraction, and appeared evidently to be emitted from the insect with considerable force. Each drop contained many minute white points, which I considered as the eggs of the Aphis; but as I knew that the modes of generation in this singular insect had much engaged the attention of naturalists, I did not examine with sufficient attention to decide that point. This species of insect appears to require a previous disposition in the tree to receive it; and its first attacks may thence be considered as symptomatic of a previous ill habit in the tree: for I have found that trees which have lately been transplanted, have totally escaped its attacks, when every other tree of the same kind of fruit, growing in the same situation, has been nearly destroyed. And I can assert from many experiments, that if every peach and nectarine tree was to be dug up once in every five or six years, and to be replanted with some fresh mould round the roots (which should be as little injured as possible), a much larger quantity of fruit, and of very superior quality, would be obtained. It is unnecessary to inform the experienced gardener, that the tree should be removed early in the autumn; that its branches should be considerably retrenched, and that it should not be suffered to bear a

heavy crop of fruit in the succeeding season. I have never found any species amongst the numerous and prolific genus of the Aphis, which was not readily destroyed on the wall-tree by covering it with a sheet of canvas, and under that introducing the smoke of tobacco. It is, however, necessary that the fumigation should be repeated twice or thrice, with intervals of four or five days. I have often seen the addition of sulphur recommended, and have known it tried, but always with fatal consequences to the tree, as well as to the insects.

“The blossoms of apple and pear-trees are often said by farmers to be blighted, when they are destroyed by insects, which breed within them, or in their fruit: and the same term is used, when the leaves have been eaten by the caterpillar; but as the insects themselves, as well as the manner in which their depredations are made, are extremely obvious, they do not properly come under our observation when treating of blights.

“The species of parasitical plants, which are found in the form of disease on other plants, appear to me greatly to exceed the number of those I have any where seen described by botanical writers. Of these the mildew is the most common and obvious. If a branch, infected with this disease, be struck by the hand in calm dry weather, a quantity of white powder will be found to fly from it; and if this be received on a plate of talc, or of glass, and examined by the microscope, it will be found to consist of very numerous oval bodies, evidently organized.—There is another plant similar to this in every thing but colour (being of a tawney brown), which is not unfrequently found on the leaves of young apple-trees. Both these plants appear to me to be evidently species of mucor; and as much the greater number of species of this genus of plants is found to flourish in damp air, and in situations deprived of light, it may be supposed that the foregoing diseases might be prevented or removed, by placing the plants at proper distances: but I have not found this to be the case. They, however, abound most in low and sheltered situations; but they are not frequently seen in those of an opposite kind. The red and white mould on hops, and the black spots on stalks of wheat (the rubigo of Virgil), and many other diseases of plants, will, I think, be found to arise from the attacks of minute plants of this genus, which appears to me to possess qualities somewhat similar to the digestive powers of animals.

“The most common and extensive causes of what are termed blights, remain still to be described, and evidently exist in the defects and sudden variations of our unsteady climate. Whatever be the cause by which the sap is raised and propelled to the extremities of trees, it is well known that its progress is accelerated by heat, and that it is checked, or totally suspended, by cold; and it has been ascertained by others, as well as by myself,

and indeed is known to every experienced gardener, that a plant under the most skilful management, does not readily recover its former vigour, when it has been injured by exposure, for a few hours, to a temperature much below that to which it has been previously accustomed. It frequently happens in this climate, when the blossoms of our fruit-trees are just expanding, that a very warm day succeeds a night, whose temperature has been some degrees below the freezing point of water. In such a day the evaporation from the unfolding leaves and blossoms will be greatly increased, by the agency of heat and light, whilst the supply of nourishment is in a great measure cut off, by the ill-effects of the preceding night. The blossoms will nevertheless unfold themselves; but will be unproductive, from the want of due nourishment; whilst the hazy appearance of the air, which almost always accompanies such weather in the spring, will induce the gardener unjustly to infer that the ill-effects he observes have arisen from some quality in the air (distinct from excess of heat and cold), which he denominates a blight.

“The best defence against this kind of weather for wall-trees, that I believe has yet been tried, is a covering of a double and triple net; for by this the tree is in some degree protected from frost; and the excess of evaporation, in the succeeding day, is in a very considerable degree prevented. Lightning is supposed by many to be very highly injurious to the blossoms of trees: but I believe the ill-effects which appear sometimes to accompany it, may be more justly attributed to excessive heat. The careful gardener often covers his trees with mats, or something of this kind; and by almost totally depriving the tree of light, creates that blight which he is anxious to exclude.

“As the blossoms of every tree are formed during the preceding summer and autumn, they will evidently be more perfect in proportion as those seasons have been favourable, and as the management of the gardener has been judicious: and as the power of bearing unfavourable weather will be proportional to their vigour, and to the maturity of the annual wood, through which the sap passes to support them, the gardener should be (though he rarely is) extremely attentive to keep his trees in such a state, and the branches at such distances from each other, that they may receive the greatest possible benefit from the portion of light and heat which our shadowy climate affords them. It frequently happens in pruning, that too much bearing-wood is left on the tree.—Every gardener ought to know, that where a hundred fruits are a sufficient crop for a tree, he has a better chance to obtain that hundred from one thousand blossoms, to which the whole nourishment of the tree is directed, than when the same quantity of nourishment has to support a hundred thousand.

“In standard fruit-trees, where no advantages can be derived from covering them, much may be done by the judicious appli-

cation of the pruning-knife. The branches of a tree of this kind ought to be much thinned towards their extremities, so that the light may be admitted into the center of the tree; but the internal parts of it should never be so thin as to admit of a free current of air, through it. When a tree has been properly pruned, blossoms and fruit will be found on every part of it; and, in unfavourable seasons the internal blossoms will receive protection from the external branches, which will be unfruitful.

"It is particularly the interest of every planter, to take care that the varieties of fruit which he plants be sufficiently hardy for the situation in which he places them; for, if this be not attended to, little benefit will be derived from the foregoing observations.

"I am, Sir, your obedient servant,

"THOMAS ANDREW KNIGHT."

Elton, near Ludlow, November 4, 1800.

MR. CHARLES TAYLOR.

PRÆMIA PROPOSED BY BENJAMIN BELL, ESQ. AS SUITABLE TO BE OFFERED IN EVERY COUNTY, FOR THE ENCOURAGEMENT OF HUSBANDRY.

1. **W**ITH a view of encouraging a full supply of this important article, I would propose that three hundred pounds sterling should be given yearly, in each county, for the best crop of potatoes on the largest quantity of ground. The quantity not to be less than a hundred acres, and the ground to be afterwards sown with wheat, barley, or oats, - - - 300 0 0

For the next largest quantity of the best crop of potatoes, not less than forty acres - - - 100 0 0

And for the third largest quantity, not less than twenty-five acres, - - - 50 0 0

All to be managed according to the rules of good husbandry to be furnished by the board of Agriculture in every county.

2. In like manner, for the three greatest quantities of land, not less than one hundred acres in the largest, forty in the second, and twenty-five in the third, of the best turnips, carrots, cabbages, or drilled beans or pease. The ground to be afterwards cropped with wheat, barley, or oats, - - - 450 0 0

3. For the three largest products of the heaviest and best corn, whether wheat, barley, or oats; on quantities of land not less than one hundred acres, forty acres, and twenty-five acres, which, during the preceding year, shall have been in well-managed fallow, the

Carried forward L. 900 0 0

Brought forward	L.900 0 0
ground not having been in a fit state for a drilled green crop,	450 0 0
4. For the three largest quantities of land properly manured with lime, marl, sea-ware, or shells, or any other article not produced upon the farm, of which the county board of agriculture shall approve; the quantities not to be less than a hundred acres, fifty acres, and twenty-five acres; and none of the quantities of ground for which this premium shall be given, to be allowed in competition in any ensuing year, for the premiums, No. 1, 2, and 3,	450 0 0
5. For the best management of farm-manure, and the greatest quantities produced on farms of a given number of acres, and prize of two hundred pounds, another of one hundred, and a third of fifty pounds,	350 0 0
6. For the greatest number of good horses which any farmer shall breed and rear, the kinds to be pointed out by the Board of every county, and the number to be allowed in competition not being less than ten, two hundred pounds Sterling; for the next largest number less than six, one hundred pounds; and for the third class, not being less than four, fifty pounds,	350 0 0
7. For the three greatest numbers of the best breed of black cattle, including oxen employed in tillage; the kinds and numbers to be allowed in competition for each prize to be fixed by the county board of agriculture	450 0 0
8. For the three greatest numbers of the best breed of sheep; the kinds and numbers allowed in competition, being likewise to be fixed by the board of agriculture,	450 0 0
9. For the three largest and best managed dairies; the number of cows for the largest prize not being less than thirty; for the second, twenty; and for the third, ten,	350 0 0
10. For the encouragement of those who farm on a small scale, by which the exertions of all the lower classes of farmers would be called forth, I would farther propose, that three premiums of ten pounds each should be given in each county, for the best crop of potatoes, the quantity not being less than two acres; six premiums of six pounds each, the quantity in competition not being less than one acre; and twelve premiums of three pounds each for quantities amounting to half an acre, and upwards: The whole of these	
<i>Gen. & Ag. Mag. Vol. VI.</i>	X x
Carried forward	L.3750 0 0

Brought forward L. 3750 0 0
 small premiums would therefore amount in each county
 for potatoes to the sum of - - - 96 0 0

11. With similar views, namely, that of extending premiums and encouragement to the lowest classes of farmers, for the improvement of every article of their produce, the same amount of small premiums with those that I have just proposed for potatoes, should be given in every county for each of the foregoing articles 2, 3, 4, and 5.; that is, to the amount of ninety-six pounds for each of them, being, for the whole of these four articles, in each county, - - - 384 0 0

12. With the view of exciting the industry and attention of cottagers to the cultivation of their gardens, three premiums of five pounds each might be given in each county, for the largest and best cultivated gardens which they possess; six premiums of three pounds each; and twelve of two pounds each; being, in each county, for this article, from which the most beneficial effects would scarcely fail to result, the sum of 57 0 0

13. For the greatest quantity of land kept in complete tillage, with the least number of servants, horses, and oxen, - - - 300 0 0

14. For the greatest extent of grounds newly planted with forest trees, completely inclosed, and in every other point under the best management, the rules for which to be given by the General Board of Agriculture, one prize of four hundred pounds, the quantity not being less than one hundred acres; a second prize of two hundred pounds, the quantity not less than fifty acres; and a third of one hundred pounds, the quantity not being less than twenty-five acres, - - - 700 0 0

15. For the best management of a farm in all its parts; in which I would include inclosing, draining, clearing the grounds of stones, neatness in tillage, and in the instruments employed in it; the largest, most useful, and best managed gardens and orchards; the complete destruction of weed; as well as various other articles; one premium of two hundred pounds, one of one hundred pounds; and a third of fifty pounds, 350 0 0

To this sum should be added an allowance for the management of the scheme: but, as in every county in the kingdom, a sufficient number of proprietors and farmers would appear without fee or reward, to take charge of the general business of the Board, the real expense of this article would not be important; par-

Carried forward L. 5637 0 0

Brought forward L. 5637 0 0

ticularly as much of the business of every parish might be easily managed by a committee of its own inhabitants, chosen for particular purposes by the County Boards. So that the chief expense of management would consist in rent for apartments in the county town, at which all general meetings should be held; together with salaries to a secretary and clerk; for all of which the yearly allowance of three hundred pounds may be supposed to be sufficient

300 0 0

And, lastly, an allowance should be made for various unforeseen contingencies to which the institution might probably be exposed; including a power, which, to a certain extent might with propriety be vested in the Board of Agriculture in each county, for giving premiums for a variety of articles that cannot well be enumerated in a list of this kind, the whole of which I shall state at

300 0 0

L. 6237 0 0

On the allowance of about half a million yearly, or thereby, to be distributed among all the counties in the kingdom, in proportion to their extent and other circumstances, this sum of six thousand two hundred and thirty-seven pounds would be nearly a medium of the whole: some of the largest would be entitled indeed to a great deal more; in which there might either be two districts, with an Agricultural Board for each; or the number of premiums in these two large counties might be increased.

The next, and not the least important part of the plan, consists in the application of the other part of the sum which I have supposed the nation should allow for the improvement of agriculture, amounting yearly to two millions Sterling.

This sum I should propose to be lent without interest, for a period of ten years, to proprietors and farmers who might apply for it, possessed of grounds, which the Board of Agriculture for the county should judge to be capable of improvement; the money to be entirely at the disposal of the County Boards, who should be directed to see it properly applied, and to take sufficient security for the repayment of the principal sums: and as it should not be given in a greater proportion than ten pounds Sterling for every acre to be improved, a sum which all improvers would most thankfully on these terms accept, two hundred thousand acres of land, which at present are nearly unproductive, would by this expedient alone, be yearly brought to a state of cultivation; the very important advantages of which are so obvious, that they need not here be enumerated.

B. BELL.

STATE OF HUSBANDRY IN DENMARK.

To the Editor of the Commercial and Agricultural Magazine.

SIR,

Copenhagen, March 1, 1802.

WHEN I wrote to you, a number of months since, from Paris, I mentioned, as you may remember, that I was soon to leave France for Germany and the kingdoms in the North, from which I might perhaps not find an early opportunity of again writing to you.

I have passed these last two months in the capital of the kingdom of Denmark. By personally surveying a part of the Danish territory, and by many enquiries from very intelligent persons, both in Copenhagen and in the country, I have obtained some satisfactory information concerning the state of husbandry in this part of the Danish dominions. And, being this day, on account of a slight indisposition, confined to my chamber, I think I cannot do better than write to you what I know upon this head.

Few countries in Europe are more fertile than this, in grain. The provinces of Laaland and Falster, a territory measuring 30,058 square miles, are those in which wheat is cultivated with the greatest success. A good deal of the same grows also in the province of Zeeland; but barley is the chief product of this district. Rye is more plentiful in Jutland. The total quantity of grain annually produced in the territories of Denmark proper,—not including the duchy of Sleswick, is supposed to be about 3,131,208 tons. Of this a part, and as some think, about $2\frac{1}{2}$ tons, a man, is annually consumed at home, in food for the inhabitants of the country; a part is used in the distilleries; part is consumed, in various ways, by the cattle; and part is, every year, exported to foreign countries. The quantity of grain annually used in the distilleries, in Denmark, is about 173,731 tons, of which 170,000 tons are wheat. For exportation there are supposed to remain 36,000 tons of wheat, 130,000 tons of barley, and 180,000 tons of oats. The produce of rye is, on the other hand, 15,000 tons less than the consumption.

Till the year 1735, the trade in grain remained, here, for both exportation and importation, entirely free; save that, in the few years between 1683 and 1691, the importation of barley, malt, and oats was prohibited. In 1735, the exportation of corn of all sorts from Denmark, Norway, and the duchy of Sleswick, was vigorously prohibited: And its importation into the northern parts of Norway, and into Sleswick was permitted;—but not into the south of Norway, nor into Denmark proper. From 1735 to 1788, this continued to be the general plan; but was not invariably acted upon. During the intermediate years, sometimes the exportation of grain, and sometimes its importation was prohibited. The prohibition or permission was sometimes general,

and sometimes limited to particular parts and districts. In 1785, a Mr. Martfield published an essay proving the necessity of altering this plan of regulation. In 1787, a commission was, in consequence of his suggestions, appointed to enquire into the state of the corn-laws. In consequence of its report, a more liberal and less capricious system has been since with advantage, adopted. But, I must not consume my whole letter in this detail.

The only grasses cultivated from the seeds, as articles of hay-crop in Denmark are red and white clover, sainfoin, and lucerne. Clover grows in abundance in the isles; is raised by culture, in the district of Tyen; but, in Jutland, is not yet plentiful.

I have been informed, here, that potatoes were, for the first time, introduced into Denmark, in the year 1708, and from Scotland. Frederick the Fourth, the ally of Queen Anne, sent, that year, a squadron of ships, to aid the British against the invasion with which they were threatened by France and the Pretender. At several parts at which the Danish fleet touched, no other food but potatoes was to be found for the use of the crews. Of these, their commander forbade them to taste. But, hunger triumphed over his authority. They ate of the potatoes; and were not poisoned. Provost Luder of Glucksburgh, a man of distinguished patriotism, afterwards planted potatoes, and earnestly recommended them to general culture. It was, in the year 1750 that his examples and exhortations began to have the desired effect. Counsellor Kraagerup was the first person that raised potatoes in Zeeland. Since that time, their culture has become very general; and as boiled or roasted vegetables for the table, in bread, as a fattening food for cattle, in the distilleries, and in the manufacture of starch, a prodigious quantity of potatoes, is, every year, consumed in Denmark.

Grass-Manna or *Fescue-Grass* (the *Festuca Fluitans* of Linnæus), a plant which bears a grain of a very pleasant taste, on a slender grassy stalk, grows wild on swampy grounds, and is found, in culture, in Laaland, in the vicinity of Westerburgh, and in small quantity in Falster. After being reaped, and got in, like any other grain; it is then threshed; the pure grain is left to dry on the barn-floor or on a sheet. It is, then, by pounding, or by shelling in a mill, reduced into the state of peeled barley. If ground to flour, it makes a very good material for either bread or puddings. The chaff of this grain, mixed with the refuse grain from the distilleries is eagerly devoured by swine.

Carraway (*Carum Carvi*) is cultivated in various parts of Denmark; especially in Tyen and Aroe. Its seeds are used chiefly in the distilleries. The Mustard-plant is cultivated in Sanfoc and other parts of the Danish dominions.

Strawberries (on the *Fragaria Vesca*), blackberries (on the *Rubus Fruticosus*), bilberries (on the *Vaccinium Myrtillum*), and great bilberries (on the *Vaccinium Uliginosum*), red whortle-ber-

ries (on the *Vaccinium vitis idæa*), juniper-berries (on the *Juniperus*), white-bean-tree-berries, on the *Crataegus Aria*) currants, and sloes, (the fruit of the *Prunus Spinosæ*) abound in the Danish territories.

Hemp and flax are cultivated in all the Danish Provinces. King Christian the Fourth, by an order, in the year 1629, enjoined the farmers to cultivate hemp, in order that they might be supplied without importation from foreign countries. King Frederick III. by an order of the 10th of March, 1669, enforced the former order, and farther enjoined, that every husbandman occupying a hide of land should annually sow a full bushel of hemp-seed; and that every occupier of only half a hide of land, should sow annually half a bushel of hemp-seed. In the year 1687, in consequence of the introduction of soap-works and oil-mills into this country, it was ordained, that the inhabitants of every town cultivating arable ground should, every year, sow not less than one-fourth of the land they plowed, with hemp flax or rape-seed. A new order of the 19th of November, in the same year, mitigated the rigour of the former, by limiting its force to such places as enjoyed a soil fit to bear hemp, flax, and rapes. By an order of the 14th of August, 1741, those of 1687 were renewed, and it was directed that one-fourth of all arable land of a fit soil should be either sown with flax, hemp, or rape-seed, or with that of the tobacco-plant. In the year 1773, a paper of exhortation and advice was circulated from the Board of Trade, earnestly recommending the culture of flax in particular, with a view to the improvement of the linen-manufacture. In the year 1778, the same Board circulated, a short paper explaining the best means of cultivating the flax-plant. Mr. Counsellor Ryberg is intitled to the best thanks of his country, for the pains he has taken to promote the culture of flax, especially by sending, at his own expence, intelligent persons to travel in foreign countries, in order to learn the best methods of raising and dressing this article which are practised abroad.—Count Lewis Reventlow has had great success in the culture of flax on the barony of Braketvolleborg in Fyen. The isle of Amack, being supplied with rich manure from Copenhagen, yields excellent flax. The premiums given, of late years by the Society of Landholders, have contributed much to promote and improve the cultivation of flax.

Hops are, a good deal, cultivated in the province of Fyen. Great complaints are made of the hop merchants as fraudulently mixing the pure hop-flowers with withered leaves, in a proportion, so large, that, in every 16 lib. of hops which are purchased from the merchant you shall find not less than two lib. of leaves. Most of the other parts of Denmark are supplied with hops from the province of Fyen. In Bornholm, as also in the environs of Næroe, considerable quantities of hops are

produced: and hence the beer brewed in Næroe is esteemed to be not at all worse than that of Rostock. Yet, much of the hops used in Denmark is still imported from Germany. It has even been estimated, that a third part of the whole nation or 400,000 persons drink beer brewed with hops imported from Germany. Each person is reckoned to drink annually a quantity of beer in which two lib. of hops have been consumed; 320 lib. of hops cost in Brunswick and the other parts in Germany, 6*l.* 15*s.* sterling.— And the total quantity of foreign hops used in Denmark costs the country, an expence of 16,875*l.* sterling, a year.

Tobacco is cultivated in various parts of Seeland, at Copenhagen in the royal gardens, in Falster, in Stubbekibbing, and especially by the French colonists established at Fredericia in Jutland. In the year 1778, the Board of Trade and National Economy published a short letter of direction for the successful culture of this plant.

Madder is not any where cultivated in Denmark, except only at Copenhagen and Kallundborg, and, there, in small quantity.

Plants affording *dyer's colours* abound in Denmark. Saw-wort (*ferratula tinctoria*) which yields a yellow colour, grows copiously in Bornholm whence it is purchased by the German merchants. Cow-weed chervil (*chaerophyllum sylvestre*), spotted snakeweed (*polygum persicaria*), with a great diversity of other colouring plants, grow in this country.

In the gardens of the nobility and of persons in the middle rank of life, all sorts of plants for kitchen-use, are cultivated with the greatest success. Cabbages, carrots, and turnips are universally abundant. The Landholders or Farmer's Society has *beneficently* circulated a sort of Gardener's Catechism, to direct the people in improving the culture of their gardens; and has, likewise offered prizes to parish-ministers, school-masters, sextons, millers, and other persons living in the country, who shall the most diligently and successfully cultivate certain portions of garden-ground, and certain garden-plants. The Isle of Amack is called the garden of Copenhagen, and supplies not only the capital but Helsingør, and other towns in Zeeland, with pot-herbs, garden-roots, and salad-herbs of all sorts. There appears to have been very little garden-culture in Denmark before the reign of Christian the Second. His Queen, Elizabeth or Isabella, a Princess of Spain, persuaded her husband to invite into the country some persons from the Netherlands who might teach his subjects to make good cheese and butter, and to cultivate gardens. He followed her advice. The strangers were settled in the Isle of Amack. And hence the origin of the garden-culture for which that isle is now famous. In the year 1570, Peder Oxe who, during his residence in Lorraine had become acquainted with the turnips of that country, sent for three tons of them.

As to garden-fruits, Denmark furnishes a considerable variety

of these. Peaches and apricots grow, here, in the open air. Ananas grow only in hot-houses. Of these, too, Denmark owes its first knowledge to Peder Oxe. Apples, pears, plums, cherries, walnuts, and chefnuts grow commonly throughout the kingdom in the gardens of the peasantry : but are more especially plentiful in the environs of Copenhagen and of Wordingborg in Zeeland. Prince George, married to the Princess Anne of England, was, in the end of the 17th century, Lord of the whole district of Wordingborg ; and he took, then, care to make all the peasants plant apple-trees in their gardens, in imitation of what he saw in England ; a care of which the good consequences are, at this day, experienced. Fruit-trees are pretty generally cultivated in Fyen, where there are a remarkable number of apple and pear trees. In other parts of the kingdom, there are few or no fruit-trees.

