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MEMOIR of the LIFE and CHARACTER of Mr. CARTWRIGHT.

WE have been so fortunate, as to procure, for the *Embellishment* of the present Number, a PORTRAIT of that *INGENIOUS and GOOD Man*, of whose MEMORIAL of his STUDIES and INVENTIONS, we gave, with great delight, a *particular*, and, as we should humbly hope, *not uninteresting account*, in our Critical Catalogue for the last month.—The following addition to the facts which were, then, communicated concerning the character and invention of Mr. CARTWRIGHT, has been put into our hands by a very respectable and obliging friend, whose favours to us, the public have already shewn themselves sufficiently disposed to value.

IT is a very singular circumstance, that the subject of the present Memoir, whose rank as an inventive mechanic no one needs be told of, should neither have been bred to any profession connected with mechanics; nor even have paid any attention to that science, till long after that period of life, at which the generality of men cease to engage in new studies or pursuits. It was not till after he had attained his fortieth year, as we have been informed, that his talents in this line, distinguished as they have been in others, had discovered themselves. This discovery, as new at that time to himself as to the world, was owing to an accidental conversation with some gentlemen of Manchester, whom he fell in company with, by chance, at a watering place.

One of the party remarking, that as soon as Sir Richard Arkwright's patent, which had then but a few years to run, was expired, it would be impossible to find weavers to work up all the cotton that would be produced by the increased number of spinning mills, Mr. Cartwright observed, that some one must, in that case, invent a mill for weaving. This, he was told, would be impracticable, and arguments were adduced by several of the gentlemen present, who from the nature of a Manchester education, were conversant with the art of weaving, to prove the impracticability of the attempt.

So little satisfied, however, was he with their arguments, and so little difficulty did he see in the attempt, that he expressed his

his resolution to make the experiment himself. This casual conversation gave birth to his first mechanical invention, a loom working by machinery.

It may be said, indeed, to have given birth to every subsequent one, as it directed the current of his thoughts into that particular channel in which they had never flowed before.

As soon as he had brought the above piece of machinery to its requisite degree of perfection, one of the first houses at that time, in Manchester, contracted with him for five hundred looms, and erected a mill for their reception, one hundred and thirty six yards in one extent; the largest manufacturing mill, we believe, that has yet been erected. As soon as it was understood what the mill was designed for, anonymous letters were written, threatening its destruction, and which, indeed, took place in less than a month; but whether by accident, or design, never was ascertained.

Were we to give all the particulars of this gentleman's history as a mechanic, it would much exceed the limits that can be assigned to this biographical sketch. We must not however omit mentioning, that master-piece of mechanical ingenuity, his machine for combing wool; which, whether we consider the mechanism of its parts, the extent of its application, or the originality of the conception itself; we shall not hesitate to pronounce one of the first and most important discoveries of modern times. We are sorry to learn, that the introduction of this invaluable machine, has been much impeded by the combinations of the wool-combers, on the one hand, and the piracies of unprincipled manufacturers on the other. In the improvements he has made on the steam-engine, he seems to have accomplished every thing that stupendous power is capable of, by taking away the greatest part of its friction, and making a perfect vacuum. In doing these, he has so simplified the construction of the engine, as to make it manageable by a common servant.

In the early part of life, this gentleman was as eminent for literary attainments, as he has since been for those less splendid, though not less valuable, ones, which intitle him to a place in these pages. That he shines, no less as a poet, than as a mechanic, must be admitted by every one who has read his celebrated poem, *Armine and Elvira*, a legendary tale; a poem which has gone through more editions, and has had more imitators, than most performances of that kind.

In a work professing to have the interests of agriculture, as one of its principal objects, it is incumbent upon us to notice that Mr. Cartwright has paid much attention to the theory and practice of this most useful of all arts; and has been very successful in trying many valuable experiments, as in inventing several agricultural machines, and improving others.

IRISH BLEACHING.

To the Editor of the Commercial and Agricultural Magazine.

SIR,

THE following account of the saving at the Irish bleach-fields, by the use of *sulphuret of lime*, as a substitute for *alkali*, would probably be acceptable to some of the readers of your Magazine.