Forests anciently covered the whole of this country. But, as population and agriculture increased ; the primitive forests were generally cut down. And there is now such a scarcity of growing timber in Denmark, that for fuel, for ship-building, for houses, and for cabinet-work, large quantities of wood are, every year, imported from Norway, Pomerania, Prussia, and Russia. The best woods of Zeeland, are in the lordships of Copenhagen, Hirschholm, Fredericksburgh, and Cronburgh, which belong for the most part, to the Crown.—In the province of Fyen, the lordships of Ryeborg and Ruggaard yield a good deal of timber.—There are, likewise, woods in Falster. The eastern parts of Jutland are tolerably wooded. Oak, birch, beech, alder, hazel, and willow are the species of wood the most common in Denmark. Some attempts have been, of late, made to introduce, also, firs, and pine-trees.

The *horses* of Denmark are very valuable, whether for purposes of labour or of state-pomp, for riding or for the draught. A set of Danish coach-horses is accounted one of the most valuable presents which a King of Denmark can make to any foreign Court. Jutland and especially Mors-isle and the districts of Salling and Tyen, affords the finest breeds of horses for the draught, and for rural work, as well as for military riding. The horses of Tyen and Zeeland are a smaller and lighter race, but make, also, excellent riding-horses.

Denmark supplies France and Holland with military horses—Russia and Sweden with horses for drawing waggons and for common riding. The prices received from the French and Germans are from fifteen to twenty guineas for every horse. The prices for the horses sold the Swedes and Russians are from twenty-five to forty guineas a head. Not fewer than 5000 Danish horses are annually sold into Germany by a Mr. Julius of Altona, the whole value of which may be fairly taken at the round sum of 100,000*l.* sterling. Two other horse-dealers,

Thomsen of Husum, and Vahlert of Rienbrok, do also a great deal of business. And the total value of the horses exported, is, therefore, probably about 200,000*l.* sterling a year.—The royal studs at Fredericksburgh were established by Frederick the Second. The number of mares there kept amounts to 220. The total number of horses, young and old, is about 700. The expence of the establishment is not less than 6,700*l.* sterling, annually.

Fyen is the province in which there are the greatest number of private studs.

Cattle, cows, bulls, and oxen, from a considerable part of the wealth of the kingdom of Denmark. The exportation of cattle, was formerly, when greater than it is at present, one principal source of the income both of individuals and of the public. Many thousands of oxen were then exported annually from Jutland, to Germany, Holland, and Brabant.—The dealers in cattle used to come about Candlemas, from those countries to the houses of the gentlemen and farmers who reared and fattened these cattle, and to purchase them off by hundreds at once. Some were carried by sea, the nearest way, to Holland; but the greater part were conducted in droves, by land, through Holstein and Westphalia. In the end of the 17th century, and till about the year 1718, the cattle-trade was much greater than it is now. There were, in 1718, about 400 cattle-farms, each rearing and fattening for sale, on an average of the whole, about 125 or 130 head of cattle, annually. The whole number annually reared, was between 50,000 and 52,000. Of these, however, by the most accurate accounts, not more than 25,000 were, on any one year exported between 1700 and 1718. The average price was not above 3*l.* 10*s.* sterling a head. The total return for cattle exported from Jutland, was by this estimate 87,500*l.* sterling, a year.—The number of cattle-farms is now reduced from 400 to 107: and the average number of cattle reared annually in each of these for sale does not exceed 100 head. The best of these are sold for slaughter when six years old; and their carcases weigh, without the hide and horns, about 420 lib.—It is common for the Danish cows to give, when good, from five to six quarts of milk, in the day. But, in the rich low lands, there are instances of a cow giving even from six to fifteen quarts of milk daily. A good deal of butter is made, so as not only to serve for the whole home consumption, but to afford also a surplus for exportation. The cheese of Theboe is famous for its strong biting taste. The Royal Economical Society offered lately a prize for the best Essay to explain the particular cause of the peculiarity of taste in the Theboe cheese. The prize was gained by Mr. Justice Otto Lemwich. But, his paper has not been, hitherto, printed.—The exportation of butter, cheese, and tallow has

Com. & Ag. Mag. Vol. VI. Y y

been sometimes prohibited, and sometimes permitted. Raw hides were, once, exported in large quantity from Denmark.—But, their exportation has, for the encouragement of the tanneries, been since prohibited. The horns have not, till very lately been employed, in Denmark, in any of the manufactures to which they serve as a material. Horn-combs are, as yet, to a large yearly value, imported from Ireland. I have been informed by a Danish Gentleman who was some time on business in Dublin, that he saw 180*l.* sterling paid in a day, for combs for the use of the town of Dronthem only.—I have not been able to obtain any accurate account of the total number of cattle at present in all Denmark. But, from a work which has been put into my hands, I learn, that, in 1774, there were—of cows not exceeding three years of age, 89,109,—of cows above three years old, 246,039,—of oxen not exceeding the age of three years, 44,449,—of oxen above that age, 34,802; so that the total number then amounted to 414,489 head of cattle.—The epidemical distemper among the cattle in the year 1745, destroyed of the herds in Denmark, in the period between January 1, 1745 and January 1, 1746, to the number of 285,160 beasts.—A similar pestilence among these cattle was again experienced, and even more extensively, in the years 1762 and 1763. In the years 1770, 1771, and 1772, some experiments of remedies for that destructive distemper were made, in the small isle of Saunoe lying south-west from Zealand, under the direction of the College of Medicine, and upon the plan of the celebrated Dr. Camper of Groningen. Of these, however, I have it not in my power to give you at present, an account. This distemper broke out again between the years 1777 and 1780. But, a method was, now, employed which served greatly to mitigate its rage, and finally to put a stop to its progress.

The total number of *sheep* in the flocks of Denmark, is about 847,000. It is common to milk the ewes, and to make cheese of their milk. These sheep are shorn of their wool *twice in the year*. It was proposed to shear them only once a year. And it was alledged, that, by this method of shearing 25,000*l.* sterling annually, might be got by the wool, above what it had before yielded. In the year 1780, the King nominated a Commission to ascertain by particular observation and experiment, the truth or fallity of this allegation. The experiments were made at a sheep-farm within 2½ miles of Copenhagen. Their result was, that the wool of sheep shorn only once in the year, was longer and less dry than that of sheep shorn twice in the year; but not so clean, and more wrought together into tufts. There is greater profit by the wool when the sheep are shorn twice, than when they are shorn only once in the year; but, the sheep shorn twice, are weaker than those which are suffered to wear the same fleece, all the year round. It is supposed that the total quantity of wool annually obtained from the sheep

of Denmark, does not exceed 1,694,000 lib. or 2 lib. for each sheep. Hopes are entertained of improving the wool and the breed in general of these sheep by crossing with African and Spanish rams. It is thought by many, that the small isles contiguous to the coasts of Zeeland, Tyen, Jutland, and Langeland might prove excellent sheep-stores. The wool of Denmark is not equal in quality to that of Spain, Holland, or England. The race seems to be the same with that of the *short sheep* of Scotland.

Goats, though valuable for their milk, their hair, their skins, and the venison-delicacy of their flesh are kept no where in Denmark, save on the moors of Jutland.

Two sorts of SWINE are kept in Denmark. One is a small short race, the carcases of which, when they are slaughtered between $1\frac{1}{2}$ and 2 years of age, weigh from 12 to 16 English stone. These abound in the eastern parts of Jutland; and many thousands of them are annually exported to Holstein and Hamburgh. The other sort are of a longer form of body; weigh when killed at 2 years of age, from 24 to 36 stone English; are, however, more expensive than the others in the feeding; and are to be fattened upon corn and the refuse-grain from the breweries and the distilleries. The Chinese breed has been tried in Denmark: but, though the sows of it bring 12 or 14 pigs, at one farrowing; yet it has been found, in the whole, less profitable than the native races; and is not now, much cultivated. The annual exportation of living swine from Denmark, is estimated at 12,000; that of bacon to Hamburgh, Lubeck, Holland, and Norway, at 1,280,000 lib.

The tame FOWLS common in Denmark, are geese, ducks, hens, turkeys, and pigeons. Geese and ducks in particular are kept at every farm-house. Their feathers are a profitable article for exportation; though the greater part is used at home; for there are no people on earth, fonder of feather-beds, than the Danes.

BEEs are kept in considerable quantities in Tyen, Langeland, and Bornholm, and in other parts of Denmark. Much of the honey is consumed in the brewing of metheglin. It is calculated, that there are annually exported out of Denmark, 3,200 lib. of wax, at about 20 $\frac{1}{2}$ pence, a lib, or 280 $\frac{1}{2}$ sterling in all;—18,000 lib. of honey, at the total price of about 423 $\frac{1}{2}$ 7s. 6d., or about 5 2-3 pence per lib.;—900 tons of mead or metheglin, at 1 $\frac{1}{2}$ 7s. sterling, a ton, or 1,170 $\frac{1}{2}$ sterling in all.

The improvement of the arts of Rural Economy became first eminently an object of public attention in the reign of Frederick the Fifth. Among other advantages, it has been since much promoted by two bequests from Count Otto Thott, and Major General Clussen. The bequest by Count Thott was of a capital yielding the sum of 22 $\frac{1}{2}$ 10s. sterling annually to be bestowed by the "Society for the advancement of Ecumenical Science, at Copenhagen" in a premium of 13 $\frac{1}{2}$ 10s,—and in another of 9 $\frac{1}{2}$ sterling, for

the best essays on tillage, the culture of grain, the management of cattle, and the planting and management of forest-trees. General Classen bequeathed a capital to afford two yearly prizes of 22*l.* 10*s.* each for the two best inventions or improvements in the instruments of agriculture, manufactures, or mining. Count Thott left, also, a fund to afford two sums, each of 43*l.* sterling to be granted to two students travelling into foreign countries for the improvement of the knowledge of Natural History and of Rural Economy; each of these sums to be enjoyed by the same person, never more than three years successively.

General Classen left also his estate of Korselidse in Falster, to be the seat of a "School of Husbandry," in which to the number of 10 or 12 students, and not more at one time, should be instructed in gardening, agriculture, the management of cattle, and the management of woods and plantations. Steps have been taken towards the execution of his intentions. A Mr. Olufsen has been nominated the first Professor.

A Royal Veterinary School was instituted here in the year 1773. The first Professor was P. C. Abdilgaard. It still flourishes: and strangers resort to benefit by the instructions given in it.

The Œcumenical Society of Copenhagen, was instituted in the year, 1769. Count J. H. E. Bernstorff took it under his special patronage; and by his favour, it obtained from the crown, authority to assume the title of *Royal*, a donation of about 700*l.* sterling, and a grant of an yearly future revenue of about 100*l.* sterling. The Society consists of 250 members ordinary and extraordinary. These pay, each, the sum of 2*l.* 5*s.* a year for its uses. In 1782, his Majesty bestowed on it an additional yearly revenue of about 250*l.* sterling. Their primary object is to encourage agriculture and the arts of general Economy, by the distribution of prizes. Their prizes are medals of gold and silver, or money. Between the years 1772 and 1792 they distributed about 15,300*l.* sterling in prizes to 4200 persons.

I am Sir, yours, &c.

INFORMATION RESPECTING THE PROFITS OF HUSBANDRY AND THE MEANS OF PREVENTING SCARCITY, IN THE ANSWERS OF TWENTY-FIVE GENTLEMEN, TO QUERIES BY BENJAMIN BELL, ESQ.

IT was my intention to have mentioned the names of the gentlemen to whom I applied in this matter, as they were not only numerous, but respectable in all their districts; but as almost the whole of them were averse to it, I promised to them all that it should not be done.

They did not object to it from the nature of any of those questions that appear in this article, but these being involved

with others that will be published hereafter, and on which account many of them did not wish their sentiments to be known, I readily agreed, that none of them should be heard of. The number of gentlemen to whom I applied was very considerable, but I only obtained opinions from twenty-five: They all lived in different counties, commonly at a considerable distance from each other, so that the sentiments they communicated might be the more likely to convey the opinion of well-informed men over the whole kingdom, than could have been the case from applying to such only as lived in the same district.

I think it also necessary to state, that those to whom I applied were either the best farmers in their districts, or country gentlemen, merchants, or manufacturers, who had been distinguished for their attention to agriculture.

Q. I.—Is it your opinion, that the dearth of corn to which the nation is now so frequently exposed, is owing to real scarcity, or to the improper interference of farmers and corn-merchants?

A.—The reply to this was the same from all of them: They were all of opinion, that the scarcity in those years to which the question relates, was perfectly real, and not produced by the interference of farmers or corn-merchants.

Q. II.—Is it in the power of farmers, or others concerned in the sale of corn, to retain it in such quantities as can have much influence on the prices at which it is sold in markets, and have you ever known it done?

A.—None of them believed, that farmers or corn-merchants can ever have much influence on the prices of corn. All of them had heard of corn being hoarded by farmers and corn-merchants in years of scarcity, but not an instance was known to any of them of its being done. Some of them also added, that they did not believe it could happen in any hurtful degree, from the hazard of its being destroyed by the populace.

Q. III.—Whether do farmers derive most benefit from the most abundant crops, or from those that are less productive of corn?

A.—Farmers always wish for a large quantity of corn, and are generally best paid in years of the greatest abundance, even although prices are low.

Q. IV.—Do you know of any instances of the prices of corn, or other provisions, being raised, by engrossing, forestalling, and regrating?

A.—They are frequently mentioned in conversation, but we know of none.

Q. V.—Is it your opinion, that the nation is hurt, by farmers being generally too rich?

A.—None but those who have no practical experience in agriculture, will believe, that farmers can do harm by being rich. They are generally quite too poor.

Q. VI.—Whether does the assistance that farmers, merchants, and manufacturers, derive from country banks, prove useful otherwise to the nation? Do these banks tend to increase or lessen the prices of corn and meat, and what would be the effect of restricting their number, or suppressing them altogether?

A.—Banks of every kind, more especially country banks, are of much national utility; nor does it appear, that in any way they have ever, in this country, done harm. As they enable those who are engaged in agriculture to improve their farms, they certainly add greatly to our quantity of corn, and other articles of produce: They must, therefore, lessen the prices in markets; and were they either to be suppressed, or their numbers restricted, agriculture would every where be materially hurt, and many manufactures that are now in a thriving condition would instantly be stopped.

Q. VII.—Are farms in your district generally too large; or less than they ought to be?

A.—While some of the gentlemen stated, that grazing farms appeared in a few instances to be too large, by tending to diminish population, none of them believed, that arable farms have ever as yet done harm by being large, where the funds employed on them were sufficient. All of them said, that farms are seldom so large as they ought to be, and in general that they are quite too small.

Q. VIII.—Whether, in proportion to their extent, do large or small farms send the largest quantity of corn and cattle to market? And whatever your opinion on this point is, let the cause of it be stated.

It will also prove satisfactory, if the average amount of produce in your district is mentioned, both of large and small farms.

A.—Small farms have seldom either corn or fat cattle to sell, so that almost all the large markets in the kingdom are supplied by large farms.

This seems chiefly to proceed from the poverty of those by whom small farms are possessed; by which they are seldom able to improve them: their crops accordingly are generally poor, and their cattle poorly fed, so that they have not commonly much of either to send to market.

By some of those to whom this question was stated, the average amount of every kind of corn in the kingdom was supposed to be about two quarters and a half per acre; others believed it to be about three quarters; but, on the whole, they agreed in thinking, that the average produce of small farms, that is, of such as do not exceed thirty or forty acres, is not above two quarters, while that of all such farms as extend to 200 acres and upwards, they reckoned at more than five quarters.

Q. IX.—Whether do large or small arable farms tend most certainly to increase population?

A.—As large farms not only produce larger quantities of corn and cattle, in proportion to their size, than small farms, they must necessarily encourage population in a greater degree: they also require a greater number of people to conduct them, who must all be supported by their produce.

Q. X.—Independently of the wastes and commons, a great proportion of the arable lands in the kingdom appear still to be in much need of improvement; many of them being nearly in a state of nature: What do you consider as the cause of this? Now, when corn as well as meat are both scarce and dear, would not both proprietors and farmers of lands in this unproductive state, be amply paid by the high prices that these articles give, for improving them? Do you think that by the full improvement of all the national property in this situation, that the present population of the kingdom could be supplied sufficiently with corn and meat; and in what manner do you think that this improvement can be most easily made?

A.—They all lamented the state of the agriculture of Britain, which, excepting in a few districts, has not kept pace with its population; and they all stated the same causes by which it has happened, namely, the scarcity of money, both with proprietors of land and farmers, and the leases of farms being commonly too short. Many of them also insisted greatly on the harm that is done to agriculture by tithes and poor's rates; but all of them considered the poverty of farmers, and the short endurance of their leases, as the chief causes of such large quantities of land being still to improve.

They were all of opinion, that, with sufficient funds and longer leases being given to farmers, the lands that have already been in tillage might soon be made to yield abundance of corn and other provisions for double the amount of our population. None of them offered an opinion of the extent of our population; nor did they imagine, that money could be obtained for the improvement of agriculture; but all of them thought, if this could be done, that the produce of every farm in the kingdom might be increased to double the present amount of it; and almost all of them believed, that the whole of the national produce, both in corn and meat, might be easily carried to three times the extent of what it has ever hitherto been.

Q. XI.—Although it is your opinion, that the whole lands in the kingdom might be improved, and rendered more productive with the assistance of money, Do you think, that the profits arising from this would justify the expenditure of such large sums as it would certainly require?

A.—As money, when expended with judgment on the improvement of land, has hitherto seldom failed to yield a sufficient

profit, there is reason to suppose, that this would still be the case : As long as the nation is obliged to import large quantities of corn, and other articles of consumption, the advantage to be obtained from improvements in agriculture would be very considerable ; probably more than all the profits of the foreign trade that we possess : For it should be held in view, that we are not only reduced to the necessity of importing corn to an immense amount, but provisions of various kinds, namely, meat, poultry, butter, cheese, rice, as well as many other articles.

Q. XII.—If parliament were to reckon it a wise measure, that money should be advanced for this purpose by the nation, in what manner do you think it should be done ? Is it your opinion, that large premiums being given for the improvement of agriculture, would prove useful, namely, for the production of the largest quantities of the best corn, and for the improvement of every kind of stock, as well as of every other article connected with agriculture. If to this were added the loan of such sums of money, as would be sufficient to improve a considerable quantity of land yearly in every county, and no interest to be charged for it for several years, do you suppose that much benefit would accrue from it ? You may also mention your opinion of the effect that would result from a Board of Agriculture being established in every county, consisting of the most respectable country gentlemen and farmers in their several districts, under whose direction the management, of premiums, and other sums of money appropriated to the improvement of land would immediately fall.

A.—In whatever way a sufficiency of money is appointed for the improvement of land, very important advantages must arise from it ; but under a judicious arrangement of premiums, accompanied with loans, free of interest, for a sufficient number of years, it could not fail to prove in a high degree useful. There is also reason to believe, that any plan for this purpose would be carried into effect in the easiest and best manner, by the assistance that Boards of Agriculture in every county would be able to give to it. Indeed, no scheme that has hitherto been ever proposed for the improvement of agriculture, is so likely to succeed, as the establishment of county societies of this kind, supported with funds sufficient for the purpose.

This is the substance of much correspondence, that arose on the various questions involved in this article : The questions being separately stated to many individuals, not connected with, nor corresponding with each other, their answers were necessarily conveyed in much variety of form ; but I have faithfully narrated their meaning : and as all of them are men of abilities, of much respectability, and experience, I have much reason to believe, that in communicating what I have done, I give the opinion of a great proportion of men over the whole kingdom.

B. BELL.

MR. GREENALL'S METHOD TO BRING GRASS-
LAND UNDER TILLAGE, &c.

(Concluded from our last, page 235.)

Thirdly. On Loamy Soils.

I managed two fields, of a strong red loamy soil, in the same manner as the nine acre clay field, except in the consistence of the compost, in which I used no sand. It consisted of dung, soap-waste, lime, and peat earth, and the crops were the best in this neighbourhood. For the wheat crop, I was honoured with a silver cup by the Society of Agriculture at Manchester; it averaged 50 bushels, of 70lbs. each, to a statute acre. The produce was upwards of 30l. per cent. more, and the profits near 50l. per cent. more per statute acre than the clay field. They were laid down to pasture at the end of the fourth year, and improved to be of near double value to what they were before breaking up.

A field of a deep black loam, lying near the side of a river, was sometimes flooded, and, by injudicious management, was grown full of rushes. After having secured it from the floods, I broke it up, having previously pared and burned it, and put upon it a good dressing of compost, consisting of dung, lime, and sandy soil, which, in spreading, I mixed with the ashes; then ploughed it, and sowed it with turnips, which were carted off. The spring following I sowed it with beans, in the same manner as on the clay field before mentioned, but without manure; after the beans, with wheat; and the spring following I gave it a dressing of compost, in which I put soap-waste with the dung and sandy soil, and sowed it with barley and grass-seeds. The crops were all extremely good, a statute acre annually averaging a produce of 14l. 5s. 7d. and a profit of 4l. 1s. 1d. and the field is very much improved in every respect.

Fourthly. On Peat.

I had a piece of land that had formerly been covered with water, the sediment of which had formed a thin covering of mud upon a deep peaty stratum, lying on marl. It was divided into several compartments by ditches, but was very wet and boggy, the lower parts being full of flaggs and reeds, and the higher parts full of rushes and long four grass, and comparatively of no value. I succeeded in effectually draining it, by cutting through the stratum of peat into the marl about one foot deep, making the drain in it about a foot narrower than that in the peat, which left edges, six inches broad, on each side the drain in the marl, upon which I laid stones to cover it, and then filled the drain in the peat, within about a foot of the top, with gravel, stones, sand, and such other porous materials as I could get, and then filled it up with a mixture of peat and marl, that came out of the drain.

As the draining could only be done in summer, (it being so boggy that nothing could get on it in winter), I was not enabled

354 *Method to bring Grass-Land under Tillage.* [May

to crop the year I drained it. The spring following I found it was become nearly firm and solid, and I pared and burned it, and then had it digged and planted with potatoes, without any manure but the ashes, of which there was great abundance, on account of the felt of flaggs, reeds, rushes, &c. there was upon it.

The produce of the potatoes was 426 bushels, of 90 lbs. to a bushel, per statute acre. After getting the potatoes, I guttered it to keep the surface dry; and the spring following, I put upon every statute acre about one rood (of eight cubic yards to a rood) of compost, consisting of lime and marl, about two measures of lime to a yard of marl, and sowed it with beans in drills, as before described under the head, Clays. The straw was very rank and long, but did not corn well, not having more than 34 bushels to the acre. By the spring following the land was grown firm, and I was enabled to plough it; and I again sowed it with beans, in the same manner as before, (conceiving that nothing else would stand upon it); they were a very good crop, and averaged 51 bushels to the statute acre. The spring following I ploughed it, and put upon it about $1\frac{1}{2}$ rood (of eight cubic yards) of compost, of the same kind as before, and sowed it with barley, grass seeds, red clover, white clover, trefoil, and rye grass. The barley was a very good crop, having 50 bushels to the statute acre, and so much straw, that it prevented the grass-seeds from growing. Therefore, in the spring following, I ploughed it again, and put compost on it as before, and sowed it with oats, grass-seeds, red and white clovers, trefoil, and rye-grass. The oats averaged 53 bushels per statute acre; the grass-seeds were very full; and since, it has been as good a meadow as any in the neighbourhood.

I state the following account from my books, to shew the particulars and amount of the rent, management, and expenses, and also the amount of produce and profit of this piece of land, until it was arable; and also to shew, that by spirited exertions and attention, land, that is literally of no value, may be made beneficial and profitable to the community and the individual.

Dr.				Damsteads, 7 A. 2 R. 21 P.				Cr.					
1787.				£.	s.	d.	1788				£.	s.	d.
July 27. To cutting 1736 yards of drains, at 3s. per yard				21	14	0	Feb. 2. By amount per Dr. side				67	14	3
To 60 loads of stones, and carting, at 3s. 6d. per load				10	10	0							
To wheeling ditto, and laying drains, at $\frac{3}{4}$ per yard				5	8	6							
To getting and carting gravel, stones, &c.				11	2	1							
To wheeling and filling drains, at $1\frac{1}{2}$ d. per yard				10	17	0							
Sept. 29. To half year's rent				3	16	3							
1788.													
Feb. 2. To ditto ditto				3	16	3							
To proportion of taxes				0	10	2							
				£67	14	3					£67	14	3

1802.] *Method to bring Grass-Land under Tillage.* 355

1788.	£.	s.	d.	1788.	£.	s.	d.
Mar. 1. To push ploughing 7 a. 2 r.				Oct. 18. By 2946			
at 10s. per acre	3	15	0	bushels of pota-			
To burning ditto, at 5s. per				toes, at 1s. 6d.			
acre	1	17	6	per bushel	220	19	0
Apr. 28. To delving ditto, at 1s.				By 261 do. do. at			
2d. per 64 yards	33	1	6	10d. per bushel	10	17	6
To 142 bushels of potatoes, at							
1s. 8d. per bushel	11	16	8				
To cutting ditto, at 3d. per							
bushel	1	15	6				
To setting and raking ditto at							
8d. per bushel	4	15	8				
June 1. To covering ditto, at 4d.							
per 64 yards	9	9	0				
Sept. 29. To half year's rent	-	3	16 3				
Oct. 18. To getting 3207 bushels							
of potatoes, at 1½d. per bushel	20	0	10½				
Nov. 1. To guttering 117 roods,							
at 1½d. per rood	1	3	4				
1789.							
Feb. 2. To half year's rent	-	3	16 3				
To proportion of taxes	-	0	13 3				
To interest on £67	-	3	7 0				
To balance carried to Cr. side	64	14	5½				
	£231	16	6		£231	16	6
1789.				1789.			
Feb. 7. To feighing and fough-				Feb. 2. By balance	64	14	5½
ing marl-pit	-	4	17 3	By 254 measures			
17. To 835 bushels of lime, at				of beans, at 5s.			
8d. per bushel	28	13	4	per measure	63	10	0
To getting marl, and making it				By 167 thraves			
into compost with lime	4	10	0	of straw, at 6d.			
Mar. 1. To filling compost	2	15	0	per thrave	4	3	6
To carting and spreading 9				1790.			
roods, at 18s. per rood	8	2	0	Feb. 2. By interest			
10. To drilling four days	-	1	10 0	on £.64	3	4	0
To 13½ bushels of beans, at 5s.							
per bushel	3	7	6				
To laying beans in drills	0	13	6				
15. To harrowing, guttering,							
and finishing	-	1	17 7				
Sept. 29. To half year's rent	-	3	16 3				
Oct. 7. To reaping beans	-	1	15 0				
28. To housing and expenses	1	7	8				
1790.							
Feb. 2. To half year's rent	-	3	16 3				
To proportion of taxes	-	0	13 1				
To thrashing 254 measures of							
beans, at 2d. per meas.	2	2	4				
To carting and expenses	-	0	18 3				
To balance per Cr. side	64	16	11½				
	£135	11	11½		£135	11	11½

356 *Method to bring Grass-Land under Tillage.* [May

1790.	£	s.	d.
Mar. 1. To ploughing eight days, at 7s. 6d. per day	3	0	0
7. To harrowing four days, at 5s. 6d. per day	1	2	0
12. To drilling four days, at 7s. 6d. per day	1	10	0
To 13½ bushels of beans, at 5s. per bushel	3	7	6
To laying ditto in drills	0	13	6
To harrowing, guttering, and finishing	2	1	3
Sept. 29. To half year's rent	3	16	3
To reaping beans	1	15	0
Oct. 15. To housing and expenses	1	3	9
1791.			
Feb. 2. To half year's rent	-	3	16 3
To proportion of taxes	-	0	18 9
To thrashing 382 bushels of beans	-	3	3 8
To carting and expenses	-	1	4 7
To balance per Cr. side	-	129	9 5½
	£157	1	11½

1791.	£	s.	d.
By balance	64	16	11½
Feb. 2. By 382 bushels of beans, at 4s. 6d. per bushel	85	19	0
By 124 thraves of straw, at 6d. per thrave	3	2	0
By interest on 64l.	3	4	0

£157 1 11½

1791.	£	s.	d.
Feb. 12. To 1010 bushels of lime, at 8d. per bushel	33	13	4
To getting marl, and making it into compost with lime	5	18	8
28. To ploughing eight days	3	0	0
Mar. 7. To filling compost	3	13	6
15. To carting and spreading 12 roods, at 18s. per rood	10	16	0
21. To drilling four days	1	10	0
Apr. 10. To 15 bushels of barley, at 5s. per bushel	3	15	0
To grass-seeds	4	4	0
To sowing and harrowing	1	1	0
To guttering and finishing	1	13	8
Aug. 12. To reaping barley	1	15	0
To housing and expenses	1	11	8
Sept. 29. To half year's rent	3	16	3
1792.			
Feb. 2. To ditto ditto	3	16	3
To proportion of taxes	0	12	7½
To thrashing 378 bushels of bar- ley, at 2½d per bushel	3	18	9
To carting and expenses	1	17	4
To balance per Cr. side	145	18	5
	£232	11	5½

1792.	£	s.	d.
By balance	129	9	5½
Feb. 2. By 328 bushels of bar- ley, at 5s. per bushel	82	0	0
By 50 do. do. at 2s. 6d. per bush.	6	5	0
By 288 thraves of straw, at 7s. per thrave	8	8	0
By interest on 129l. 6	9	0	0

£232 11 5½

1792.	£.	s.	d.	1792.	£.	s.	d.
Feb. 12. To 705 bushels of lime, at 8d. per bushel	23	10	0	Feb. 2. By balance	145	18	5
To getting marl, and making it into compost with lime	-	4	4	1793.			
Mar. 7. To ploughing eight days, at 7s. 6d. per day	3	0	0	Feb. 2. By 336 bushels of oats, at 3s. per bush.	50	8	0
17. To filling compost	-	2	19	By 63 ditto ditto, at 1s. 6d. per bushel	-	4	14
To carting and spreading ditto on 8½ roods, at 20s. per rood	8	10	0	By 150 thraves of straw, at 1s. per thrave	7	10	0
Apr. 8. To drilling four days	1	10	0	By interest on 145l. 7 s. 0	7	5	0
14. To 34 bushels of oats, at 3s. per bushel	5	2	0				
To grass-seeds	-	3	17				
To sowing and harrowing	-	1	7				
To guttering and finishing	-	1	10				
Aug. 21. To reaping oats	-	1	15				
To housing and expenses	-	1	7				
Sept. 29. To half year's rent	3	16	3				
1793.							
Feb. 2 To ditto ditto	-	3	16				
To proportion of taxes	-	0	11				
To thrashing 399 bushels of oats, at 1½d. per bushel	2	9	10½				
To carting and expenses	-	1	14				
To balance per Cr. side	-	144	15				
	£215	15	9		£215	15	9
				By balance profit in five years	£144	15	1½

It appears by the above account, and the management before described, that a piece of peat land of 7 a. 2 r. 21 p. has been reclaimed; that in four years the amount of rent, expenses, &c. was 323l. 3s. 3d.; that the produce amounted to 567l. 18s. 4d. and the profit to 144l. 15s. 1d.

It is the common and almost universal practice of farmers, who have peat land, in this county (Lancashire), to marl it the year before it is broken up; and the spring following to pare and burn it, sow it with barley and clover, then pare and burn it again, crop it as before, and so on alternately, until the whole of the marle is reduced to ashes, and the land worse than in a state of nature, the soil being reduced, and its vegetative powers destroyed.

It is a very bad (though common) practice, to put marl in its crude state on peat land. The marl, being a much closer and heavier body than the peat, prevents their incorporation; and it soon sinks too low to be of any service.

Having kept a particular account of the management, expenses, produce, &c. of every field I have, and the same duly and regularly posted; it has not only shewn me how each field has paid me, by any particular mode of management, but has served as a journal and register of my proceedings, from which I have drawn the preceding statements, which will shew to a demonstra-

tion that grass lands may be broken up to pay the undertaker from 20*l.* to 35*l.* per cent. on the amount of rent, management, &c. and "returned again to grass after a certain period in an improved state;" and also, that what I have stated (and intend to state) are not speculative opinions, but the result of actual experiments. They also shew the methods of management, course of crops, &c. to produce the effect, which I prefer to any other I have seen or practised; and I will endeavour to explain my reasons for so doing, and, at the same time, answer as much of what is required by the Honourable Board of Agriculture as I have any knowledge of, in the best manner I am able.

The principal reason for preferring such methods of management is, I have tried them, and found them to answer in every respect.

Sandy soils in general are of a very porous nature, and soon lose the effect of manures put upon them; perhaps, by too quick an absorption, and permitting too free an evaporation. To counteract these imperfections, I have used manures of a nature directly contrary. Marl is superiour to any other manure, not only on account of its fertilizing qualities, but by giving adhesion to the particles of the soil, when incorporated therewith, which causes it to retain the effects of manure much longer.

Marl, when applied on dry light sands, is best in its crude state; they soon absorb the moisture the marl contains, and partake of its qualities, and the marl is more binding in that state than any other.

Where marl cannot be had, clayey soils and strong loams are good substitutes; even clay, when judiciously managed, I have found to answer a good purpose. The best method of distinguishing marl from clay, is to apply strong acids (as aquafortis, &c.) on it; and if it effervesces freely, it is supposed good marl, possessing some alkaline qualities, and free from noxious weeds, such as thistles and coltsfoot, which clay, that will not effervesce in acids, generally produces; therefore when clay is used it should be made into compost with lime, which will destroy the vegetative powers of the roots of noxious weeds generally contained in it.

Sandy soils are more adapted to the growth of potatoes than any other sort, except peat: the fibres extending themselves more, and shooting more freely, the potatoes grow larger on sandy soils, that have been previously marled or manured with binding manures; and in getting them up, the manure is perfectly mixed and incorporated with the soil. Manures, put upon sand land when under tillage, should not be ploughed in, but laid on the top and harrowed in with the seed; for if the manure be compost of a different nature, its specific gravity is generally more, and it soon sinks sufficiently deep; and by being mixed with seed, it gives vigour to the vegetation of it, and

supports it through its growth, by following the fibres of the roots as they strike into the land. I need not remark, that, previously to laying any kind of land down to grass, it is necessary to make it perfectly clean; when it is so, it should have a good dressing of manure harrowed in along with the seed.

Sandy soils are sooner brought into condition to receive the seed; they imbibe the fertilizing virtues of manures more quickly, return them more freely, and are sooner exhausted by a repetition of ploughings than any other kind of land; and I have found that ploughing them for more than four crops causes them to lose the spontaneous growth of their natural grasses. When grass lands are converted into tillage, with an intent to lay them down to grass again after a certain period, they should not be kept under tillage longer than that period. Land will grow its natural grass spontaneously for a certain time while under tillage, and afterwards a spurious kind will appear among the corn.

It seems that the influence of the atmosphere is necessary to give powers to the land to support vegetation. I will not pretend to explain the reason, but I have found, that when five inches have been taken off the surface of sand land, and four inches off clays and loams, that the soil under will be barren for a certain time; therefore in breaking up grass lands, if in the spring, with an intent to sow them after the first ploughing, they should not be ploughed deeper. It is better to plough any kind of land that is intended for a spring crop, before the frosts generally set in; and then it may be ploughed deeper, as the barren soil, then turned up, receives the beneficial and salutary effects of the frosts and weather, which makes it fertile, and causes it to incorporate with the vegetative soil, and adds to its thickness.

Lands thin of soil, by being ploughed a little into the under stratum in autumn, and lying during the winter, gain a little in thickness of every such ploughing, as the stratum, turned up, is meliorated by the frosts and weather, and incorporates with the soil.

The course of crops I find to answer best on sand land, is, first, turnips or oats, next potatoes, then wheat, and lastly barley, among which grass-seeds grow better than with any other grain, as the straw is finer, and permits them to grow more freely.

I have always kept my meadows clean from weeds, and the hay, arising from different qualities of land, in separate parcels, and collected the seeds that have fallen from it with care; these according to the sorts of lands they grew on, or the hay they came out of, I have sown along with artificial grass-seeds, on lands of the like nature.

Upon sand lands I have sown about five pounds each of white clover and trefoil, and a bushel of rye-grass, with about a bushel of grass-seeds (collected as above) to every statute acre, and

have always found it to answer; and I prefer mowing land (intended for pasture) the first year after laying down to grass, as it gets a more compact and a firmer sward, and is not injured by the treading of the cattle; the hay will pay for a light dressing of compost as manure, which should be applied as soon as the hay is got; and the land will in every respect be improved.

Clay land is the most obstinate kind of land to manage; it is nearly impervious to the fertilizing influence of the sun and air, as well as of manures, and is tardy and ungrateful in its returns. It is necessary to infuse a stimulus into it, before it will answer; and I have found manures of direct contrary tendency best adapted to that purpose. Hence sand and peat earth, when impregnated with some alkaline virtues, are best calculated on account of their porous natures; even these, without caution and attention, often lose the effect. They should be mixed by slow degrees; for, if ploughed in, they are inclosed by an impervious body, and becomes of no effect, until they are released by another ploughing; and clay land cannot be ploughed but at certain seasons. It is said here, they are either brick or mortar, that is, too dry or too wet. Therefore, in breaking up grass lands of a clayey nature to convert them into tillage, they should be ploughed in November, and laid as open, and with as much surface exposed, as possible, that they may be meliorated by the frost and weather; and in the spring, give them a dressing of manure of a porous nature, and harrow it in along with the seed; this mixes it a little with the soil, and nourishes the vegetation. After getting the crop in autumn, the land should be ploughed, that it may again be exposed to the weather to receive its salutary effects; this meliorates the soil, covers the manure, and preserves it during winter. Ploughing it in spring throws the manure up, and mixes it with the soil. With every spring crop a dressing of manure should be given, and that mixed with the soil by good harrowing, or by drilling the land with a drill-plough, about three inches deep, sowing the seed in drills, and harrowing the land, by which means the manure is mixed with the soil that depth.

The course of crops I find to answer best on clay lands under tillage, is, first oats, next beans, then wheat, and then oats, and (if intended for tillage after) red clover among the oats; but if intended to be laid down to grass, white clover, trefoil, and ryè-grass. Clovers grow more luxuriantly on clay lands than other grasses, having strong, penetrating, branchy roots. Clays bear heavy crops of red clover, when judiciously managed; but after mowing, the land is barren of grass, red clover being an annual grass.

While clay land is under tillage, it should be laid round, to throw off the water, and gutters made, at little distances from each other, to receive the water from the furrows, that it may

not run in great quantities to carry away the soil, and starve the land.

Strong red loams are susceptible, but have a clayey nature. I find them to answer when managed like clays. As they possess land; peat earth when decomposed and made into compost with dung, &c. answers best as manure for them.

Rich black loams possess every quality for vegetation, and in general only want something to open and stimulate them. Hence I find dung, lime, and sand, to answer on the first ploughing; the dung inciting to action, and the lime and sand opening the pores to receive the salutary influence of the atmosphere. They bear all kinds of crops luxuriantly; but the course of crops I find most profitable is, first, turnips, then beans, next wheat, and then barley with grass-seeds, when intended to be laid down to grass, manuring the first and last crop. All kinds of good grass-seeds grow spontaneously upon them, and a mixture of artificial grasses answers best.

About 12 lbs. to a statute acre of white clover and trefoil, and a bushel of rye-grass is sufficient for loams. On clays 15 lbs. should be sown, and a double quantity of grass-seeds. Upon sands that will grow barley, the grass-seeds grow best among it, and among oats on other lands.

Land of a peaty nature, that has been improved and laid down to grass, when converted into tillage, should not be ploughed for more than two crops, if intended to be laid down to grass again; it is very free in nature, but very weak, and soon exhausts itself. It gives the heaviest crops, and the best quality of potatoes; and it is the practice of most farmers in this district of the county of Lancaster, where the growth of potatoes is attended to and managed in a superiour manner, to crop land of this description, first with potatoes, then wheat, among which, in the spring, they generally sow red clover, if they intend to lay it down. This is a profitable course of crops for the moment, but it exhausts the land; and to bring it into good order, an expensive course of manuring is necessary. I find the best method of management to be, to plough it in spring, and give it a good dressing of invigorating, binding manures, and sow it with turnips, and the spring following with barley and grass-seeds. If laid dry, (which all lands should be, previously to being converted into tillage), eating the turnips on the land with sheep would be an improvement on this kind of land, and they would make it more close and firm; being of a soft, elastic nature, it is injured by pasturing the first year after laying down, and is, while under grass, best adapted for meadow land.

The first and great object in the management of peat-land, in its uncultivated state, is to drain it; to do which, where there are large tracts, is often very difficult and expensive. Remove

the cause, and the effect ceases, is an old adage.—The plan of draining, for which Mr. Elkington received a parliamentary reward, though in many cases very useful, is slow in its operation, and particularly on peat land, which is spongy, elastic, attractive, and retentive; therefore, to get land of this kind into immediate use, an open cut or a fough should be brought up from a level that will take the water from the peat to a certain depth, which should be through the peat if possible, and then drains cut in oblique directions at short distances from each other, to discharge themselves into the main fough or drain, which should be carried through the piece of land intended to be drained. The drains should be foughed with stone, and filled with gravel, sand, or any other porous materials that discharge themselves freely; for if filled up with the peat earth that comes out, it soon unites again, (unless it be cut in square pieces and thoroughly dried), and prevents any discharge, but just over the fough; whereas, if the drain be filled with gravel, &c. the peat discharges itself at the sides of the drains into the gravel, &c. with freedom, which it runs through quickly into the fough under it. Cutting the drains, and letting them remain open some time, is a good plan; it makes it better for foughing; and where gravel, &c. cannot be had, gives an opportunity of drying the peat, which, when thoroughly dried, will not return into its pristine state again. As soon as the land is drained, the next object is to get it pared and burned, which is absolutely necessary on uncultivated peat lands; as they contain, if moory, a thick tough coat of heath, which is bad to separate; and if sedgy, &c. deep strong roots, that it is necessary to destroy; these, when reduced to ashes, are good manures, and soon introduce themselves into the peat, the particles being fine. When the peat is drained, it becomes very tough, being firmly united by the fibres of a variety of roots contained in it, and, until separated, will not incorporate with any manures put upon it.

I have found the following management of uncultivated peat-land to answer in every respect.

I have drained, pared, and burned it, and then planted it with potatoes; and, by getting them up, opened and separated the land; then I have put upon it marl and lime mixed, (about a rood of eight cubic (64) yards to the statute acre), every crop for three succeeding crops after the potatoes. Mixing marl and lime dries and separates the marl, and in that state it sooner incorporates with the peat than when put on in its crude state; and by putting it on by small portions at once, prevents its sinking, which, when put on in its crude state in larger quantities, it soon does, as I have before observed.

Beans grow luxuriantly after the potatoes, and barley after them; and while the marl is fresh in peat-land, it grows full crops of red clover, but it soon exhausts it; when laid down to grass, a mix-

ture of artificial grass, about 15 lbs, with two bushels of grass-seeds collected from good hay, answers very well; they should be sown among barley or oats, and the land should be continued as meadow land while under grass.

Not to drain land before breaking it up, that is in any degree wet or spongy, is very bad management, indeed; for when wet, land requires double the trouble and expense to bring it into condition, starves the manures, and bursts the seed in its vegetation; and the corn is lean and unkindly. When drained, the cause is removed, and the effect ceases. But when effectually done, it is a lasting improvement, and a great portion of it should be done by the land-owner. I have done a great deal of draining, and my landlord has allowed me for the cutting of the drains, the stones at the quarry, and for laying the drains; I have carted the stones, filled up the drains, and finished them. This is a fair thing between landlord and tenant; and where draining is necessary, a beneficial improvement to both.

Paring and burning is a ruinous system, when constantly practised; it forces for one crop, but afterwards the land is impoverished, the soil is reduced, and eventually its vegetative powers destroyed.

On uncultivated peat-lands, &c. and old lying meadows that are grown full of rushes, &c. paring and burning is useful and necessary to bring the land into condition, for the swards are so tough and so fast united together by the roots, they contain, that it is almost impossible to separate them by any other means. On lands that have been under irrigation, I have found paring and burning useful, by destroying the seeds left by the water. I have seen crops of corn on such lands of very little value, owing to the weeds vegetated from the seeds the water has left on before ploughing, and which when permitted to seed in the corn have made the land so full, that it has been difficult to get it clean. The dock-seed often floats upon water, and will vegetate when several years old, and when land, that has its seeds upon it, is ploughed, docks generally appear in abundance: and when they have once got rooted, they are very bad things to destroy, the roots being of the polypus kind. Paring and burning the land destroys all the seeds it contains, to the depth it is pared.

When land is pared and burned, I hold it a good and profitable plan to give it a dressing of compost of earth, &c. and spread the ashes and it together while they are yet warm, and immediately to plough them under; the ashes impregnate the compost with their saline virtues, and the compost replaces the soil destroyed, and gives duration to the effects of the manure.

Paring, or push-ploughing, as it is provincially called here, should be done early in spring, and the sod, on cultivated lands, cut, from half an inch to an inch deep, and on uncultivated lands, from an inch to two inches deep, and the breadth from

nine inches to a foot; the length depends upon the toughness of the sward, and the strength of the workman. If a succession of fine weather ensues, the fods need no removing until they are put upon fires to be burned; but if wet weather ensues, it is necessary to set them upon their edges in a semicircular or angular form, which is provincially called win-rowing, I suppose from their being put in a position that the wind can blow through them. When the fods are dry, they are laid round locks of straw, or faggots of furze, &c. until they are from three to six in thickness, according to the dryness of the fods, and sort of soil they are of. Care should be taken to lay the fods, so that a free circulation of air may pass between every one, and that the grass side is downwards; a hole is left to set fire to the furze, &c. which, as soon as the fire has got full hold of the fods, should be stopped up, and the fire carefully attended to, and the fods shifted according as it burns more on one side than another, which the wind will cause.