The average annual importation of *barilha* into Ireland, for the use of the bleachers and soap-boilers, during the twelve years immediately preceding the year 1799, was 2533 tons, at about £.40 sterling a ton, or 101,323*l.* 0*s.*

Of pot and pearl ashes, the average yearly importation, during the same time, and for the sole use of the bleachers, was 2533 tons at about £.65 a ton. 164,645*l.* 0*s.*

So that the yearly expence for foreign alkali was 265,968*l.* 0*s.*

The soap-boilers have consumed of the *barilha*, to the yearly value of 50,661*l.* 10*s.*

The bleachers alone have, therefore, annually consumed alkali to the value of 215,306*l.* 10*s.*

Now, sixty gallons of the solution of *sulphuret of lime*, may be prepared at the very small expence of 1*s.* and 1*d.*

An equal quantity of pot-ash costs not less than 2*s.* and 2*d.*

The cost of materials to the bleacher, is, therefore, by the preference of the *sulphuret of lime*, reduced to one half less, or 107,653*l.* 5*s.*

By the preference of the *sulphuret*, there will also be, in fuel, lime, &c. a saving which may be estimated at 5000*l.*

Thus the prime cost of the *sulphuret*, is virtually reduced to 102,653*l.* 5*s.*

Lime is sufficiently abundant in Ireland. Sulphur may be procured from the *Copper Mines* of WICKLOW.

Therefore, by the use of *Sulphuret of lime*, instead of *alkali*, at the Irish Bleachfields,—there will be saved

To the import trade of Ireland 215,306*l.* 10*s.*

To the bleachers, the manufacturers, the merchants, and the consumers of Irish linen 112,653*l.* 5*s.*

To the additional excitement of industry in the lime-works and copper-mines of Ireland, there will be, at the same time, contributed 107,653*l.* 5*s.*

Such are the effects of the application of science to the improvement of the arts.

For all this, the Irish nation have to thank
Dr. HIGGINS.

A FRIEND TO THE ARTS.

For the Commercial and Agricultural Magazine.

THE BRITISH MERCHANT.

NUMBER IV.

History of the COMMERCE of the Ancient Phrygians, Greeks, Carthaginians, Italians, and Spaniards.

THE Egyptians, Sidonians, and Tyrians, first diffused the germs of civilization, the skill of navigation, the spirit of commercial enterprize, around the northern and the southern shores of the Mediterranean sea, as well as throughout the Isles which are scattered over its bosom.

The coasts of Phrygia, the shores of the Euxine, the Isles of the Ægean Archipelago, appear to have been the scenes on which the navigation of the Tyrians, created the first flourishing, colonial settlements of industry and traffic. A number of petty towns and principalities arose on these Isles, and at the bottoms of the bays, at the mouths of the rivers, and on the promontories, of the adjacent continental coasts. These communities were composed of a mingled race of men; partly, strangers from the south-east coasts of the Mediterranean sea; in part, the offspring of a ruder race who had before passed, chiefly by land, into the regions of Asia Minor, Thrace, and Greece, and thence, by various adventures, into the Ægean Isles. All these petty communities were of a kindred character and congenial manners. Their language,—at first an assemblage of different barbarous idioms, and, in some respects, not unlike to that *Lingua Franca*, which the merchants of Europe now speak in the same places,—assumed, by degrees, a sort of homogeneous consistency, in which its parts, putting off their original incongruity, coalesced into one whole. They subsisted, by cultivating corn and vines, by feeding domesticated animals, by practising certain arts of Tyrian origin, by hazarding their lives in occasional fishings, and by expeditions of navigation, which often degenerated into piracy. They learned to sail around the shores of the Euxine and the Mediterranean seas. They visited, in particular, Egypt, Sidon, Tyre, and Cyprus; exporting the raw materials which their own scenes of habitation produced; and in return importing those manufactured commodities which the merchants of Tyre had taught them to value. Contests perpetually arose among them. Those whom the laws of hospitality and the authority of religion did not unite, were almost always foes. While the arts of the shepherd and the husbandman were scarcely known, that navigation which conveyed the mariner to richer shores, was esteemed the happiest of all modes of life. Asia in its middle parts, adjacent to the Mediterranean sea, as well as in its more southern regions, exhibited much more of wealth and cultivation, than was

to be found in theas yet uncleared, and therefore unfertile territory of Greece. The piratical expeditions of the people of the Isles, and of the coast of Greece, were, hence, continually directed against the coasts of Asia. A bold Asiatic chieftain would, sometimes, repair to carry off female slaves, and whatever else might be found of value, from the coast of Greece. A grand expedition of the Greeks, (not unlike to those in which the Norsemen of the eighth and ninth centuries were wont to ravage the middle coasts of Europe,) invaded Asia; sacked the famous city of Troy; and made preparation for the gradual establishment of various communities of colonial Greeks in the territory of Asia Minor. After these events, the Greeks of Asia Minor and of the Isles, became, gradually, by the influence of the wealth which they conquered, by agriculture, by commerce, by political institution, a considerably polished people from whom civilization was to be diffused into the parent-country of Greece, and to the coasts of Italy. *