When grass lands are converted into tillage, the opportunity should be embraced of removing all useless banks, copse, &c. and where the headlands are higher than their annexed lands, of reducing them to a proper height; also of replacing any dead wood, and putting quicksets in the places, and of improving the fences generally. The corners of the field which cannot be ploughed should be digged, and all the land made to grow corn, or something useful, as the parts neglected not only serve as seed-beds for all kinds of noxious weeds, (which, when ripe, the winds sow on the cultivated lands), but so much land is lost, which pays the rent and taxes (in proportion) as the others, and, instead of being useful, is prejudicial. I have always practised the above plan; it gives neatness to utility; and the Society of Agriculture at Manchester honoured me with a silver-cup;—a flattering token of their approbation of the neatness of my farm.

In reducing the height of head-lands, the surface should not be taken away; if it be, the soil under will be barren, until it has partaken of the fertilizing effects of the atmosphere, and which soil, if ever so well manured, requires a long time to make it equal with the other land, although it be equally deep. A good plan is, to make a trench at one end of the head-land, and throw the surface soil into it, until it is the height required, and what soil there is to spare, to throw it out of the bottom, and so on until the head-land is reduced to the height required. The bottom soil, by being made into compost, soon becomes of a fertilizing quality, by the fermentation it undergoes when compost is properly managed.

When copse and banks, &c. are removed, they should be taken nine or ten inches below the level of the land, (if the soil be so deep), and the space filled up with some of the surface soil, which should be laid aside for the purpose.

When grass lands are converted into tillage with an intent to lay them down to grass again, after a certain period, without injury, they should be manured for every other crop at least, and always with the last crop; and compost (composed of some fertilizing manures and earths of a different nature to the land it is to be laid upon) is best for land under tillage; indeed for land in every state I have found it most beneficial. On grass lands it sooner introduces itself among the roots of the grass, and on lands under tillage sooner incorporates with the soil; and, when properly managed, sooner conveys its fertilizing qualities, and in a more equal manner and with less loss of its virtues than any kind of dung in its crude state.

I have before observed, that too much attention cannot be paid to compost in its several stages and operations. I have found that the art of making compost should be studied with due attention, and that the difference of the value of compost properly managed, and that made in a common and negligent manner, is to a farmer a very serious consideration. The method of managing compost, which I have practised with profit and success, is as follows: I previously prepare the materials, and, according to the quantity of each material, proportion the thickness of each layer, not making any more than six inches, laying first a layer of one material, and then of another, and so on alternately, gradually decreasing the breadth of the heap, until it is reduced to a point at the top, forming an angle. If the materials are likely to be tardy in beginning to ferment, I put a few lumps of quick-lime into each layer, and beat the sides of the heap with a spade, to keep out the weather. I then attend its fermentation with as much care as a brewer does his liquor; and the moment I find that the heat begins to abate, I turn the heap over and chop it very fine as I do it, and throw the outsides and bottom of it into the middle of that made by turning it, preserving the same form as before, and again beating the sides to keep out the weather. By turning it while yet hot, a fermentation takes place in the second heap, and by throwing the outside and bottom of the first heap into the middle of the second, the whole mass becomes completely putrified; all weeds and extraneous matter are destroyed by the fermentation, and the compost is in a perfect state when it has lain about two months after the last turning, and presents a mass of matter superiour as manure (in my opinion) to any other. Keeping the weather out of it is a very material point; but to keep up the fermentations, until the whole mass has thoroughly partaken of its effects, is the great object to be attended to.

By making all manures into compost with earth, (of which useless banks, copse, cleaning of water-courses, gutters, ditches, &c. in general offer a sufficient quantity), the soil, which is lost

by variety of means when lands are under tillage, is replaced, and the thickness of the soil rather increased.

In converting grass lands into tillage, care should be taken that it is done in a manner that the prices of cattle may not increase beyond their value, by their numbers being decreased by converting grass lands into tillage; this would be attempting to remove one evil, at the certainty of creating another.

By extraordinary management extraordinary crops may be obtained; and by it and the following method of cropping land, the same quantity of stock, cattle, &c. may be kept as at present, and an increased quantity of corn grown, by converting grass lands into tillage. Suppose a piece of land be ploughed that grew hay as winter food for a certain number of cattle, stock, &c. they must have a substitute, if kept; but if other lands are laid down to grass for the purpose, the object of growing more corn is not obtained; now if one half of the land converted to tillage be cropped with potatoes, and the other half with grain, then the half that had potatoes with grain, and the other with potatoes, and so on alternately, until laid down to grass again, the potatoes off one half of the land will keep more cattle, stock, &c. than the hay off the whole; and potatoes are the best substitute for hay for horses, being a very wholesome nutritious food for that animal as well as for every other.

If old pastures are broken up, some other land must be laid down for pasture; and the only advantage the tenant can reap from it will be (perhaps) a better crop of corn from the fresh land; and if he lays the land down well that is for pasture, the expense of manuring, &c. will be equal to any advantage he will receive from ploughing the other. No increase of rent should take place; but the tenant should buy as much manure for the land laid down to pasture as the increased value of the crop of corn, which, perhaps, on an average, may be 4*l.* per acre, and also to provide all grass-seeds at his own expense.

It may be said, Where is all this extraordinary manure to come from? The earth contains inexhaustible stores, which are very little known; and manures in general are injudiciously managed.

Would it not be an object of importance to a land-owner, to know what his land contained in its bowels, and in what manner such stores might be applied in agriculture in a beneficial manner; also to have the advantages pointed out, which situations offer for draining, irrigation, &c. They are neglected by many eminent good farmers.

If, from what I have wrote, any useful information can be drawn, I shall feel myself happy in rendering a service to the community.

W. GREENALL.

ENUMERATION OF PATENTS LATELY ENROLLED.

Feb. 27, **G**EORGE BODLEY, of Exeter, Devonshire, Ironfounder; for a portable stove or kitchen range for the purpose of dressing victuals.

27. George Hodson, of the city of Chester, Ash-manufacturer; for a method of preparing or manufacturing fossil or mineral alkali from various substances.

27. Richard Pottinger, of the parish of Ealing, Middlesex, Engineer; for an apparatus whereby persons riding in carriages may on occasions, and in circumstances of imminent danger, liberate themselves, and escape impending mischief, by freeing the horse or horses instantly from the carriage.

27. John Lewis, of Lamb's-buildings, in the parish of St. Luke, Old-street, Middlesex, Manufacturer; for a method of preventing accidents by a horse or horses drawing a carriage or carriages.

March 5. John Donaldson, of the city of Bristol, Glass-manufacturer; for a method of making all kinds of Glass in a more expeditious manner than hitherto attempted.

9. Obadiah Elliott, of the parish of St. Mary, Lambeth, Surrey, Coach-maker; for an Eccentric anti-labourist spring curicle-bar, for one or more horses, upon a new and improved construction.

9. Thomas Loud, of Hoxton, in the parish of St. Leonard, Shoreditch, Middlesex, Musical Instrument-maker; for improvements in the action and construction of upright piano fortes.

9. James Mitchell, the elder, and James Mitchell, the younger, both of the hamlet of Poplar and Blackwall, Middlesex, Rope-makers; for their farther improvements in the manufacturing of cables and hawfers.

9. Christopher Wilson, of the Grange Walk, in the parish of Bermondsey, Surry, Tanner; for a method of making and obtaining a vacuum or vacuums whereby powers are gained or obtained applicable to the improvement of hydraulical pneumatical, and mechanical machines or engines, or any others where fluids, steam, or vapours may be used or applied.

24. Peter Litherland, of Liverpool, Lancashire, Watch-maker; for a mode of keeping musical-instruments in tune, and of preserving the strings from breaking.

24. Sebastian Erard, of Great Marlborough-street, in the parish of St. James's, Westminster, Middlesex, Musical Instrument-maker; for improvements in the musical instrument called a harp.

24. Philip James Meyer, of Great Portland-street, Middlesex; for a machine to prevent danger to persons driving, or being in carriages, single-horse chaises, or other carriages, by horses being restive, breaking or running away with such carriages, or backing, in consequence of taking fright while harnessed thereto.

24. James Ashworth, of Tottington, in the parish of Bury, Lancashire, Dyer and Colour-maker; for a method of making iron-liquor for the use of dyers and printers.

24. Henry Grant, Esquire, of America-square, in the city of London; for a machine for the purifying and clarifying of

of water, whereby the most putrid or foul water may be rendered perfectly sweet and clean.

March 24. Richard Trevithick and Andrew Vivian, of the parish of Camborne, Cornwall, Engineers and Miners; for methods of improving the construction of steam-engines, and the application thereof for driving carriages, and for other purposes.

— John Williams, of Portsmouth, Hampshire, Gentleman; for a method or means of disengaging horses from carriages.

— Edward Massey, the younger, of Stanley, in the parish of Stoke-upon-Trent, Staffordshire, Watch-maker; for an instrument or apparatus for taking soundings at sea with more certainty and correctness than heretofore, and for other nautical purposes, and matters connected with, or relating to, navigation.

— 30. Thomas Connop, of Manchester, Lancashire, Machine-maker; for a machine for batting, opening, and cleansing, cotton, wool, and sheeps-wool.

CRITICAL CATALOGUE.

Peace being at length ratified, the promotion of its blessings becomes the most important subject of consideration with political economists and practical statesmen. Publications on so interesting a subject are at the present moment deserving of peculiar notice; to such, therefore, we deem it our duty to devote the very earliest attention. The first production which we shall in this number notice is general; and from it we shall proceed to works of more special discussion.

I. *On the probable effects of the Peace, with respect to the commercial Interests of Great Britain; being a brief Examination of some prevalent opinions.* Hatchard, 1802. pages 75. 8vo.

The object of this work is to convince our countrymen that we have sufficient reason to expect the continuance, if not the increase of the blessings we have hitherto enjoyed, provided we are not abandoned by the wisdom, courage, and activity, which have made them ours. This argument the author brings forward chiefly in queries. He first proposes to enquire what may be the amount of property in England belonging to foreigners, distinguishing how much of it is in the funds? Secondly, at what is the proportion of foreign deposits which will be drawn from England and remitted abroad, in the first twelve months after the ratification of the definitive treaty, distinguishing how much will be drawn from the funds, and how much from private hands? He admits that the answer to these questions must be conjectural: but it is the general opinion, he observes, that the whole amount of foreign property, in our funds does not exceed thirty millions, of which five sixths are to be placed to the account of Holland, Flanders, Germany, Italy, and Switzerland. Respecting the second query, he from a detail of observations not without weight, thinks that not more than three millions of foreign property will within a year be drawn from the British funds. He urges two strong reasons in favour of his hypothesis, that but a small proportion of the property will be drawn out: First, the difficulty in great numbers of instances of ascertaining the representatives of proprietors, who have fallen during the arduous contests: Secondly, the

distrust which must for a considerable time attend foreign securities, private, joint stock, and public. On the other hand, we must take into account the large outstanding demands we have abroad for manufactures unsold, and debts unliquidated, owing to the war; this he thinks we may safely reckon as a capital restored to us, and which will operate as more than a set-off against any claims that may arise out of the demands, which are the subject of this query. A third query is, what is the estimated amount per annum of imports and exports from and to all the colonies ceded back to France, Spain, and Holland, by the peace? From Trinidad and Ceylon, he augurs advantages that will greatly overbalance those that might have accrued from the settlements ceded. To their present possessors the relinquished settlements must be long unproductive from want of capital. The extreme penury among all persons in trade throughout the French republic (with the exception only of a few banking houses in Paris,) and the difficulty of raising money for regular business, unless at a very exorbitant rate of interest, are circumstances directly against an extension of trade and manufactures, the cause of which must be very obvious to any person who will make the enquiry. The principal part, if not the whole, of the capital, which France may be able to call home at the peace, is the property of emigrants, whose habits are not commercial, and is more likely to be employed in agriculture than in trade. Both exports and imports of Britain will, our author thinks, be considerably increased. Our author enquires whether our artificers, tempted by cheap living, and other less laudable motives, may emigrate to the great injury of these kingdoms. On this momentous subject he is extremely cursory, but on the whole thinks that France does not contain inducements sufficiently strong to produce much emigration from the laborious and useful classes in Britain. He is of opinion that France will not in many instances rival the productions of British capital, industry, and skill. From peace, he augurs, increasing prosperity to Great Britain.

II. *The Crisis of the Sugar Colonies; or, an Enquiry into the Objects and probable Effects of the French Expedition to the West Indies; and their Connection with the colonial Interests of the British Empire. To which are subjoined, Sketches of a Plan for settling the vacant Lands of Trinidad. In four Letters to the Right Hon. Henry Addington, Chancellor of the Exchequer.* Hatchard, 1802. Octavo pages 222.

These letters were written at the season of prevailing doubt concerning the sincerity of Bonaparte. The author under this impression, proposes enquiries of considerable importance, favourably even as the negotiation has turned out. First, What are presumably the objects of the French West India expedition? Secondly, What consequences interesting to Great Britain are likely to result from it? Lastly, What measures does the probability of such consequences demand from the prudence of the British government? Under the first head he enters into the condition of Negro slaves, which state, he thinks, intended to be revived. The great and urgent motive by which the counsels of the Republic may be presumed to be prompted, in regard to the West Indies, is an impatient wish to restore the agricultural and commercial value of her colonies. The re-establishment of

slavery is the only effectual means of promoting the productive cultivation of the West Indies. Negro freedom is not only incompatible with the prosperity of the colonies, but with the security of the planters and the supremacy of the government. These positions, illustrating by very cogent reasons, he infers from its interests an intention in the republic to re-establish the thralldom of the Negroes. He enforces his reasonings by a view of the measures actually pursued.

Considering this to be the object of the French expedition, he, in his second Letter, enquires, what consequences interesting to Great Britain are likely to result from the depending West India enterprize of the republic? Under this head he considers the probable issue of the expedition in the French colonies. Secondly, The effects its success or failure are likely to be produced in the British West India islands. The coast of St. Domingo he doubts not will be easily subjugated; but in the internal parts of the country he thinks resistance will be obstinate and formidable. He examines the motives which inspire, and the means which maintain resistance. The first, the love of liberty and independence. The second, the numbers and strength of the Negroes, the nature of the country, and the climate operating respectively on northern and tropical constitutions. From these circumstances he concludes, that the Negroes will be ultimately successful in resistance, especially in St. Domingo.

From this supposition he, in his third Letter, enquires into the consequences likely to accrue to Britain. These he considers in three different lights. First, should the undertaking fail? Secondly, should matters be compromised? Thirdly, should the French be completely successful?

Should the Negroes prove successful over the French, Jamaica would be in most imminent danger. The Negroes of Jamaica might soon be infected with the same spirit, and the revolutionary contagion would spread through our plantations, and these valuable possessions might be entirely destroyed or wrested from the British proprietors.

If a compromise should take place, and the sovereignty of the republic be acknowledged, while Negro liberty was maintained, behold in this single island a population of at least two hundred thousand adult male Negroes, of whom, probably, a third part are already inured, in some degree, to arms, at the door of our most valuable settlement, and ready to assist the ambition of the republic for any purposes not adverse to their freedom, but most of all for that of conquering the slave peopled islands of Great Britain. Suppose France completely to succeed, her power can be supported only by an immense force. That military force will be extremely dangerous to the British West Indies. The maintenance of our possessions would require constant armaments, the expence and waste of which in so noxious a climate, would far over-balance the advantages of our sugar plantations.

In his fourth Letter he enquires "what measures should these prospects suggest to the prudence of the British government?" Actively to obstruct the French operations, would be to provoke a new war, but to further them, would only be to hasten, perhaps eventually to augment, the jeopardy of our own colonies. Though the protraction of discord or civil war in Guadaloupe and St. Domingo, is what

humanity may regret, it is the best political hope of the British interests in the West Indies. To accelerate the pacification of St. Domingo would be to place more speedily at the disposal of the French government at least sixty thousand most formidable troops; to which Guadeloupe and Cayenne would probably add near twenty thousand soldiers of the same description.

Our author proceeds to the means of defence against any evils which might be apprehended from the French islands. The most effectual security would, he thinks, be the abolition of the slave trade, on which subject he advances no new arguments, but states some parts of the old with considerable force and eloquence.

He now proceeds to a view of the advantages and disadvantages of Trinidad, "That you have (he says) the means of immediately opening a new slave colony of great agricultural capacity, is indeed true; nor can it be denied that commercial enterprize would probably make rapid advances in its settlements. Open the flood-gates of the Guinea market upon this new soil, and it will soon be saturated with many millions of British capital spent in improvements; but before you plant, it is prudent to enquire who is likely to reap the harvest. Before any proportionate returns for this great capital can be expected, the perilous crisis which we have been contemplating, will most probably arrive, and then if your old colonies are to be in jeopardy, let us enquire what better security will you have in the new? Negroe freedom, he considers, as the most effectual means for removing the apprehended evil. But as what he says on this subject has been often said before, and often answered, we shall not repeat either his arguments or the common animadversion. The pamphlet is on the whole well composed, though too authoritative and dictatorial.

III. *Serious Reflections on Paper-Money in general, particularly on the alarming Inundation of forged Bank Notes, with Hints for remedying an Evil threatening Destruction to the internal Trade of the Kingdom. In which are included Observations on the Enquiry concerning the Paper Credit of Great Britain.* By H. Thornton, Esq, M. P. Thurgood, 1802, pages 62.

The present work opens with a Dissertation on Paper-Money and Banks, including the history of various companies of that kind; illustrating the plans and conduct, both useful and hurtful, by which several banks have been distinguished, exemplifying the nature and effects of paper currency. These enquiries bring our author to a view of the Bank of England. He exhibits a sketch of the purposes of this institution, and its systems and plans of conduct. He endeavours to shew that a great part of the transactions of the Bank, during the late administration, was contrary to the interests of the country. The multiplication of paper-money, beyond the capitals at least, the current coin of the issues of notes, he considers as a great cause of the high price of the necessaries of life. Paper currency he still considers as necessary in the present state of society. In this part of the pamphlet there is little novelty. The objections to Bank paper currency, as a substitute for gold, have been often stated in the parliamentary debates of 1797.

That paper credit has enhanced the price of the necessities of life is most probably true. But in our author's opinion that evil has arisen much more from the fictitious bills of adventurers speculating without capital, than from the Bank of England notes, to discharge which there was even at seasons of the greater alarm abundance of effects, though not at one time in gold and silver coins.

The observations on Mr. Thornton's Enquiry chiefly rest on the frequent forgeries on the Bank. Mr. Thornton has, in a few words, very clearly and strongly stated the actual case of March, 1797. "If (he says) every bill and engagement is a contract to pay money, the two parties to the contract may be understood as agreeing, for the sake of a common and almost universal interest, to relax as to the literal interpretation of it, and as consenting that money should mean money's worth, and not the pieces of metal; And the Parliament may be considered as interposing, in order to execute this common wish of the public." In answer to this general position, which is certainly true, inasmuch that a piece of Bank paper as easily purchases any given quantity of wares as silver and golden coins amounting to the same denomination of value. Our author mentions a special inconvenience which may be easily guarded against. He alleges the facility of forgery as a reason for discouraging so extensive Bank circulation. He might as well alledge the facility of counterfeiting gold coin as an argument against its currency. Counterfeit pieces are much more frequent than forged notes, as general experience will readily testify. The forged notes and the base coin may be easily discovered by proper vigilance and attention. Our author, however, very accurately states the processes of forgery, and the most probable means of detection.

IV. *The Utility of Country Banks considered.* Hatchard, 1802, 86 pages.

It were to be wished that persons writing on practical branches of some practical subject would forbear long speculative introductions, or if they did enter on such topics, would avoid dwelling on principles admitted as fundamental axioms. In ethics and politics, as well as in geometry, a process of reasoning may require the statement of undeniable propositions recognized on enunciation; but will not require enlargement. There are many truths in subjects of moral contemplations as little doubted in certain stages of knowledge as the intuitive propositions of mathematics. That money is a medium of exchange, and that credit is founded on an opinion of solvency requires now no more to be illustrated than that two and two are equal to four. The introductory part of this work, explaining the nature of money and of credit, though just and true, is useless. The history of Coinage and of Banking is unquestionably authentic, but is trite, yet these preliminaries occupy a third part of the work before we come to its professed purpose, at length our author comes to country Banks. On this subject he mentions the various advantages which may be derived from these institutions, without noticing the disadvantages. In reality this is a treatise on the benefits of which country banks may be productive rather than those which they actually produce. In this view the treatise possesses considerable ingenuity and merit.

While provincial Banks maintain the confidence of the public, and by an unfulfilled integrity, and by a liberal accommodation to the mercantile

part of the community, promote the industrious endeavours of an enterprising people, British commerce must flourish. By extending the trading capitals of the merchants, the wealth of the country is put into a progressive state of improvement, and from the largeness of the capitals employed in trade, we must command a great superiority over other nations. Country Banks, by promoting the employment of the poor facilitate their sustenance, and thus advance population. To these establishments, according to our author, are chiefly owing the immense improvements of our commerce and manufactures, recently reaching upon agriculture. Through the Country Banks, were in a great degree, contributed the means of war: without the intervention of paper currency, all the real gold and silver of the nation would not have paid the expences of one year of the war. The gold and silver of the country can be more readily collected by the circulation of country Bank Notes, than those of the Bank of England; each Bank being indeed a depot of cash which would otherwise necessarily be employed in the circulation of its adjacent circuit. They also increase the quantity of those commodities, which during a war serve as the great medium of payment to a commercial country.

As grand political machines, moving the great levers of the empire, and raising the ponderous powers of war, National Banks may be contemplated as national bulwarks, towers of strength, and edifices of defence. What the Bank of England is to government and merchants of the metropolis, Country Banks are to traders and gentlemen of landed property, in the country. They assist them in their necessities, and aid them in their enterprises. By discounting the bills of the former, they render money plentiful, where it otherwise would never appear. At a time when money was not to be borrowed on mortgage, many men of the greatest landed property could not have raised money for their occasions, but by means of the Country Banks. At the time when government opened its subscriptions for the war, and levied the triple assessment, money was not to be had on mortgages, and such persons as had not ready money, whatever might be the amount of their real property, were obliged to borrow from Country Banks. Many of the canals, intersecting the interior parts of the kingdom, and opening a communication from the most inland counties to the furthest extent of navigated seas, could never have been effected, but from the facility with which money was obtained from the Banks where the undertaking was carried on. Many, if not all large manufacturers, have received continual or occasional accommodations of the same kind. Agriculture, and all the spirit of farming, never was pursued with such ardour in its various branches as at this present time, and though we must view the large profits as the spur, yet we must consider the Country Banks as the means by which these large farming concerns have been carried on.

Our author considers the common objection to Country Banks as the means of facilitating monopolies on which his observations deserve considerable attention. Country Banks, he thinks, by promoting competition, tend to lessen instead of increasing the price of provisions. It is (he says) highly improbable, therefore, that the Country Banks, by aiding many persons to speculate in corn, are the means of enhancing its price, for it is clear that a general aid to specula-

tors must have a contrary tendency, and effectually do away monopoly. If Country Banks had really advanced large sums of money to many persons to purchase corn, the greater the number of persons so employing their capital, the lower must necessarily have been the price—competition produces cheapness. It is evident, therefore, that the high price of provisions is totally independent of any system of banking known in this country. As a source of revenue Country Banks are peculiarly useful. The employment of the poor, and encouragement of industry, by facilitating the comforts of marriage, may be considered amongst the happiest effects of an increase of riches to any nation. An increased population, with an increased means of support, forms the strength, and is the sure sign of a tendency to improvement in any state—increased population causes an increased consumption of those articles which gives rise to and support the various trades, arts, and manufactures of a country. An increased consumption augments the revenues by an increased addition to the duties and taxes paid in great variety of ways to government.

On the whole, this work rather exhibits the possible advantages of Country Banks than the actual, and is more properly the pleadings of an advocate in favour of that system, than the cautious and considerate reflection of an impartial political economist.

V. *ESSAYS on AGRICULTURE, with a PLAN for the speedy and general IMPROVEMENT of LAND in GREAT BRITAIN.* By BENJAMIN BELL, F. R. S. E. Member of the Highland Society for the Encouragement of Agriculture in Scotland, and Honorary Member of the Society of Agriculture of Bath, and the West of England. Robinsons, London; Bell and Bradfute, Edinburgh; Archer, Dublin. 1802, 8vo. 550 pages.

Before the æra of the American war, the British nation were, to a considerate degree, careless of the objects of internal improvement, in comparison with their Trade and their Colonies, on which they believed the strength and prosperity of their empire fundamentally to depend. The prevalence of this spirit, and its unhappy effects on the state of the country, are, with admirable expressiveness and pathos, and at the same time, with perfect fidelity, depicted, in the poem of the *Deserted Village*, by GOLDSMITH. The ills and losses of the American war were perhaps more than compensated by the change which its issue occasioned in the employment of the moveable capital of the nation, and in the general views of what deserved to be chiefly cultivated, in order to restore, maintain, and augment the public wealth. From that period, commerce and navigation have not, indeed, lost their ancient importance in the estimation of the people of this country; but INTERNAL IMPROVEMENTS have come to be continually more and more regarded as the VERY BASIS of all commercial prosperity. Britons have learned to think colonial acquisitions of very inferior importance. They have learned, that the consummation of their prosperity and political greatness would be found in rendering themselves independent of all other nations and countries, for the necessities and conveniences of life, and by rendering other nations and countries, at the same time, more or less dependent, for such things upon them. The war which, after conquering the principles against which it was waged, is now happily at an end, aug-

mented, during its continuance, our foreign trade, at the expence of a part of our accumulated moveable capital, and of a partial interruption of the progress of our domestic improvements. It is natural, that upon the restoration of peace, capital to a great amount, should be restored to the employment of internal industry. And for the present, we see ourselves shut out from the trade of the Continent, by the power and invidious management of the French, in a manner which ought to excite us to a new earnestness in cultivating every advantage we possess for internal industry and traffic.

With these views of what the present welfare of Britain demands; we cannot but rejoice in the publication of such a work as this by Mr. Bell. The operations of Agriculture, not like those of the watch-maker, the optician, or the chemist, are performed in the open air, in the sight of all the world, in such a manner that a certain knowledge of them enters, of necessity into the general system of the common sense of the country, that it is impossible for any person living in the country, for any man who has been educated in it, even for any one that travels often through it, not to become, with common intelligence and power of observation, a master of all that knowledge of their profession which is prevalent among our common farmers. It is a truth which holds universally, that the working husbandmen have contributed less than any other class of labourers to the improvement of the processes and the general system of their own profession. Look at the Engravings which have been published by Sturt from old illuminated manuscripts, and which represent, among other things, the instruments employed, a thousand years, in Anglo-Saxon husbandry: you shall find those implements to have been the very same which we still employ. The old Roman plough described by Virgil is still in use in the Orkney and Shetland isles, in consequence of its being introduced into Britain by the Romans when they were masters of the Southern parts of this isle. In Russia, in Sweden, in Denmark, in Germany, France, and Italy, not the working farmers, but the Clergy, the Country Gentlemen, and the Philosophers studious of physical and æcumenical science, have been, confessedly, the authors of every improvement which has been happily accomplished in any of the branches of Rural Economy. In Scotland, though the farmers in the South-East districts of that country, be now a very enlightened class of men, yet the Clergy, the Country Gentlemen, and patriotic men of science, such as the late Lord Kaimes, have been the authors of all Agricultural improvement. In England the fact has been perhaps still more eminently and remarkably the same. *A priori*, therefore, we should expect from Mr. BELL, a member of a learned and scientific profession, himself a man of science, a landholder, a farmer, and a man possessing an extraordinary portion of the common sense knowledge of the affairs of life; that any thing of his writing on subjects belonging to the province of Rural Economy, should be highly worthy of general notice. If we mistake not; the public will readily own, that such an expectation is fully justified by the tenor of the work of which we proceed to give an analysis.

It consists of a Dedication, a Preface, four Essays, and three papers in Appendix.

The DEDICATION addressed, by permission, to the King, men-

ions, with happy and delicate praise, the advantages which British Agriculture has derived from the example of his Majesty's personal care for its improvement; eloquently repeats some of those eulogies which have been lavished in every age, on the employments of husbandry; justly asserts, that the increasing commerce, manufactures, and population of the British Empire, demand increased attention to the improvement of the great art which supplies the materials of manufacture and the necessities of subsistence; concludes with loyal wishes such as will be re-echoed with fond enthusiasm from the heart of every Briton.

THE PREFACE relates the circumstances which engaged the author to write and publish this book. Three of the Essays having been honoured with the approbation of the late Dr. Adam Smith, were, first printed three years since, in a form smaller, and much more imperfect, than that in which they now appear. This is but the first volume of a system which is intended to comprehend all the most useful information on subjects belonging to Agriculture which the author's reading and experience shall enable him to unfold. He wishes to excite the farmers in every district in these kingdoms to hold frequent meetings for the purpose of mutually informing themselves concerning the general state of Rural Economy, and in order to supply those statements of facts to their representatives, on which alone can the legislation of rural economy, be prudently founded. He calculates that British husbandry pays indirect taxes to the amount of 12,000,000*l.* sterling annually. He gives his authority in favour of that opinion which considered the late scarcity as founded upon a great deficiency in the consumption compared with the produce. And, he insists urgently on the necessity of diminishing the burthens of taxation under which Agriculture labours, if we desire to augment the returns it is to yield to due abundance.

The first of the Essays is on the *Taxation of Income*. It points out the disadvantages of perpetual dependence on the Funding System for the extraordinary supplies which may be wanted by government; reprobates the injustice of taxes falling on consumption solely; recommends the equity and stability of a general tax on income; proposes modes of apportioning the income-tax on Farmers, different from those which were actually followed; and even suggests the reasonableness of extending the income-tax to classes of persons whose fortunes amount not to full 60*l.* a year. As the abolition of the income-tax has taken away, for a time, the power of this subject of discussion over the general curiosity; we shall not enter into farther detail of what Mr. Bell has advanced in regard to it. But, it were injustice to deny, that this Essay is pregnant with ingenious reasonings and with important facts applicable to the improvement of the whole science of public economy.

In the second of these Essays, which is on the subject of the *National Debt*, the author expresses sentiments friendly to the abolition of the Funding System. He regrets that a great moneyed interest should be fostered at the expence of all that is the best adapted to promote internal improvements. He even expresses an opinion,—in which, however, we cannot concur,—that all the wars in which the British nations have been engaged, since the Revolution, might have been carried on with the same vigour and effect, if the supplies had been al-

ways levied within the year, as by the plan which has furnished those supplies chiefly by annuities and loans.

The *third* Essay is expressly on the *Improvement of Agriculture*. For this end, the author proposes, that præmia to the amount of about 6,000*l.* annually, for every county, should be distributed by government, to encourage the efforts of those by whom the operations of husbandry are carried on. He proposes, that the Board of Agriculture, with subsidiary county-establishments, should have the care of dealing out these prizes. Potatoes he earnestly recommends, as one of the fittest of all articles of green crop to be raised in alternation with corn. About 500,000*l.* a year, is the sum which he requires to be appropriated by the nation, in præmia for the encouragement of rural improvements. He proposes, that 2,000,000*l.* more should be annually distributed in loans to the improvers of waste lands, to be repaid at the end of ten years. He relates, that the influence of præmia, in promoting agricultural improvements has been ever conspicuously great in those counties in which there has been opportunity for it to operate. And his great object is, to procure the regular legislative institution of County Boards or Societies of Agriculture; in whose halls should be deposited models of every new instrument useful in husbandry; and at whose meetings, there might be exhibitions of cattle and whatever else in husbandry should be produced in competition for the public prizes.

For the farther improvement of Agriculture he gives a recommendation, in which we most earnestly concur with him; that the manufacturing Artisans should not be collected together in great towns; but distributed over the country in families or hamlets, each family at least cultivating a kitchen-garden, or even adding to that the keeping of a cow, and the culture of potatoes on a small field of an acre or two of ground. He proposes, also, that the extent of about 20 acres of land should be allotted to every Clergyman in England and Wales, as a glebe similar to the glebes of the Clergy in Scotland; and expresses reasonable hopes, that, by the care with which they would cultivate these portions of ground, the general cultivation of the country might be greatly extended. He calculates, that, upon the plan which he has proposed, two millions of acres might be within ten years, improved from the state of moor, morass, and other waste land, to yield a new supply of six millions of quarters of corn, annually, to prevent the return of such scarcity as we have lately experienced.

Scarcity and Dearth of Provisions are elaborately treated of, in the *fourth* Essay. Mr. Bell justly observes, that the season at which these are the most severely felt, is never the time at which a permanent plan for their future prevention can be the most successfully adopted. The necessities of the moment are to be provided for by temporary expedients, in which all relations, save that of instant relief, are disregarded. He induces facts to establish the belief, that the late scarcity of grain in these kingdoms was occasioned by real deficiency of produce, not by the engrossing arts of the merchants. He skilfully proves, that the frequent return of years of scarcity, is, instead of being profitable, necessarily ruinous to the Farmer. He shews, that it is for the interest of the public, that Farmers should be thriving and opulent. There is admirable benevolence and ingenuity in the reasonings which he introduces to reconcile the public to the sight of the general prosperity and riches

of those whose labour finds them bread.—And we regret that we cannot here conveniently extract those which we think to be truly the best observations which we have ever seen on the subject.—He argues, in a manner which we can perfectly approve against the necessity of penal laws, to prevent, in this country, the monopoly of grain. He insists, that the effect of the old laws against monopoly and engrossing, is actually to render almost all articles of provisions 20 per cent. dearer than they otherwise would be in the markets of London. On the size of farms, he throws out notions perfectly according with those which were formerly stated on this subject, in an Essay in this Magazine. He states, what we are sufficiently disposed to believe, that ground will when completely cultivated, yield six times as much as in the ordinary culture in which it at present appears throughout Scotland and England. For the extent of farms, he fixes a number of acres varying, as the ground is in more or less perfect culture, from 60 to 600 acres. The reader will recollect that we wished the rack-rent to be taken as the common measure of the size of farms; and desired, that it should vary with circumstances from 100*l.* to 300*l.* a year. On the subject of paper-money and its influence on husbandry, the author reasons that banker's notes are like any other commodity in trade, and cannot be circulated otherwise than in proportion to the actual demand for them. He favours the existence and even the increase of country-banks. These he describes as useful to Country-gentlemen and Farmers, just as banking-houses in town are to the Merchants. He is adverse to the design of plowing up the old grass-fields, for the supply of scarcity of grain. He denies the war to have materially operated as a cause of the late scarcity.—He estimates the total yearly consumption of Britain in grain, at 48,000,000 of quarters. He estimates the total average exportation of grain from the northern counties of Europe, from the Mediterranean, and from the United States of America at 7,200,000 quarters. In the whole, he concludes, that the grand causes of the late scarcity existed in the burthens of taxation with which our agriculture is oppressed, in the preference which has long been given in these kingdoms to manufacturing and mercantile exertions, and in the want of that great national and legislative encouragement which husbandry as comprehending our principal manufacture, and the most essential part of our internal trade ought certainly to obtain.

No I. of the Papers in the Appendix, contains the substance of two Memorials which Mr. Bell presented to Government in the year 1783 and 1800, with a view to obtain a Survey of Population, &c. in these kingdoms. No. II. contains the substance of Memorials which he offered, in the years 1783, 1797, and 1800, on the means for the readiest relief in Seasons of Scarcity. No. III. exhibits a series of Queries which he addressed to Country Gentlemen on the subjects of these Essays, with the answers which were returned to him.

Of these Essays in the whole, we can, with truth, affirm, that they exhibit an uncommonly happy application of sound common sense, of various and accurate knowledge of the affairs of ordinary life, and of no common skill in the principles of œcumenical science

as taught by Smith, to those subjects in the political and rural œconomy of Great Britain which the necessities of the times have, of late, the most urgently forced upon general attention. The fourth Essay, much superior in merit to the three by which it is preceded, contains a greater number of ingenious and sensible observations on the subject of dearth and scarcity, than we know to have been brought together in any other late publication on the same topics. The style and tone of composition in which the whole is written, are perspicuous, flowing, unaffected, and not without due animation. Though there be many of Mr. Bell's opinions in which we cannot agree with him; yet we should be ashamed to deny him this just praise. And we doubt but the Public will receive, with pleasure, the continuation and completion of his design.

HISTORY.

National Transactions.

THE TURKISH EMPIRE remains in the same miserable, divided state, in which it was, by the latest accounts of last month, represented to subsist.—Lord Elgin, the British Ambassador, has left Constantinople; and Mr. Stratton remains in the charge of the affairs of the embassy.—The interposition of the Turkish Government does not appear to have finally settled the dissensions in that which has been called the Republic of the Seven Isles: those Isles remain yet in an uncertainty, as to what master they are ultimately to obey: the French incline to dispose of them with the authority of masters; they are said to have been offered to the King of Sardinia, in compensation for Piedmont, and by him refused: it is not impossible but they may yet be left in the condition of a petty independent Republic.—In Egypt, as soon as the British and Sepoy troops shall have finally withdrawn, by the Red Sea, to the East, new contentions are likely to arise between the interest of the Beys, willing to preserve the country in its ancient independence of almost all but the Mameluke soldiery and their Chiefs; and, on the other side, the Turkish Government acting by its fleets and armies in that part of the Empire. The Mamelukes will, no doubt, find more or less encouragement in the intrigues of either the French or the Russians. The Turkish Government must withdraw the greater part of its forces from Egypt, in order, if possible, to suppress the insurrections in Europe. And it is likely that the authority of the Pacha in Egypt will be then, speedily reduced to its ancient insignificance.—In European Turkey, Passwan Oglou is in arms, as a rebel. His force, however maintained and recruited, still triumphs over every effort to subdue him. The Pachas of the adjacent Provinces, imitate and aid his rebellion, instead of loyally combining to suppress it. It is not impossible, but Passwan Oglou may be, at length able there to establish himself in an independant principality. He lately defeated the Hospodar of Walachia, and dispersed his troops. Hake Pacha, Beglerbeg of Romelia, had been appointed to command an army which marches, this summer, against Oglou and his confederates. But, Hake Pacha's own faith has, since, fallen under suspicion. He has been accused of fostering, instead of effectually opposing the rebellion; of even suffering new disturbances to spring up within his own province. He is displaced from his own Pachalic; and sent in exile, to the isle of Chio. His successor is Omer Pacha, who was, before, destined to the

appointment of Governor of Belgrade. The affairs of the Treaty of Peace between Turkey and the French Republic do not appear to have been yet finally settled.

IN ITALY, the young King of *Etruria* has lately issued an edict in favour of religion, which is believed to have given high offence to his French Creators and Lords. By that Edict the King humbly acknowledges God Most High, as the Author of all human power; recognizes his holiness the Pope, as the representative of God on Earth, and refers to him the supreme power in spiritual affairs; restores the regular Ecclesiastical orders, and declares the property of the church to be inalienable; authorizes the Bishops to administer the sacraments, publish pastoral letters, and ordain persons to the sacerdotal offices, free from the controul of the sacerdotal power; and, also, appoints the bishops to the authority of licensers of the press within their respective bishopricks,

In *Sicily*, there have been lately some dangerous insurrections; we do not, however, understand but that these were suppressed, before they could rise to such height as to shake the Government, or menacethe personal safety of the Sovereign.

His Holiness, the Pope, was informed by a letter from Bonaparte's own hand, of the conclusion of the Definitive Treaty between France and Britain at Amiens. To express his joy in this event; he issued his orders; and the city of *Rome* was, for two nights successively, illuminated.

The *Italian Republic* continues under the authority of Bonaparte, as its President, and the immediate controul of the French Troops.

The Government of *Naples* is feeble and overawed by the French. Murat now resides there, as ambassador from the French Republic. The Russian Troops which were lately at Naples, have since retired to the Seven Isles.

It is believed, that Piedmont will be added to the territories of the Italian Republic.

The *Genoese* have returned to their traffic. By the evacuation of *Malta* by the British forces, it falls again under French influence. But, if the King of *Naples* and *Sicily* shall ever become free from his present precarious subjection to the influence of France; and if his troops shall actually be fixed, permanently to garrison *Malta*; that Isle may hereafter essentially contribute to preserve the power of Britain in the Italian Seas.

FROM PORTUGAL we have not lately received much information. The late temerity with which a British officer and some seamen were put in confinement, for a few hours at Lisbon, has become the subject of remonstrances and explanations between the Portuguese and the British Court, which we do not know to be yet entirely at an end.—It is impossible, that the Portuguese should not view with jealousy, the encroachment of the French on the limits of their American territories, and that of the Spaniards on their frontier towards Spain. But, what can they do? they are so surrounded and depressed by French and Spanish influence, that, instead of murmuring under their losses, they must rather be thankful, that there is aught yet spared to them.

The SPANISH Fleet, so long detained at Brest, has been at last permitted to sail for Spain. The necessities of the Spanish Government continue to be relieved by the successive arrivals of vessels with bullion from South America. We do not understand, that the epidemical fevers by which Andalusia has been within these few years so much affected, have, in this season, again broken out.

FRANCE has been lately the theatre of many of those events which

most remarkably attract the general notice of mankind.—An Amnesty has been, at length, granted to all the Emigrants, who had not been before permitted to return to their country, but who shall return before the 23d day of September next. They are required, respectively to give notice to Magistrates appointed to this duty at Calais, Brussels, Mentz, Strasburgh, Geneva, Nice, Bayonne, Perpignan, and Bourdeaux, that they return upon the faith of this Act of Amnesty. The remains of their ancient property, not yet alienated by sale, or by permanent national appropriation, are to be restored. They are to swear fidelity to the present Government. For ten years after their return, they are, every one, to remain subject to the inspection and orders of the Government, in some manner as if they were still Aliens.—From the benefits of this Amnesty are excepted, persons who have been the leaders of internal insurrection against the power of the Republic; persons who have had command in the armies of the foreign enemies of France; persons who have been, since the Revolution, among the Household-Officers of any of the French Princes; those who have been Agents or Promoters of foreign or intestine war against the Republic; Commanders in the Republican fleets or armies, and Legislative Representatives of the people who have been guilty of treason against the Commonwealth; Prelates who refuse to acknowledge the authority of the present Government, and to resign their Sees.—It is in the form of a decree of the Conservative Senate, not a complete Legislative Act, that this Amnesty has been promulgated. The exceptions are so many and indefinite, that the decree, if rigorously executed, can scarcely operate in favour of any but such as under the pretence of suffering as Emigrants, have acted abroad, as spies for the Revolutionary and Republican Governments of France.

The Definitive Treaty of Peace with the British Government, has been communicated from the Consuls to the several bodies of the French Legislature; and has been honoured with their fullest approbation.

A Plan has been formed by the Government; and is, now, passing through the forms of Legislative Discussion; by which a body of 6,000 military men is proposed to be formed under the denomination of a **LEGION OF HONOUR**. This Legion is to consist of 15 Cohorts. In each Cohort will be 7 principal officers, 20 commandants, 10 subalterns, and 350 private soldiers. Each of the principal officers is to have an annual salary of about 218*l.* 15*s.* for life. The yearly salary of the commandants is to be about 107*l.* 6*s.* sterling. Every subaltern will have annually 53*l.* 15*s.* Every private soldier will receive the yearly pay of 13*l.* 8*s.* 9*d.* sterling. The First Consul is to be supreme Commander of the Legion. Into the Legion, none are to be admitted who have not received arms of honour from the hands of the First Consul, rendered eminent services to the Republic, during the late war, in either the field or the cabinet, and served as soldiers for the space of 25 years, or for a term which shall be accounted equal to 25 years. Every year of service in war, is reckoned equal to 2 of these 25 years; and every year of service in the late revolutionary war is to be counted as 4 of the 25. Those who shall enter this Legion of Honour, must then swear to devote their lives to the support and protection of the Republic, in its present form.

The officers of the French army which served in Egypt, are believed to cherish warm resentment against both the First Consul and General Menou. Regnier, who fought so bravely in the action in which Sir Ralph Abercrombie fell, had, in a work on the military events in Egypt, represented a General D'Estaing who was in the confidence of Menou, as having early retired out of that engagement, on account of a slight wound which no brave man would have heeded. D'Estaing in resentment of this imputation challenged Regnier to a single combat with pistols. Regnier met his challenge; and D'Estaing fell. Not satisfied with this, Regnier then challenged Menou himself to combat. Menou has been protected by the interposition of the authority of the Consuls. He is greatly caressed by Bonaparte; and is applauded as having

done all that could be, in such circumstances, accomplished, for the preservation of Egypt. But, most of those who there served under him, think differently of his conduct.

The most remarkable of all the late transactions in the government of France, is that which prepares to perpetuate the sovereign power of Bonaparte, and it may be, even of his family. A second Consulship of ten years to succeed the expiration of the ten years for which he had been previously elected, was decreed to him by the Conservative Senate. The Consuls, slighting the Act of the Senate, proposed to the People, to declare him Consul for life. Carnot and Garat are the most eminent persons who have voted in opposition to the proposal. The people are now giving their votes. Many vote not at all. The majority is much smaller in favour of the Consul than was expected. Some vote, that Bonaparte shall name his successor; some, that the dignity shall be hereditary in his family; some that he shall be nominated EMPEROR OF THE FRANKS. But, it appears from the proclamations of the Government; that conspiracy has been of late repeatedly suspected; and that even now the utmost alarm, for some terrible convulsion prevail at Paris. The French finances are represented to be in a state which renders the effective ways and means easily adequate to the probable expence for the year which is now advancing.—Carnot in the Tribune, and Garat in the Senate were the only members of these two bodies who declared themselves adverse to the re-election of Bonaparte to the Consulate, after the first ten years of his filling that office shall have expired.