CARTHAGE, in the mean time, arose, towards the western extremity of the southern coast of the Mediterranean sea. It was, at first, but an occasional landing-place, where the *Phœnicians* used to go on shore, to gather some natural productions of that neighbourhood, or to purchase such productions from the savage natives for manufactured commodities which the traders might offer them in exchange. When the Phœnicians extended their voyages to the coasts of Sicily, Italy, Spain, and Britain, they began to think it necessary to fix a post on the site of Carthage, that should be a safe place of deposition for their stores,—a scene of refuge and refreshment in the midst of their lengthened voyages, such as our East India fleets now find in St. Helena and at the Cape of Good Hope. Its importance increased, and became, continually, more conspicuous. It was occupied as a permanent, colonial settlement. Tyranny, bankruptcy, and other accidents, from time to time, drove new colonists to abandon Tyre for Carthage. Many were allured by the prospect of the rapid acquisition of opulence from the Western Trade. Many fled from those misfortunes which the arms of Nebuchadnezzar, of Cyrus, and afterwards of Alexander, inflicted on their native city. The Spanish silver-mines, the tin mines of the Scilly Isles and of Britain, the other valuable commodities which were to be obtained from the coasts of Italy and Africa, produced a mighty influx of wealth into Carthage. The Carthaginians supplied Tyre, and the other great marts of the Asiatic coasts, with the metals, and other raw

* This is a summary of the genuine history of Grecian commerce and civility in the times prior to those with which the history of Herodotus commences. Homer, Hesiod, Pausanias, Diodorus Siculus, with hints from Herodotus, furnish the authorities on which it is founded.

materials for the Arts, which were wanted from the western coasts of Europe. To these western parts, they brought the commodities of the east. They exercised various manufactures for the use both of Asia and of Europe. For their own sustenance and security, they found it requisite, to occupy a considerable tract of inland territory in Africa, lying adjacent to their city. Hence, they began to add to the character of merchants, that of ambitious sovereigns, and of landholders. In Spain, in Sicily, perhaps also in the British Isles, posts were to be permanently occupied, for the sake of securely working the mines, and collecting other natural productions without molestation from the savage natives. Hence, contests with the natives, the victory of the mercantile invaders, the subjugation of the savages, their sale as slaves, their compulsion to work in the mines, the establishment of the dominion of the Carthaginians in regions which they had first entered, as strangers, sailors, and wandering merchants. The *traffic in slaves* was one grand branch of trade, among all the commercial nations of antiquity. In all the enterprizes, therefore, whether of trade or conquest, in which the Carthaginians engaged, the procuring of slaves for the Asiatic market, was, no doubt, one capital object. *

While the Carthaginians were forming these grand establishments, other adventurers from the east found their way to the western coast of *Italy*. The first civilized settlers in *TUSCANY*, were probably Phœnicians. The dissensions and wars on the coast of Phrygia, and in the *Ægean* isles, drove other colonists to find Etrurian settlements. These were, together, the first manufacturers of that beautiful Etrurian pottery which, still, almost baffles the emulation of modern art. They received frequent commercial visits from the Carthaginians. Manufactures and husbandry, more than maritime adventure, appear to have been the modes of industry by which they were content to live. Subsequent revolutions among the Greeks, brought Grecian colonists to occupy almost all the other coasts of Italy, both eastern and western. Agriculture and the other arts of husbandry proved to some of these colonies, sources of comparatively extraordinary wealth. Several ingenious arts were practised among them. They had frequent maritime intercourse with the Carthaginians, and more especially with the eastern Greeks. †

SPAIN was, indeed, brought within the sphere of the maritime commerce of the nations inhabiting at this time, round the coasts,

* Compare the accounts concerning the Carthaginians, by Herodotus, Livy, Sallust, &c. with the remaining monuments of their existence and power which are mentioned by travellers.