The DUTCH Squadron which sails, under Admiral De Winter, for the Mediterranean Sea, consists of three ships of the line, a frigate, and some smaller vessels.—A Dutch Squadron of three ships of the line, two brigs, and some transports, is to sail for Batavia in July next.

The future Land-Force of the Dutch Republic, will consist of 22,196 men, Of these 2,922 are to be sent out to the Colonies in the West Indies.

The late general Government of SWITZERLAND has been dissolved. Anarchy prevails in every canton. On the morning of the 8th of May, 2,000 insurgents entering Lausanne, demanded of the Government of that town, that its archives should be delivered up to them; that tithes, and certain other taxes which they specified, should be for ever abolished by the New Constitution; that an Act of Amnesty should immediately pass in favour of those who were engaged in this insurrection. Their demands were rejected. French forces have been sent against them. But, they defend themselves, and distract the wishes of the people, by giving out, that they act upon secret encouragement from France. All the rest of Switzerland is, more or less, in a similar state of disturbance. These disturbances are without doubt, secretly fomented by the intrigues of the French, whose desire probably is, to harass the Swiss with the evils of anarchy and intestine dissension, till, to escape from these, they shall gladly crouch under any new yoke which France may be pleased to impose.

In GERMANY, the indemnities of those Princes whom the war has deprived of their territories, have not been finally assigned.—The Diet of Ratisbon again meets, to approve that distribution of those indemnities which shall be agreed upon among the Great Powers, whose interests are here principally concerned.—The Duke of Modena still refuses to accept the Brisgau, in compensation for the Italian domains of which he has been deprived.—The German Emperor refuses to recognize the new King of Etruria, till the Grand Duke of Tuscany shall have been fully indemnified for the loss of his

dutchy. It is reported, that the Prince of Orange and the Landgrave of Hesse-Cassel are about to be exalted to the Electoral dignity.—The Austrian Government resumes its wonted energies; and appears, after all that it has lost and suffered by the war, still to retain its wonted ascendancy in the German political system. The Archduke Charles remains still in a languishing state of health. The Queen of Naples is, also, dangerously ill at Vienna. An interview is shortly to take place between the King of Prussia and the Emperor of Russia, at Memel. The Duke of Brunswick will accompany his Prussian Majesty to the scene of the conference. Six state-coaches drawn, each by eight horses, will convey the whole train of the Prussian monarch.

The Archduke Constantine of Russia, will attend the Emperor, his brother. The Duke of Cambridge returns from Britain to Germany, to preside in the Government of Hanover. So strong a spirit of superstition still prevails in Bavaria, that the abolition of some of the holidays of the church has lately provoked among the people, some disturbances against the Government, which, however, appear to have been easily suppressed.

The King of DENMARK has been, of late, in a very poor state of health. The Danes still cherish the remembrance of their late naval defence against the British. and new names continue to be added to the list of the subscribers for the relief of those who were wounded, and of the families of those who were killed in that great engagement.

A public declaration has been, at length, issued by the SWEDISH Government which signifies its final and full accession to the Convention between Great Britain and Russia, respecting the claims in favour of the merchant-shipping, &c. of Neutral Powers, in time of war. The King of Sweden, in this declaration, notifies, that he maintained the purposes of the armed neutrality, after they were, in a manner abandoned by all the other Powers confederated to vindicate them; that at length he saw farther perseverance to be vain, and perceived that the continuance of the suspension of hostilities with Britain must be uncertain, if that should not be speedily perfected in a treaty of peace; that he had therefore authorized his Ambassador at St. Petersburg, in the beginning of February last, to conclude Treaties of Peace both with the Russian Court, and with Lord St. Helens, who was there as the English Ambassador; that those treaties were concluded; that, on the 16th of April, the Treaty with Lord St. Helens was ratified by his Swedish Majesty; that the ratified treaty was sent to England in the frigate *Jerramas* which would bring in return, the same treaty ratified by the King of Great Britain; that the treaty between Sweden and Russia would be immediately perfected in the same manner; and that as soon as the ratifications should have been exchanged at London, the frigate *Jerramas* would sail to the West Indies with orders to the British Commander in the Isle of St. Barthelemy to restore it to the Swedish Government.

The Emperor of RUSSIA is preparing for an interview with the King of Prussia, at Memel. Count Woronzow has returned from the British Court. Several families of the most eminent of the Russian Nobility have gone for England. The measures which the Emperor has taken to promote industry throughout his dominions by assisting the towns with loans of money, and alleviating the servitude of the peasantry, begin already to operate with the happiest effects.

On the 29th of April, Peace between GREAT BRITAIN and France, was solemnly proclaimed in London and Westminster, &c. The evening was celebrated, in the metropolis, with extraordinary festivities, and with a

general illumination of the houses which was singularly brilliant, and displayed a multitude of devices the most ingenious, elegant, and loyal.

It is understood, that 93 regiments of the line composing a force of 70,000 men will be retained in actual service, during the Peace. The proposed augmentation of the militia will, without doubt, take place. And, though the former volunteer corps have been disbanded; yet his Majesty is about to be authorized by law, to accept the services of others who may again propose to Government, to act as volunteers.—An extensive promotion of military officers was announced from the War-Office, on the 11th of May last.

The latest accounts from India bring information of the capture of *L'Hirondelle*, the last cruizer which the French had in the India Seas, by the British Frigate *La Sybelle* commanded by Capt. Charles Adam. The news of the Peace, already communicated as far as India, leave no probability that we should receive farther news for the present, of captures in those seas.—The reduction of the Navy has kept pace with that of the Army. But, a sufficiently powerful maritime force will still be maintained. The gallant Capt. Maxwell who conducted the enterprize for cutting out the *La Chevrete* French frigate, has been appointed to the command of the *Hound Sloop*, going out upon a particular expedition. British Fleets still remain in the Mediterranean and Indian Seas, and in the West Indies. Admiral Sir Thomas Pasley has at present, the command at Plymouth.

On the 30th of April, the royal assent was given by a commission consisting of the Lord Chancellor, Lord Auckland, and Lord Walsingham to the bills which had passed through both houses of PARLIAMENT for raising the new duty on Beer and Malt, for restraining the Bank of England, during another year, from making payments in gold and silver, and for the augmentation of the Assessed Taxes.—Several bills relating only to matters of private property, received, at the same time, the same sanction of the royal assent.

The bill for granting and regulating a Lottery among the ways and means of the present year, has made a change in the execution of that financial measure, by which several of its evils will be, henceforth, prevented. There will be for the present, and probably for future years, three lotteries within the year. The drawing for each will be accomplished within the space of eight days. These three lotteries will be for both Great Britain and Ireland. 1,455,000*l.* is the whole sum to be raised by the lottery voted among the ways and means of the present year. The clear gain to the two kingdoms will be 555,000*l.* sterling. By the diminution of the number of days during which the tickets are to be drawn, the mischiefs of Lottery-Insurance will be very much lessened.

On Friday May 7th Mr. Nicholls moved the house of commons to present an address of thanks to his Majesty for having removed the Right Hon. William Pitt from his councils. Mr. Grey, Mr. Fox, and Mr. Erskine, without concurring entirely in the motion of Mr. Nicholls, yet agreed with him, in general, in respect to the ministerial demerits of Mr. Pitt. They argued; that Mr. Pitt's ministerial conduct had first engaged this country in a war with France; that his conduct of the war had lost every opportunity of bringing it to a happy termination; that he had enabled the French to become masters of the Continent; that he had, finally, reduced his country to the ignominy and distress of making a dishonourable and disadvantageous Peace, even while its arms were every where victorious.—And they concluded from all this that his removal from official power, was one of the greatest blessings which could be, by Heaven, vouchsafed to their country.—Lord Belgrave, on the other hand, proposed an amendment on the motion of Mr. Nicholls, which went to convert it into a vote of applause to the administration of Mr. Pitt, and his late co-adjutors in office. By him and the other friends of the late ministry, it was maintained; that the war was necessary to the salvation of this country; that so far as success could be commanded by the measures of the British Ministry, it had not been unsuccessful; that the financial management of Mr. Pitt was what none perhaps but he was

equal to, and what had in the most glorious manner, sustained the energies of the Empire, throughout the war; that the primary object of that war had been, in fact, attended by the suppression of jacobinism throughout Europe; and that therefore, the highest honours which had been ever paid, in Britain, to an upright and able minister, ought to be eagerly offered to Mr. Pitt. The amendment was carried by a very great majority. And the applause was on a new motion, limited to Mr. Pitt alone.

On the 13th of May, the Definitive Treaty with France fell under discussion in the House of Peers, by a motion from Lord Grenville for an Address to his Majesty implying disapprobation of it. His Lordship, in recommending this motion to the favour of the House, expatiated in a very wide field of discussion. He affirmed, that the whole Continent of Europe was, by the Treaty, unnecessarily left under the domineering influence of France; that, by the surrender of the Ile of Elba, of Malta, of Piedmont, Italy and the whole Mediterranean Sea, were, unhappily, left within the power of that boundlessly ambitious Republic; that by the acquisition of Louisiana, she was left to extend her power with gigantic stride, in North America, while, by the new extension of her boundaries on the river of the Amazons, and the Arawari, she saw a career opened before her to the mastery of both the Portuguese and Spanish possessions in South America; that by the cession of the Cape of Good Hope, and of Cochin, and by the non-renewal of former treaties, France was armed with the means to destroy our power in India, and with pretensions upon which those means might be soon employed for its destruction; that the preliminaries were such that at the consideration of it, he could not but tremble for the future fate of his country, but the Definitive Treaty was still worse than could have been feared from the Preliminaries; that while France had religiously provided for the claims of all her Allies, the Prince of Orange and the other Allies of Britain were, in this Treaty, abandoned. The Duke of Richmond, the Earl of Caernarvon, and the Earl of Darnley offered some arguments nearly agreeing with these, to support the views of Lord Grenville. His motion was opposed by the Duke of Norfolk, Lord Pelham, Lord Auckland, Lord Ellenborough, the Lord Chancellor, and others, who argued, that the Definitive did not essentially differ from the Preliminary Treaty; that the Peace was the best which could be, in such circumstances, procured, and certainly far preferable to a continuance of the war.

On the same day, Mr. Windham, in the House of Commons made a motion similar to that of Lord Grenville, in the House of Peers. He supported it by an eloquent speech; and was seconded by Lord Folkstone. Mr. T. Grenville, Sir William Young, Lord Temple, Dr. Lawrence, and Sir W. Williams Wynne, spoke, also, in support of Mr. Windham's motion. It was strenuously opposed by Lord Hawkesbury, Mr. Dundas, Mr. Grey, Lord Castlereagh, Colonel Maitland, Sir William Grant, and Mr. Sheridan. The arguments urged, on both sides, did not differ much from those which were advanced in the House of Peers. In both Houses, the original motions were lost by amendments moved by those opposing them, which went to express a full and decisive approbation of the Peace. The debate was prolonged, in the House of Commons, even for two days.

On the 17th of May, the Chancellor of the Exchequer produced, in the House of Commons, a plan for uniting into one the two Sinking Funds, which are in operation to extinguish the national debt. By this plan, these two will be united into one fund from the 1st day of July 1802; the sum of 200,000*l.* will be, from the 5th of Jan. 1802, annually added to them; the wonted allowance of one per cent. on the Loans of the present year, will be withheld; and by the operation of the two consolidated Sinking Funds with the proposed addition, all employed at compound interest, the whole of the National Debt, including the capital of the present year's loan will be, within

forty-five years, entirely discharged. The advantages of this plan were recognized by the House; and it is, now, in its progress into a law.

On the 19th of May, the sum of about 254,000*l.* was voted by the representatives of the Commons, in a Committee, for the expenditure on the Navy in the current year.

A bill to restrain the practice of treating at Elections of Members to serve in Parliament, after passing successfully through the forms of discussion in the House of Commons, was lost in the House of Lords, on account of its tendency to inflict punishment by exclusion from a seat in the House, of the rigour of which there was no example in the Law of England, and on account of its investing Committees of the Commons with new and extraordinary powers.

By a Bill for regulating the Government and inspection of Aliens coming hereafter into this country, it has been proposed that every Foreigner shall on his arrival in Britain or Ireland, present himself before the nearest Magistrate, and relate who he is, and whither he intends to travel; that the Magistrate shall then furnish him with a certificate mentioning his name and destination, with an account also of the intention with which he has come; and that, to give place to the operation of this plan, the former laws respecting Aliens shall be abolished. This Bill is in its progress into a law.

These are some of the most remarkable matters which have, lately, engaged the discussion of the Imperial Parliament of Great Britain and Ireland.—The claims of his Royal Highness the Prince of Wales, for repayment of the revenues which arose from the Duchy of Cornwall, during his Minority, have not been farther urged upon the attention of Parliament. They were submitted to the examination of the Lord Chancellor. And the consequence is, that a sum sufficient for the liquidation of his Royal Highness's debts will be advanced out of the revenues which he claims.

Mr. Percival succeeded Sir Edward Law, now Lord Ellenborough, as Attorney-General. Mr. Manners-Sutton, lately Solicitor to the Prince of Wales, has been appointed Solicitor-General to his Majesty.—The Hon. Thomas Erskine has been appointed Chancellor to the Prince of Wales; and Mr. William Adam is now Solicitor to his Royal Highness.

The FRENCH WEST INDIA ISLES continue to be, still a theatre of war. Various news have been lately received in Europe concerning the transactions in St. Domingo.—General Le'Clerc, amidst his difficulties, has seized the property of American Merchants at the ports of that Island, without the consent of the owners; and without giving them adequate compensation for its value. in the distress of the Army for supplies, he sent to Admiral Duckworth, commanding the British Squadron at Jamaica, who could, however, afford him no relief.—He has sent to the American Continent; and the French Commercial Consul has endeavoured to raise a Loan at Philadelphia, for the purchase of what the Army in St. Domingo immediately needs. But, we should imagine, that the ill-treatment of the American Merchants must tend to excite much odium against the French name, in the United States.—In St. Domingo itself, the fate of the French expedition has been at least as disastrous as was feared.—Toussaint laid waste the country, and retired into the interior recesses. In several partial engagements, the discipline of the Army of Le Clerc prevailed. But, Toussaint, wasting those parts of which he could not continue, master and concentrating his troops in the interior northern parts of the Isle; excited a general insurrection in a mass of the labouring planters in that district; again descended upon Cape-Town; made himself easily master of it, and made it an example of his vengeance.—The French General by whom he is opposed, in a despatch which has been very lately received in France, confesses himself unable, till he shall receive new supplies from France, to subdue the insurrection. Toussaint raises every where the labouring planters in a mass, assures them that they cannot preserve their liberty unless they now take arms, massacres those who are unfriendly

to his views with unsparing ferocity, and burns and destroys whatever he cannot easily apply to his own use or that of the cause for which he fights. From the Spaniards at the Havannah, the French have obtained a supply of 500,000 piaftres and some articles of cloathing. The Americans appear from the letters of Le Clerc and Villaret to sell at enormous prices, those articles of provision with which the French are supplied from American ports. An English frigate, the Nereide, has been received by the French in the Road off Cape François with the same civilities of naval etiquette, which were shewn by the British Squadron under Admiral Duckworth, to the French ship of war formerly dispatched by Villaret, to demand aid from the British Fleet.

From the UNITED STATES of AMERICA we learn, that the cession of Louisiana to the French begins strongly to excite the jealousy of the American Government. They mark with suspicion and indignation, the gigantic strides of French ambition. By the possession of Louisiana, France cannot immediately acquire any enviable advantages. But, the ambition with which the French have grasped at this new possession, will undoubtedly serve to hinder the Anglo Americans from being more partial to France than to us in the future diplomatic relations of the three countries to one another.—The Federal Interest begins again to have an ascendancy over the Anti-Federal in the different Elections throughout the United States. Mr. Strong has been elected Governor of Massachusetts by a majority of 12,689 votes, in opposition to 9,303, which were given for Mr. Gerry the Anti Federal Candidate.

Commercial Affairs.

COMMERCE still languishes. By the Treaty with France, the commercial relations which formerly subsisted between that country and Great Britain have not been renewed. The French Government, to prevent our British merchants from deriving any sudden advantages by trade with the French ports, have imposed prohibitions against the sale of British goods at any French market, not less rigorous than those which subsisted during the war. Except a few cargoes of coals of which France is greatly in want, nothing else has been permitted to be landed from British merchant-ships, at any French port. The same exclusion of British goods has been enforced in the ports of Holland. The British Government has, of course, issued a retaliating prohibition against the admittance of French goods into British ports. The speculations and activity of the merchants on both sides, are thus still in suspense. We have, however, no reason to believe that the commerce between Britain and the French part of the Continent can remain, long, entirely interrupted. It is understood, that both the French and Dutch Republics have already felt the necessity for opening, by a new treaty, the trade with this country. It must from the natural wants and wishes of the people of the two countries, be opened, either with or without the regulations of a commercial treaty. And whatever may have been advanced in opposition to the use of treaties of this nature; it is impossible to avoid perceiving, that, in the detail of a trade like that between Britain and the French part of the Continent, there are many things which require to be regulated by particular Convention.

At the late Frankfort fair, the sales of goods of all sorts were comparatively languid. But still, goods of English manufacture were, there, bought in preference to all others. Better hopes were entertained of the probable demands at the approaching fair of Leipzig for which all the merchants were, when we received this news, making earnest preparation.

The commercial prosperity of the city of Antwerp is now, most earnestly expected to revive. That city already derives advantage from the hope;

and many persons possessing, all, more or less property, resort from various other parts to settle in it. Bonaparte himself is expected, in the progress of the summer to visit Antwerp. And his presence and encouragements may, then, perhaps, as is supposed, give new liveliness to every speculation and enterprize for the restoration of trade.

The exportation of corn from the Prussian ports of Dantzick is again permitted: and it is affirmed on the Continent, that British merchants have lately made large purchases of this commodity at Königsberg and other emporia on the Baltic. Many French merchants have petitioned the Government, not to restore the East India Company, but to leave the French trade to India, entirely free to private traders.

The bullion and coin of South America, begins to be brought, even in great abundance, to Spain. The *Argonaut* brought 7,319,259 hard dollars. On the 28th of April, arrived from Vera Cruz, the *Havannah*, and Carthagena, the ship *St. Peter*, with 3,095,555 dollars for the King, and 2,947,784 for private persons—The frigate *Savia* with 1,519,847 for the King, and 1,114,836 for private persons—The total of these last remittances is 8,678,022 hard dollars. The same vessels brought, likewise, 329 bales of cochineal.

The immediate arrival of two men of war and two frigates from South America was, when our information came away, expected at the same port; and would add 16,000,000 of dollars to the sums already transmitted. Trade is, by these events, now in the greatest activity at Cadiz. And the discount on the paper-money there current, is reduced to the low rate of 3 per cent.

The French Government is about to restore the slave-trade. Mr. Addington has signified in Parliament his hopes of being able to offer a plan for its gradual abolition, in the British Empire.

By authentic information from Lyons of the late date of the beginning of May, we learn, that trade is there still in a very languid state, 20,000 looms were formerly always at work in that city; not more than 10,000 are now employed. The population is less, by 60,000 souls, than it was before the Revolution. The cotton spinners and weavers who had been enticed from Lancashire to Lyons do not now earn above half the wages they had in England, and are, in consequence of this, exceedingly discontent with their condition, and indignant at the false arts of those who enticed them from home.

A new law relative to the Duties on Sugars in Britain, is about to encourage the trade in that commodity, and to raise its price to the British consumer. The Import duty will be lessened by 1½d. per lib. An excise duty will be imposed on refined sugars which shall be consumed at home. Refined sugars for exportation will be exported free from duty, and with a bounty somewhat more than equal to the import duty upon the raw sugars.

It is understood, that the merchants of Liverpool alone had engaged capital to the amount of nine or ten millions sterling in the cultivation of our late conquests from the French and Dutch, which have been ceded to their former possessors by the treaty of peace.

During the late war, the yearly imports of the trade of Great Britain, increased from 19 to 30 millions: the exports rose from 24 to 43 millions. The exportation of British manufactures only, rose, in that time, from 18 to 23 millions annually. In the year 1800, our total exports to the Continent amounted to the value of 7,500,000*l.* sterling. Of this amount 5,800,000*l.* was paid from Sweden, Russia, Denmark, and other countries to which French restrictions against British goods cannot extend. Not more than 1,700,000*l.* came from Holland, France, Portugal, Spain, and the States and Principalities of Italy. The seamen of our merchant-shipping were augmented, during the war, from the number of 118,000 to 143,000. The annual amount of our exports to the conquests which have been ceded, did not exceed, in all, the value of 800,000*l.* sterling.

In the year 1777, the exports of France to her Colonies, were to the value of 4½ millions; the value of the imports from those Colonies amounted

to 7 millions. Her Commercial exports to other places amounted to 12 millions.—Her imports from other places were of the annual value of 9 millions.—16 millions and a half was the total of her exports, and likewise the exact total of her imports.—A statement much more accurate, than any which we have been hitherto enabled to present to our readers, represents the real commercial imports of France at the end of the war, as having been reduced to the small value of 61,000*l.* sterling; her exports to the very trifle of 11,000*l.* sterling, a year.

On the morning of Thursday April 30th, Messrs. Shewell, Towgood and Co. being the highest bidders for the Lottery, contracted for it, at the rate of 16*l.* 3*s.* 4*d.* a ticket. The bidding was on 90,000 tickets, with permission to augment the number to 100,000, or to diminish it to 80,000. These tickets are, according to the plan sanctioned by Parliament, to be drawn in three different lotteries, at three different periods, each of eight days continuance. The drawing of the 1st lottery is to commence on the 2d of August; the drawing of the second, on the 2d day of September; the drawing of the third, on the 4th of April, 1803. The contract prices to Government, are to be paid by four different instalments for each of the three Lotteries.—The total gain to Government will be, by these three Lotteries 555,000*l.* sterling. A deposit payment of 1*l.* 10*s.* on the whole number of tickets was made on the 3d of May last.

In the progress of the season, the quantities of corn in store are gradually diminished.—The prices of some sorts of grain have, therefore, during last month, risen considerably in the market. The lowest price of wheat, in the London market, was, on the 23d of April, 48*s.* per quarter; the lowest price of the quarter of the same grain, is now 2*l.* 16*s.* Barley has, however, fallen in the course of the month, from 1*l.* 12*s.* to 1*l.* 2*s.* The price of oats has risen from 16*s.* to 18*s.* All other sorts of grain have risen in price, during the third and fourth weeks of May, above what they had been, immediately before sold for.—The cause of this rise may have, in some small degree, its origin from the late very unfavourable state of the weather.

Between the 23d of April, and the 25th of May, the prices of almost all sorts of cotton-wool have risen in the market. The valuable cotton of Bourbon is excepted. It was sold a month since, at 2*s.* 6*d.* per lb. It is now at 3*s.* The most extensive and enlightened manufacturers of cotton, yarn and cloth, inform us, that their trade is, every where, in a languid state. They keep their works in employment, without profit.—The state of the sales at the last fairs in Germany, though more favourable to English goods than to any others, has been, even for these, extremely discouraging. The interruption of our Commercial Intercourse with the Continent though comparatively, it keep back but a small part of the wonted orders, withholds however, a number of these sufficient to discourage the activity. If I be accustomed to manufacture goods to the value of 100*l.* annually for sale; and my demand be suddenly reduced to the value of 80*l.* the diminution though it leave much more than is taken away, will infallibly render my whole trade for the year languid; and my prices, if I make and must sell the wanted quantity, necessarily lower. It is in this way, that the want of orders from the French part of the Continent now operates.

Agriculture.

DURING more than half the month of May, the temperature of the weather has been unusually inclement and cold. Snow has fallen so as to cover the ground to a considerable depth, in many of the northern parts of the Isle. Sharp frosts have been felt; and strong fires have been found, every where, necessary in the apartments of our houses in town and country. This inclemency of *winter chilling the cap* of May, has not been experienced only in this Isle. In Germany, in France, and on most parts of the Continent, the same cold storms have taken place.

The necessary effects of this inclemency on vegetation have been extremely unfortunate to all young plants which in the tenderest state were just beginning to germinate, and to all the promise of fruit that was just in blossom. Even where the bloom was past, and the young fruit in its first growth, the severest injury has been done. Apples, pears, gooseberries, cherries, strawberries, grapes, &c. will, all, be much less plentiful in the course of the advancing season, on account of these storms of May. In France, the vineyards have suffered prodigious injury. Potatoes, pease, beans, onions, and almost all those vegetables of the garden which we consume at the table, in the first tenderness of their growth, have been more or less stunted or withered by the same causes.—The potatoes may yet recover to the most vigorous growth and the largest produce. Of the pease, there is much less hope.

Even our grass and grain-bearing plants have been injured in their growth, wheat, oats, barley, and rye, &c. Moist air, genial heat, continual changes in the atmosphere in which they grow, are necessary to make such plants truly thrive.—The want of the due mild temperature during so considerable a part of May, therefore, could not but do them some harm. But, as they were neither in flower nor in incipient germination; they have suffered much less than the other plants above-mentioned.—The growth of the cultivated grass for hay, has been unfavourably affected, first by the cold storms, and then by the succession of dry weather which prevailed especially in the environs of London, even to the 29th of May.

One good effect has, however, resulted from the colds of May, that they must have every where, greatly checked that multiplication of insects which, in the most genial temperature of this month, usually takes place.—Their accustomed ravages will, of course, be, for the present, less injurious, than they would otherwise have been.

The drought in the latter weeks of May has somewhat injured the vegetation on uplands, in thin sandy soils, and where easily drying manures are chiefly used. On wet deep soils, much less injury has been done.

There has been hitherto, no want of green forage for cattle. Yet, Lamb and veal still continue dear in the markets of London. And the prices of beef and mutton are, also, dear, in the general estimation of the public.

At Swaffham fair in Norfolk, about the middle of May, both black cattle and sheep were produced in great abundance, for sale, and even at low prices. Yet, the buyers were comparatively few, and the demand small. Horses, as is naturally to be expected in this season of the year, brought good prices.

Milk-cows, and young horses of good qualities were sold for large prices at last Hertford fair. Other cattle were not eagerly bought.

On Saturday, May 8, pease in the pod were sold in Covent Garden market, at two guineas a pottle.

The wonted sheep-shearing at Wobourn will be continued, during the present season, as under the late Duke. Preparations, also, begin to be there made for the usual Midsummer Exhibitions of animal stock.—The præmia offered by the late Duke will, then, also, be awarded and bestowed.

An attempt was lately made to procure a law against the fraudulent sale of mixed manure for that which is genuine. The attempt has misgiven.

By the new inclosures on the Yorkshire Wolds, about 10,000 acres of land which has been hitherto in a waste state, will be brought under tillage.

On Tuesday, May 4, in consequence of the arrival of some French cartel ships from Morlaix, French eggs were sold at Plymouth, at the rate of 3d. a dozen; and fresh butter also from France, at 7d. per lib. Very large French turkeys were, in the beginning of May, sold at Dover, for 5s. or 6s. each.

The price of the quartern loaf was, on the 18th of May, fixed in London at 9½d.

It is calculated that the total quantity of grain annually consumed in

France is not less than 100,000,000 of quarters; and that if a deficiency of even one-tenth of this quantity should, on any year, ensue; all Europe and America could not, without starving themselves, supply the want.

By the latest accounts from France, we learn, that the price of bread is, just now, equally dear in Paris as in London. But, as the value of money is considerably higher in France than in England; bread is in reality dearer in Paris than in London, while it is sold in both these capitals at nearly the same nominal price.

Considerable quantities of flax and hemp seed have been sown in different parts of these Isles, in the end of April and the beginning of May.

During last month, we and our correspondents have observed, with pleasure, an unusual diligence, in weeding in different parts of the country where that care of the crops has been, in comparison, long neglected.

A new cattle-market is about to be established by law at Paddington. It meets some opposition not likely to prove finally successful. There are, obviously, many advantages connected with the accomplishment of the design.

Now is the season when the power to use water, as a manure, would be exceedingly advantageous, especially on all the uplands, and wherever the soil is light and thin, throughout this country. Our husbandry will not be in its most perfect state, till due arrangements shall have been made for forming reservoirs, and distributory sluices and streamlets, by means of which every rood of ground under culture may be prevented from ever suffering much by extreme drought.

Manufactures and Useful Arts.

ON Wednesday the 25th instant, the Premiums and Bounties of the Society for the Encouragement of Arts, Manufactures, and Commerce were delivered at the Society's House in the Adelphi, from the Chair, by their President his Grace the Duke of Norfolk, in presence of a very respectable Assembly of Noblemen, Ladies, and Gentlemen, who honoured the Society with their presence; it was supposed the company consisted of about 800 persons, and that nearly half that number more could not gain admission for want of room.

The business was begun by an appropriate speech from the Secretary, Mr. Charles Taylor, who noticed the objects of the Society from its Institution in the year 1754 to the present time, and particularised the Rewards adjudged this Session, under the following classes, viz.—

In AGRICULTURE.—To John Hunter, Esq. of Gubbins, in Hertfordshire, for having planted 40,000 Oaks, the Gold Medal.

To Thomas Johnes, Esq. of Hafod, in Cardiganshire, for having planted 400,000 Forest Trees, the Gold Medal.

To John Christian Curwen, Esq. of Workington Hall, in Cumberland, for having planted 84,900 Larch Trees, the Gold Medal.

To Henry Vernon, Esq. of Hilton Park, near Wolverhampton, for planting 10,000 Silver Firs, the Gold Medal.

To James Beech, Esq. of Shaw, near Cheadle, in Staffordshire, for his plantations of Timber Trees, the Silver Medal.

To the Rev. Richard Yates, of Chelsea, for his Essay on raising and promoting the growth of Oaks, the Silver Medal.

To Charles Gibson, Esq. of Quermore Park, near Lancaster, for planting 6,000 Elms, the Silver Medal.

To William Fairman, Esq. of Miller's House, near Sittingbourn, in Kent, for his Experiments on Extreme Branch Grafting of Fruit Trees, the Silver Medal.

To Robert Brown, Esq. of Markle, near Haddington, in Scotland, for his Culture of Beans and Wheat in one year on the same Land, the Silver Medal.

To Mr. Frederic Clifford Cherry, of New Wood Farm, near Stoke D'Aubenton, in Surry, for planing 60 Acres with Ofsers, the Sum of Thirty Guineas.

To Mr. Seth Bull, of Ely, in Cambridgeshire, for planting 8 Acres with Ofsers, the Sum of Ten Guineas.

In CHEMISTRY.—To Mr. Thomas Willis, of Lime-Street, London, for his preparation of the Bulbs of the *Hyacinthus non scriptus*, or common Field Blue Bells, as a substitute for Gum Arabic, the Silver Medal.

In POLITE ARTS.—To George William Gent, Esq. of Upper Guilford-street, for a Drawing of Lewes Castle, in Suffex, the Gold Medal. Cl. 89.

To Miss Elizabeth Mac Dowall, of Brook-street, Holborn, for a Chalk Drawing of the Virgin and Child, the Gold Medal, Cl. 91.

To Miss Winifred Barrett, of Stockwell, in Surry, for a Drawing of a Landscape, the Silver Medal, Cl. 91*

To Miss Jackson, of Hanover-street, Hanover-Square, for a Drawing in Black Chalk, after an Engraving by Bartolozzi, the Silver Medal.

To Miss Blackburne, of Park-street, Westminster, for a Drawing of Demosthenes from a Bust, the Silver Medal.

To Miss Mary Anne Gilbert, of Devonshire-street, Portland-place, for a Miniature Drawing of an old Woman, after Nature, the Silver Medal.

To Miss Emma Farhill, of Mortimer-street, Cavendish-square, for a Drawing of Peasants in a Storm, the Silver Medal.

To William Stone Lewis, Esq. of High Holborn, for a Drawing of Outlines of the Laocoon, from a Cast, the larger Silver Pallet, Cl. 92.

To George Jones, Esq. of Great Portland-street, Mary-le-bone, for a Drawing of Outlines of Hercules and Antoeus, from a Cast, the lesser Silver Pallet, Cl. 93.

To Richard Speare, Esq. of Dean-street, Soho, for a Drawing, a View at Eltham, in Kent, the greater Silver Pallet, Cl. 94.

To Mr. Richard Cook, of Upper Charlotte-street, Fitzroy-square, for a Drawing of Mutius Scevola, before Porsenna, the Gold Pallet, Cl. 96.

To Mr. C. Nesbit, of Fetter-lane, for Engravings on Wood, the Silver Medal. Cl. 103.

To Mr. Richard Austin, of Pauls-Alley, Barbican, for Engravings on Wood, the Silver Medal.

To Mrs. Elizabeth Coppins, of St. Stephen's, Norwich, for a Drawing in Crayons of Belisarius, copied from a Painting of Salvator Rosa, the greater Silver Pallet.

To Miss Frances Talbot, of Wymondham, Norfolk, for a Painting of an Herb Girl, from Nature, the Silver Medal.

To Miss Beauchamp, of Langley Park, near Beccles, in Suffolk, for a Painting of a Landscape, copied from Both, the Silver Medal.

To Dr. John Evans, of Shrewsbury, for two Maps of North Wales, the Sum of Forty-Five Guineas.

In MANUFACTURES.—To Mr. Thomas Clulow, of Shoreditch, for his Invention of weaving Purfes, Pockets, and Sacks, in a Loom, and improving the Construction of Looms in general, Twenty-five Guineas.

In MECHANICKS.—To Mr. Henry Greathead, of South Shields, in the Bishoprick of Durham, for his Construction of a Cork Boat, by which the Lives of many Persons shipwrecked have been preserved, the Gold Medal and Fifty Guineas.

To Mr. Richard Knight, of Foster-Lane, Cheapside, for his Method of clearing Land from Stumps of Trees, and rendering them in a proper State for Fuel, the Silver Medal.

To Mr. James Brownhill, of Alloa Mills, near Stirling, in Scotland, for his Discovery of a Quarry of Stone, proper for making Mill-Stones, the Sum of One Hundred Pounds.

To Mr. James Woart, of Fulham, for securing Beams of Timber decayed by Time, or injured by Accidents, in Buildings, the Sum of Ten Guineas.

In COLONIES AND TRADE.—To Dr. Alexander Anderson, of St. Vincent, for the Culture of Cloves and Cinnamon, the Gold Medal.

To the Hon. Joseph Robley, of Tobago, for a Plantation of Bread Fruit Trees, the Gold Medal.

From the Secretary's Remarks it appears that this useful establishment is in a very flourishing state, that the number of members of both sexes at the close of the last session was upwards of 1300, and that the following 137 members have been since elected.

The Most Noble the Marquis of Exeter, F. R. S. and S. A. the Right Hon. Lord Viscount Barrington, the Right Hon. Lord Carrington, Sir Geo. Prescott, Bart. Hon. John Henniker Major, John Robinson, Esq. M. P. Col. Peachy, M. P. Rowland Burdon, Esq. M. P. Lieut. Gen. John Watson, James Brogden, Esq. M. P. Mr. Sheriff William Rawlins, Thomas Myers, Esq. Joseph Nollekens, Esq. R. A. John Dixon, Esq. George Prescott, Esq. Thomas Calverley, Esq. Thomas Taylor, Esq. Mr. John Sowerby, John Scott, Esq. William Gosling, Esq. Alexander Scott, Esq. Mr. William Woodburn, Mr. Vaughan Griffiths, Charles Tufton Blicke, Esq. Mr. John Francis Defanges, William Irving, Esq. Lieut. Col. Francis John Wilder, James Anderson, Esq. LL. D. Daniel Moore, Esq. Solomon Levien, Esq. W. H. Pepys, jun. James Green, Esq. Mr. John Fuller, Mr. Thomas Jones, David Pike Watts, Esq. William Bridgman, Esq. William Phillips, Esq. Richard Sykes, Esq. Mr. John Dutton, Henry Leader, Esq. Rev. Mr. J. Clay, Josiah Robert Harrison, Esq. John Gold, Esq. Richard Varal, Esq. Richard Godwin, Esq. Thomas Edwards, Esq. William Butler, Esq. Mr. William Peter Whyte, Mr. Thomas Bish, Henry Decort, Esq. Valentine Green, Esq. Martin Bree, Esq. James Kendrick, Esq. Henry Gore Clough, Esq. Mr. William Woodthorp, Charles Winstanley, Esq. Joseph Ablett, Esq. Dr. Clough, William Tooke, Esq. Wm. Coles, Esq. Mr. William March, Mr. William Chapman, Joseph Williams, Esq. Samuel Lovat, Esq. Walter Bracebridge, Esq. Henry Winstanley, jun. Esq. Daniel Llewellyn, Esq. John M'Arthur, Esq. William Minnett, Esq. Mr. Thomas Jones, David Forbes, Esq. Joseph Martin, Esq. Wm. Lechner, Esq. Ambrose Pitman, Esq. Mr. George Samuel, Col. William Tatham, J. S. Munnings, Esq. Mr. Edward Vennor, George Lockett, Esq. William Green, Esq. Christopher Fowler, Esq. Mr. Samuel John Neal, William Netherfole, Esq. William Pierrie, Esq. George Banastre Pix, Esq. John Hunter, Esq. Mr. Alexander Sheafe Birkett, Mr. Joseph Bunnell, Mr. William Marston, Mr. James Little, Stephen Scarbrow, Esq. Col. William Gent, Dr. Ogilvie, William Breton, Esq. Thomas Cartwright Slack, Esq. John Watkin Phipps, Esq. Mr. Thomas Courtney Devenish, Mr. William Bennett, Major Henry Eustace, William James, Esq. Thomas Poynder, jun. Esq. Henry Michele, Esq. Samuel Gunnell, Esq. Drewhurst Bilsborow, Esq. Rev. William Phillips, Thomas Leys, Esq. James St. Aubyn, Esq. William Henry Cheek, Esq. Thomas Stackhouse, Esq. George Clark, Esq. Philip Neill, Esq. William Wills, Esq. John Maud, Esq. Thomas Windus, Esq. Lewis Buckle, Esq. Ralph Dodd, Esq. Mr. Thomas Wilson, Charles Browning, Esq. Mr. Henry Greathead, Mr. Richard Reeve, John Rowe, Esq. Thomas Andrews, Esq. Mr. Gilson Reeve, Edward Biven, Esq. John Barnwell Murphy, Esq. Peter Green, Esq. John Abeam Palmer, Esq. John Flamank, Esq. Joseph Ivatt Harwood, Esq. Mr. William Gedge, John Jones, Esq. Robert Bevil, Esq. Mr. John Fletcher, Robert Blake, Esq. Capt. H. L. Frezill, Mr. Joseph Cooper, Benjamin Hall, Esq.

At the conclusion of the meeting his Grace the Duke of Norfolk addressed the audience in an elegant manner, expressing his pleasure on being favoured with so respectable and numerous a company, and his satisfaction to find that the Society merited and received so much public patronage and attention.

LONDON PRICES OF GRAIN for May, 1802.

MARK-LANE, Monday, May 3.

We have had many fresh arrivals of Corn in since the fore part of last week, and the stock of Flour on hand being great, has caused Wheat to decline in price full 5s. per quarter since this day se'nnight.—Rye is nearly the same.—Barley fully maintains last week's prices.—Malt, owing to the new duty, keeps up its price.—Having but few fresh good Oats at market, those of a fine quality went off rather briskly.—Peas and Beans much the same as last week.—Flour is cheaper.

Price of Grain, on board Ship, as under :

Wheat	50s to 60s	Fine	to 48s	re	32s
Fine	to 62s	Oats	11 to 20s	Sm. Beans, new, 28s to 30s	
Rye	30s to 38s	Fine	to 23s	Fine	to 33s 6d
Barley	22s to 28s	Polands	to 24s	Ticks, new, 25s to 27s	
Fine	30s to 34s	White Peas	30s to 33s	Fine	28s
Malt	42s to 45s	Grey Peas	28s to 30s		

Monday, May 10.—We have had a pretty good supply of Wheat at market this day, and having but few buyers, Wheat went off heavily, at last week's prices.—N. B. Irish and Scotch samples do not fetch so much as English, by 5s. per quarter.—Rye much the same.—Barley is rather brisker sale, as is Malt (the additional duty now 8s. 2d. per quarter.)—Oats, of a fine quality, dearer.—In Peas and Beans, little or no alteration.—Flour is rather cheaper.

Wheat	56s to 62s	Malt	42s to 48s	White Peas	30s to 33s
Fine	to 64s	Fine	to 52s	Hog Peas	28s to 32s
Rye	30s to 38s	Oats	11s to 20s	Sm. Beans, 30s to 34s 6d	
Barley	22s to 28s	Fine	to 23s	Ticks, new 25s to 30s	
Fine	to 35s	Polands	24s		

Monday, May 17.—We have had a middling supply of Corn in since this day week, and fine Wheats went off brisker sale, at last Monday's prices.—Rye nearly as before.—Barley, owing to a short supply, is rather dearer; as also are Oats, of fine quality for feed.—In Malt, little or no alteration.—Both White and Grey Peas are dearer, the former 2s. the latter 1s.—Small Beans are brisker sale. Ticks cheaper.—Flour is rather dearer, there not appearing a quantity equal to the demand at market.

Wheat	56s to 65s	Malt (with duty)	42s to 48s	Superfine for seed	26s
Fine	to 67s	Fine	53s	White Peas	30s to 36s
Rye	32s to 36s	Oats	17s to 20s	Grey Peas	32s to 35s
Barley	22s to 30s	Fine	to 24s 6d	Small Beans	30s to 35s
Fine	35s			Ticks,	28s to 31s

Monday, May 24: We have had a middling supply of Grain at market this day, but having a good many Wheat buyers, caused that article to go off at 2s. and 3s advance since this day se'nnight. Rye is cheaper. Barley is much the same in price, but rather dull in sale. Oats, of a fine quality, are rather dearer. Peas and Beans have a quick sale, and are somewhat higher.

Wheat	56s to 68s	Malt	45s to 50s	White Peas	36s to 37s 6d
Superfine White	70s	Fine	to 52s	Grey Peas	33s to 36s
Rye	30s to 35s	Oats	18s to 22s	Small Beans	34s to 35s 6d
Barley	22s to 30s	Fine	to 23s	Ticks, new,	28s to 30s
Fine	35s	Polands	25s	Fine	31s

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

Price of Hops.		First Week		2d Week		3d Week		4th Week	
Bags.		s.	s.	s.	s.	s.	s.	s.	s.
Kent	—	88	to 108	94	to 110	90	to 110	80	to 112
Suffex	—	80	to 94	90	to 105	80	to 96	80	to 105
Essex	—	80	to 100	90	to 100	80	to 100	80	to 115
Pockets.									
Kent	—	90	to 120	96	to 126	95	to 120	90	to 126
Suffex	—	90	to 105	90	to 112	88	to 105	90	to 115
Farnham	—	90	to 160	120	to 160	100	to 160	120	to 160

Seeds.									
Canary Seed (per cwt.)	—	84	to 90	75	to 80	78	to 83	77	to 80
Red Clover ditto	—	40	to 82	40	to 80	—	to —	—	to —
White Clover, ditto	—	50	to 120	50	to 120	—	to —	—	to —
Trefoil, ditto	—	30	to 80	—	to —	—	to —	—	to —
Carraway (per last)	—	36	to 40	36	to 40	36	to 40	36	to 40
Coriander ditto	—	26	to 30	25	to 28	26	to 31	26	to 22
Turnip, (per bushel)	—	—	to —	—	to —	—	to —	—	to —
Rye Grass, (per quarter)	—	—	to —	—	to 12	—	to —	—	to —
Cinque Foil, ditto	—	—	to —	—	to 12	—	to —	—	to —
Rape Seed, (per last)	—	321	to 351	321	to 351	321	to 351	311	to 331

Meat at Smithfield,		s.d.		s.d.		s.d.		s.d.	
To sink the offal, p. ft. 8lb.	—	4	o to 5	4	o to 5	4	8 to 5	4	o to 5
Beef	—	5	o to 6	5	8 to 6	5	4 to 6	5	4 to 6
Mutton	—	5	o to 6	4	o to 6	5	o to 6	4	o to 5
Veal	—	5	o to 6	5	o to 6	5	4 to 6	4	8 to 5
Pork	—	5	o to 6	5	o to 6	6	o to 7	6	o to 7
Lamb	—	6	6 to 8	7	o to 8	—	—	—	—
Head of Cattle—Beasts about	—	2,900		1,700		1,500		1,800	
Sheep and Lambs	—	5,000		6,000		7,700		7,500	

Price of Leather.		d.		d.		d.		d.	
Butts, 50lb. to 56lb. each	—	16	to 18	17	to 19	17	to 19	17	to 19
Ditto, 60lb. to 66lb. each	—	2	to 22	20	to 23	21	to 23	21	to 23
Merchants Backs	—	16½	to 19½	17	to 19	17½	to 19	17½	to 19
Dressing Hides	—	14	to 15	13	to 15	13	to 15	13	to 15
Fine Coach Hides	—	15	to 17	15	to 17	15	to 17	15	to 17
Crop Hides for cutting	—	16½	to 18½	17½	to 19½	17½	to 19½	17½	to 19½
Flat Ordinary	—	14½	to 16½	15	to 17	14½	to 16½	15½	to 16½
Calf Skins, 30 to 40lb. p. doz.	—	21	to 26	22	to 30	22	to 28	22	to 28
Ditto, 50lb. to 70lb. do.	—	25	to 29	25	to 29	25	to 29	25	to 29
Ditto, 70lb. to 80lb. do.	—	25	to 27	25	to 27	25	to 27	25	to 27
Sm. Seals (Greenland)	—	30	to 33	30	to 36	33	to 36	33	to 36
Large do.	—	51	to 71	51	to 71	100	to 140s	51	to 71
Tanned Horse Hides	—	18s	to 30s	18s	to 30s	18s	to 30s	18s	to 30s
Goat Skins per doz.	—	25s	to 63s	21	to 65	—	to —	—	to —

Price of Tallow.		s.	d.	s.	d.	s.	d.	s.	d.
St. James's Market	—	4	1½	3	9	3	8½	3	9
Clare Market	—	4	0	3	10	3	10	3	9
Whitechapel Market	—	3	9	3	9	3	8	3	8½
Per stone of 8lb. Average	—	3	11½	3	9½	3	9	3	9
Town Tallow	—	67	6	65	0	63	6	63	6
Russia ditto (Candles)	—	64	0	63	0	62	63s	62	63s
Russia ditto (Soap)	—	65	0	62	0	61	0	60	61s
Melting Stuff	—	56	0	56	to —	54	0	54	55s
Ditto rough	—	42	0	40	0	40	0	36	42s
Graves	—	19	0	19	0	19	0	19	0
Good Dregs	—	11	0	11	0	11	0	11	0
Yellow Soap	—	74	0	72	0	72	0	72	0
Mottled ditto	—	82	0	80	0	80	0	80	0
Curd ditto	—	86	0	84	0	84	0	84	0
Candles, per dozen,	—	11	6	11	0	11	6	11	6
Moulds	—	12	6	12	0	12	6	12	6

Raw Hides.	
Best Heifers & Steers, pr ft.	—
Middling	—
Ordinary	—
Market Calf	—
Eng. Horse	—
Lamb Skins	—
Sheep Skins	—

Prices of Hay and Straw.

St. James's—Hay	—
Straw	—
Whitech.—Hay	—
Clover	—
Straw	—

Uxbridge.

Wheat per load	—
Barley	—
Oats	—
Old Beans	—
New ditto	—
Peas	—

Newbury.

Wheat	—
Barley	—
Beans	—
Oats	—
Peas	—

First Week		2d Week		3d Week		4th Week	
s.d.	s.d.	s.d.	s.d.	s.d.	s.d.	s.d.	s.d.
3 4 to 3 6		3 4 to 3 6		3 4 to 3 6		3 4 to 3 6	
2 8 to 2 10		2 8 to 2 10		2 8 to 2 10		2 8 to 2 10	
2 4 to 2 6		2 4 to 2 6		2 4 to 2 6		2 4 to 2 6	
9 0		9 0		9 0		9 0	
12s to 16s		12s to 16s		12s to 16s		12s to 16s	
0 0 to 0 0		0 0 to 0 0		0 0 to 0 0		0 0 to 0 0	
5 0 to 9 0		1 3 to —		2 0 to 3 4		1 0 to 0 0	
l. s. d.		l. s. d.		l. s. d.		l. s. d.	
4 5 0		4 1 3		4 5 6		4 9 0	
1 9 0		2 0 6		1 19 0		2 2 0	
4 7 6		4 7 6		4 8 6		4 15 0	
6 1 0		6 1 0		6 — 0		6 1 0	
1 14 0		1 15 0		1 16 0		1 17 0	
15l to 17l		15l to 17l		16l-17l 10s		16l to 19l	
32s to 36s		32s to 36s		32s to 36s		28s to 34s	
21s to 27s		21s to 27s		21s to 27s		21s to 27s	
—s to —s		—s to —s		—s to —s		—s to —s	
32s to 36s		32s to 36s		32s to 36s		32s to 36s	
40s to 42s		40s to 42s		40s to 42s		38s to 42s	
50s to 64s		64s to 66s		50s to 68s		50s to 68s	
25s to 31s		26s to 30s		20s to 29s		21s to 30s	
31s to 37s		34s to 36s		32s to 35s		30s to 36s	
17s to 24s		18s to 32s		20s to 25s		18s to 23s	
34s to 36s		32s to 37s		31s to 34s		32s to 34s	

BANKRUPTCIES AND DIVIDENDS,

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

BANKRUPTCIES.

(The Solicitors' Names are between Parentheses.)

ARIS, Thomas, Upper Rathbone place, shopkeeper. (Stokes, Upper James street, Golden square.)
 Bishop, Samuel, Great Newport street, Stationer. (Dawson, Warwick street, Golden square.)
 Beesley, Thomas, Burton in Londonale, potter. (Robins, Gray's inn.)
 Chatterton, Edward Rye, timber and coal merchant. (Evitt and Nixon, Baydon square.)
 Collier, John Dyer, formerly of Great Suffolk street, Southwark, soap manufacturer, late of Abridge, farmer. (Malbys, Fishmonger's Hall.)
 Carr, Ralph Wood, and Robert Carr, Leeds; firm. William Carr and Co. drysalers, &c. (Wilson, Castle street, Holborn.)
 Cartwright, Thomas, Manchester, upholsterer. (Jackson, Walbrook.)
 Chaddock, James, and Randle Keary, Wigan, potters. (Clayton, Wigan.)
 Doufe, Eleanor, Coate's row, Lambeth, milliner. (Sherwood and Pannell, Canterbury street.)
 Dale, William, Petworth, miller. (Holmes, Arundell.)
 Deller, William, Winchester, innholder. (Leigh, New Bridge street.)
 Douglas, James, Cuper's Bridge, clothier and engineer. (Jones, Salisbury square.)
 Elderton, John, Great Carter lane, oil and colourman. (Phillipson, Featherstone buildings.)
 Faulkner, John, Macclesfield, druggist and grocer. (Jackson, Walbrook.)
 Goyerly, Jacob, Aldergate street, scrivener. (Daniel Wilson Davison, Clement's inn.)
 Golding, James, senior and junior, Puddhill, Gloucester, clothiers. (Constable, Symond's inn.)
 Gardner, Edward, Jew's row, Chelsea, cheesemonger. (Bishop, Lyons's inn.)
 Gilbert, William, Chiswell street, grocer. (Luckett, Basinghall street.)
 Hooper, Richard, Burbage, corn chandler. (Southby, Marlborough.)

Harper, James, Bordesley, maltmill and bayonet maker. (Barbor and Browne, Fetter lane.)
 Neal, Edward, Trowbridge, innkeeper. (Shepherd and Adlington, Gray's inn.)
 Heilage, John, Oxford street, haberdasher. (Whitton, Great James street, Bedford row.)
 Harrison, John, Stoke on Trent, manufacturer of earthenware. (Willington, Temple.)
 Hamaway, Daniel, Brandon, merchant. (Berry, Meard-street, Soho.)
 Harrison, Thomas, jun. Sandford Hill, timber merchant. (Bird, and Nicholls, Hereford.)
 Johnson, Thomas, Kidderminster, grocer. (Platt, Bride court.)
 Lashbrooke, William, Southampton buildings, wine merchant. (Hall, Queen street, Cheap side.)
 Laidale, Thomas, Lower Brook street, linen draper. (Dixon, Nassau street.)
 Lewis, John, old Jewry, warehousman. (Davis, Addle street.)
 Marshall, Francis, (partner with Robert Pringle) Northumberland street, Strand, jeweller. (Atkinson, Castle street, Falcon square.)
 Mozley, Lewis, Liverpool, watchmaker. (Windle, Bartlett's buildings.)
 Newton, William Hood, Golden lane, Barbican, liquor merchant. (Luckett, Basinghall street.)
 Osbaldeston, John, Southampton, baker. (Mathews and Good, Gough square.)
 Partridge, Thomas, Dover, sail maker. (Mawley, Tottenham street.)
 Pemberton, Edward, and John Houlking, Liverpool, merchants. (Cooper and Lowe, Southampton buildings.)
 Price, James, Rome, Monmouth, timber merchant. (Price and Williams, Lincoln's inn.)
 Platt, Thomas, Diglee in Saddleworth, merchant and cloth manufacturer. (Batty, Chancery lane.)
 Powell, Thomas, Warwick street, taylor. (Swann and Willington, Fore street.)
 Robinson, William, Richard Freestone Parish, and Dinah Squires, King street, Seven Dials, bakers. (Holmes, Mark lane.)

Reader, Henry, Leeds, mercer, &c. (Wilson, Castle Street, Holborn)
 Russell, John, Worcester, grocer. (Sparke, Staple's inn)
 Russell, John, Edward Russell, William Hartland, and Thomas Williams, Worcester, merchants. (Sparke, Staple's inn)
 Rideing, John, Liverpool, merchant. (Windle, Barlett's buildings)
 Rideing, John, Liverpool, and William Lever, Manchester, merchants. (Cooper and Low, Southampton buildings)
 Rapon, John, Plymouth Dock, shopkeeper. (Phipps, Philip lane)
 Scott, Adam, Workington, mercer and draper. (Falcon, Elm court, Temple)
 Sarjant, James, Sunderland, spirit merchant. (Elftob, Catharine court, Seething lane)
 Sadler, Eliza Farmer, Gloucester, mercer. (Jenkin and James, New inn)
 Sutherland, James, Bath, Haberdasher. (Lys, Tooke's court)
 Sutton, William, Saddler's Hall court, merchant. (Hutchinson and Poole, Brewer's Hall)
 Shevill, William, Great Pretcot street, merchant. (Pringle and Brooks, Greville street)
 Sharland, John, Cockspur street, linen draper. (Welch, Aldergate street)
 Smith, Thomas, Drury lane, baker. (Lee, Three Crown court Southwark)
 Tidwell, William, Stockport, cotton spinner. (Hurd, Furnival's inn)
 Timings, John Burton, Portsea, grocer. (Kirtton, Manfell street, Goodman's fields)
 Varley, John, jun. Shardlow, cornfactor. (Bleafield and Alexander, New inn)
 William, Williams, Dean street, Holborn, carpenter. (Kibblewhite, Gray's inn place)
 Wilkinson, Henry, Billiter lane, merchant. (Swain and Stevens, Old Jewry)
 Wilkinson, Thomas, Grimescarfoot, in Fixby, merchant. (Willis, Warrford court)
 Wrigley, George, Matley, hatter. (Dewhurst and Bradock, Marple, Stockport)
 White, Henry, Back road, Islington, stock broker. (Fletcher and Wright, Hyde street, Bloomsbury)
 Wolfeholme, Dean, jun. Waltham Cross, innholder. (Jessepp, Bloomsbury, Waltham Abbey, or Clifford's inn)
 Watson, William, Fenchurch street, merchant. (Brown, Little Friday street)
 Wagner, Benjamin Paul, Great Winchester street, merchant. (Gatty, Angel court, Throgmorton street)
 Young, William Weston, Dillis Mill, miller. (Blakes, Cook's court, Carey street)
 Yeoman, James, Tamworth, clothier. (Willington, Tamworth)

DIVIDENDS ANNOUNCED.

Athworth, John, South Molton street, warehousman, May 23
 Amber, William Bell, Midhurst, tallow chandler, June 11
 Alcock, Robert May-Royd, Halifax, scrivener, June 10
 Buddicom, Robert Joseph, Liverpool, merchant, May 18
 Bairdow, Mathew, Thornton Mill, corn miller, May 17
 Beal, George, Great Surrey street, cheesemonger, May 22
 Buddle, William, jun. Chancer street, St. Giles's, carpenter, May 29
 Beckman, Dedrick Nicholas, Princes row, Mile End, sugar grinder, June 19
 Bradbury, Samuel, Basinghall street, broker, May 29
 Beyers, Martha, Cheapside, linen draper, June 12
 Bowdidge, Thomas, Lime street, factor, June 5
 Bate, Edward, West Bromwich, timber merchant, June 5
 Brown, Robert, Adam's court, Broad street, merchant, June 5
 Bower, Charles, Carey street, scrivener, June 5
 Bartlett, Robert, Stretton upon Dunsmore, timber merchant, June 5
 Ramond, Arthur, New Bridge street, merchant, June 15
 Cunningham, George, Wellclose square, carpenter, May 15
 Cullen, Michael, Robert Buddicom, and Robert Martin, Liverpool, merchants, May 19
 Cawthorn, George, Strand, bookfeller, May 22
 Chown, William, Higham Mills, miller, June 2
 Charlotte and Alexander, Webster court, Red Lion street, Clerkenwell, May 29
 Chutson, William, Hodoret, shopkeeper, May 25
 Coles, John, Smithfield, baker, &c. May 29
 Corterell, Joseph, Wallal, linen and woollen draper, June 7
 Cullingworth, Sarah, Daventry, bookfeller, June 8
 Chatto, William, St. Anthons, Northumberland, dealer, June 29
 Dunmore, Edward, Stenton Wyfel, miller, May 31
 Davys, John, Loughborough, scrivener, June 8
 Davies, John, Callington, linen draper, June 12
 Edwards, Thomas, New Bond street, haberdasher, June 26
 Edwick, John and Edward, Manchester, and George Turner, Taddington, cotton manufacturers, June 1
 Fincham, William, Tottenham Court road, glass-feller, June 5
 Fearon, Joseph, Birmingham, tin-plate worker, June 8
 Greaves, Joseph, late Gibucesser buildings, Waltham, insurance broker, May 22
 Graydon, George, South Cave, York, grocer, &c. June 2
 George, John, Piccadilly, draper, June 12
 Greenly, William, Hereford, rop merchant, June 30
 Halden, George, Liverpool, bookfeller, May 27 and 29
 Hook, James, and William Turner, Bridge Foot, Westminster, coal merchants, May 25
 Harris, William, Birmingham, button maker, June 7
 Horne, James, jun. Woodbridge, corn merchant, May 28
 Hale, William, Monmouth, timber merchant, June 15
 Hatterley, Samuel, White Horse yard, Drury lane, woollen draper, June 5
 Jacob, Harry and Joseph, Milford, ship builders, May 15
 Jones, John, Birmingham, draper, &c. May 22
 Ireland, Samuel, St. Clement Dances, merchant, June 26
 King, Richard Thomas, Evesham, mercer, July 1
 Knight, Henry, Manchester, Calico printer, May 27
 Lewis, David, and Richard Potter, Mansion house street, linen drapers, May 29
 Long, John, Portsea, Mariner, May 22
 Lowe, Hamlet, Liverpool, hardwareman, May 28
 Lungle, William, Great Yarmouth, linen and woollen draper, June 4
 Muir, Hugh, Liverpool, grocer, May 20
 Mosley, William, Bare street, Bethnal Green, June 19
 Morrison, Eneas, Runcorn, brewer, June 5
 M'Murray, James, Liverpool, tailor, deceased, May 31
 Moore, Jane Elizabeth, Bermondsey street, leather dresser, May 8
 M'Cullom, John, Bristol, merchant, May 27
 Mafon, William, junior, Richmond, Yorkshire, grocer, June 14
 Manson, Thomas, Tokenhouse yard, merchant, June 12
 Noble, Edward Heatley, Birmingham, merchant, June 1
 Pate, John, Bury St. Edmunds, scrivener, May 25
 Pearce, Mathias, Blackman street, cheesemonger, May 25
 Pitkeathly, Robert, Tavistock street, Covent Garden, bookfeller, June 15
 Platt, John, and Henry Billinge Platt, Wigan, manufacturers, June 10
 Richards, William, jun. Waltham, ship broker, May 22
 Reichard, Jacob, John Philip Dahmer, and John Jacob Bruise, Angel court, Throgmorton street, merchants, May 29
 Sleane, William, Anley, maltster, May 31
 Scudamore, Richard, Red Lion street, Holborn, tailor, May 5
 Scarbrow, William, St. Neots, baker, June 2
 Stafford, Robert, jun. Huntingdon, grocer, June 2
 Smith, William, Oxenden street, tailor, June 5
 Scultze, William, and Philip Unger, Little Britain, merchants, June 12
 Sheppheard, Wallwyn, Boswell court, scrivener, June 5
 Sealy, Benjamin, Boswell court, scrivener, June 5
 Stevenson, Anthony, Edmondton, brickmaker, June 5
 Shiles, Elizabeth, Disord, miller and shopkeeper, June 17
 Townend, Samuel, Bristol, ironmonger, &c. June 19
 Tinson, Thomas, Charing Cross, five smith, June 5
 Vaughan, Henry, Liverpool, grocer, May 18
 Wemberley, Thomas Peete, Huntingdon, grocer, June 2
 Wetherell, Thomas, Sunderland, brazier, May 20
 Wakeman, Robert, Birmingham, plater, June 4
 Withington, Thomas and James, Manchester, and Prince street, Lothbury, cotton manufacturers, &c. June 4
 Willis, Richard, Creicent, Minorities, merchant, June 5
 Wells, John, Liverpool, merchant, June 2
 Woodward, Jonathan, Derby, calico manufacturer, June 5
 Wood, Humphrey, and Joseph Horlock, jun. High street, Southwark, glaziers, June 5
 Wootton, William, Rugeley, hatter, June 9
 Ward, William, Birmingham, grocer, July 13
 Wright, Gilbert, Worcester, glove seller, &c. June 3
 Witton, Serjeant, Oldwinford, glass manufacturer, June 11
 Wilson, Thomas, Cheffins, maltster, June 5
 Walmley, Robert, and James Pilkington, Farnworth, fusian manufacturers, June 11
 Willmore, William, West Mersea, miller, June 16

PRICES OF COALS AT THE COAL EXCHANGE, LONDON,
For MAY, 1862.

Names of Coals.	Mon. 3d s. d.	Wed. 5th s. d.	Frid. 7th s. d.	Mond. 10th s. d.	Wed. 12th s. d.	Frid. 14th s. d.	Mond. 17th s. d.	Wed. 19th s. d.	Frid. 21st s. d.	Mond. 24th s. d.	Wed. 27th s. d.	Frid. 30th s. d.
Adair's Main	34 6											
Allen's												
Allerton												
Baker's Main												
Bedford Main												
Benton												
Beamish So. Moor												
Benwell												
Biddick Main												
Bigg's Main	38 6					32 6						
Blackfell												
Bladon Main												
Blyth	33 6											
Boundry							34 3					
Bourn Moor						34 6	35 6			38		
Bowes Main												
Branding												
Byker												
Byker, High & Low												
Cowpen												
Dewsbury Main							35 6					
Eden Main												
Flockton												
Greenwich Moor												
Haraton												
Hartley						39 6						
Haaton Main						39 6						
Hebburn Main					39 6		40			42		
Holywell												
Hutton Main						39 6						
Kenton Main												
Lambton's Low dit.												
Marley Hill												
Methley Park												
Montague Main												
Mount Moor												
Newbottle					33							
Old Ducks												
Pitt's Tansfield M.						34 6						
Primrose												
Rectory												
Ruffel's Main	33 6					33 9				37		
Simpson's Pontop												
Silver Tops												
Sheriff Hill												
South Moor												
Stanley Main												
St. David												
Team						34 6						
Toft Moor												
Tyne Main												
Usworth Main												
Walbottle Moor							39 0					
Walker							40 6					
Wall's End	39 3											
Wharton												
Willington	38					39 6	39 9					
Windfor's Pontop	34 6											
Windfor's Tandf. M.	35 3				34	33 6						
Wylam Moor							34 9					
Wentworth						33 6						
Whitefield												
Wooler Main												

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

From the Returns received in the Week, ended MAY 15, 1802.

INLAND COUNTIES.

COUNTIES.	Wheat.		Rye.		Barley.		Oats.		Beans.		Peas.		Oatmeal.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Middlesex	65	3	34	7	33	1	23	1	32	3	35	0		
Surrey	66	0	34	0	33	8	22	0	33	0	35	6		
Hertford	57	0	46	6	30	6	24	0	36	9	36	4		
Bedford	63	11	25	6	34	0	19	1	33	3				
Huntingdon	60	9			30	8	16	8	28	9	33	7		
Northampton	65	2	44	0	28	10	15	4	33	0				
Rutland	59	6			31	0	16	6	38	0			59	1
Leicester	68	0	41	5	33	7	16	9	35	8	33	0	35	11
Nottingham	74	4	48	0	36	6	18	0	34	0				
Derby	78	0			42	0	20	4	38	8	38	0	29	5
Stafford	72	6			38	10	20	1	33	8			28	7
Salop	70	6	49	10	38	7	22	9			37	0	66	4
Hereford	61	3	41	7	31	7	22	9	37	3	34	8	70	4
Worcester	64	11	39	2	32	11	25	11	35	2	36	2		
Warwick	73	3			37	6	21	6	39	5	43	0	42	0
Wilts	56	4			29	8	20	8	8	4	40	0		
Berks	62	11			28	9	23	4	34	4	37	8		
Oxford	59	6			32	2	20	4	33	0	39	5		
Bucks	63	0			34	6	22	3	33	2	34	6		
Brecon	62	4	43	2	34	4	16	0			28	8	36	10
Montgomery	67	2			32	0	16	0			35	2	38	2
Radnor	65	3			34	1	18	6			32	3	60	5

Maritime Counties.

Essex	61	5	29	6	28	6	24	0	27	3	30	0		
Kent	59	10			32	2	23	8	31	4	32	6		
Suffex	59	0			30	0	22	4						
Suffolk	60	11			28	3	17	4	25	8	29	0	44	6
Cambridge	61	6			30	6	13	4	26	4				
Norfolk	62	10			28	5	18	4	25	6				
Lincoln	66	5			32	0	15	2	31	0				
York	64	1	44	7	30	0	15	0	31	10	56	0	32	10
Durham	64	5					17	6						
Northumberland	58	6	41	0	28	6	15	9			34	0	12	0
Cumberland	72	8	49	0	32	0	18	5					16	9
Westmorland	77	6	54	0	35	10	20	3					15	10
Lancaster	69	5			30	9	19	2	33	9			15	7
Chester	64	1			40	8	20	4					15	4
Flint	66	10												
Denbigh	72	6			41	1	18	6	38	5			35	7
Anglesea					28	0								
Carnarvon	70	8			35	0	15	0					35	9
Merioneth	72	0			39	0	18	8					32	10
Cardigan	58	4			24	0	10	0						
Pembroke	51	2			22	8	11	6						
Carmarthen	58	0			28	7	11	10						
Glamorgan	66	1			26	10	17	4						
Gloucester	65	9			29	5	21	1	32	5	32	4		
Somerset	60	6			25	10					24	0		
Monmouth	65	9			31	8	23	0						
Devon	58	3			25	10	14	10	40	0			44	3
Cornwall	58	1			25	4	14	6						
Dorset	61	4	32	0	27	11	26	6	36	0				
Hants	57	8			28	8	21	0	40	6				

A TABLE of the Prices of STOCKS in May, 1862.

Days	Bank Stock.	3 per C. Red.	3 per C. Consols.	4 per C. Consol.	5 per C. Navy.	5 per C. Loyalty.	Long Ann.	Short Ann.	Imp. 3 per C.	Imperial Ann.	Irish 3 per C.	Omnium.	Ind. Stock.	Excheq. Bills.	Consols for acct.
April 30	195	76 1/2	77 1/2	92 1/2	104	105 1/2	21 9-16	5 1-16	75 1/2	12 3-16	102	3 1/2	226	6 7	77 1/2
May 1	193	75 1/2	76 1/2	91 1/2	103 3/4	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
2	193	75 1/2	76 1/2	90 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
3	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
4	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
5	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
6	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
7	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
8	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
9	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
10	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
11	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
12	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
13	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
14	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
15	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
16	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
17	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
18	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
19	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
20	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
21	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
22	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
23	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
24	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
25	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
26	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
27	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2
28	193	75 1/2	76 1/2	91 1/2	103	104 1/2	21 7-16	5 1-16	74 1/2	12 3-16		3 1/2		3 4	76 1/2

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