† These particulars are derived from a comparison of the accounts of Homer, Herodotus, Livy, and Dionysius, Halicarnassius, with modern accounts of Tuscan antiquities.

and in the isles, of the Mediterranean sea. But this was only by the Carthaginians, who occupied it, solely for the sake of its silver-mines and other natural wealth, established in it no independent colonies, and were little anxious to disseminate any of the arts of civility among its unsubjugated natives. Spain was, at that time, to the Carthaginians, just what Mexico and Peru have, since, been to the Spaniards. It was their natural treasury, of the precious metals, from which they derived stores, both of gold and silver, for all the uses of traffic, ornament, and superstition. The native Spaniards, too, must, no doubt, have purchased at prices that afforded prodigious profit to the wily merchants, many manufactured commodities which the Carthaginians first introduced among them, and taught them to use.

It was reserved for a Grecian Colony, either immediately from Greece or the Grecian Isles, or perhaps from Italy or Sicily, to form the first commercial settlement on the coast of Gaul, by founding MARSEILLES. They fixed, there, probably, by accident. They became an opulent and flourishing community, by communicating to the savage natives, the manufactures of Italy, Carthage, and the East, and by deriving from them, in return, those raw materials for the arts, which were the natural productions of Gaul.

While Commerce was thus extending her adventures beyond the western limits of the Mediterranean sea; and the seeds of civilization were beginning to germinate on the shores of Europe: a maritime intercourse had been already opened between *hither* and *farther* Asia, by the way of the Red Sea and of the Persian Gulph. The Egyptians, the Tyrians, the Jews, were accustomed to navigate the Red Sea, and, in this tract of adventure, to visit the south-east shores of Africa, and the south-west shores of Asia, to uncertain distances. The inhabitants of the south of Arabia, likewise sailed, on mercantile enterprizes, to India. Between the people dwelling on the Persian gulph, and those of Hindostan, maritime intercourse was still less tedious and difficult. Yet, it is probable, that, during all this time, the commerce of Asia in general, was carried on, much more by *land*, than by sea. However, this might be; it is certain; that, the intercourse of TRAFFIC, so early as about *three thousand and five hundred years after* the Mosaic æra of the creation of the world, had begun to establish a mutual interchange of commodities among mankind, over a tract of land and sea extending from the banks of the Ganges, to the coast of Britain.

GREECE, in the mean time, rose to the dignity of a distinguished seat of all the arts, and especially of that commerce by which alone the arts can be duly fostered and encouraged.—It was situated still more conveniently than the African dominions of Carthage, in the mid-way between the eastern and

the western shores of the Mediterranean sea. The race of the people by whom it was inhabited, were widely dispersed; on the one hand, throughout Asia Minor, on the other, around the coasts of Italy. On each side, the continent of GREECE was beset with isles, equally fertile and convenient for navigation. In Italy and the Italian Isles, in the isles of the Ionian and the Ægean seas, in the peninsulated shores of the Grecian Continent, and in their settlements in Thrace, Asia, and Africa, the Greeks possessed an *extent of sea-coast*, and a number of *convenient harbours*, incomparably greater than were occupied by any rival commercial people. The Continent of Greece was the very *centre* of the western empire of civilization. Circumstances prior to the regular operation of commerce, had diffused the use of the Greek tongue, much more extensively, than that of any other language which was spoken in the West. Those circumstances, which held the Greeks, in union as one great people, yet subdivided into numberless small communities, rivals in every generous art,—and, indeed, the whole system of their civil and political œconomy,—mingling them in continual intercourse, sharpening their ingenuity, stimulating their industry, enlivening their senses, refining their taste,—conspired to render them, at this time, eminently, the first commercial and manufacturing people in the western world. *When so many other causes concurred*; the prosperity of Grecian commerce, could not but rise, with great rapidity, to a very high pitch.

From the eastern extremities of the Persian Empire, to the coasts of Italy and Gaul, Grecian commerce and curious enquiry, now extended their range. The empire of Persia,—from the time of the reign of Cyrus, embracing all the richer and more civilized parts of western Asia,—was regarded by the Greeks, as the grand seat of wealth, of luxury, and of all the arts of sumptuous accommodation. From it, they, long, continued to import both the knowledge of the most ingenious practices of industry, and the best models for imitation in their own attempts in the arts. Their gold and silver were obtained, chiefly, from Asia. Their sheep of the most valuable races, were from the shores of the Euxine. Their cows, their vines, their olive-trees, had been introduced from the east. In the arts of weaving and dyeing woollen cloth, they were the pupils of the Tyrians. It was from the Egyptians, they learned to work and to dye linen. Egyptians, too, appear to have been their first instructors in AGRICULTURE: And agriculture,—or the culture of the vine, the fig-tree, the olive-tree, and grain-bearing plants,—was, certainly, the first source of that wealth in Greece, which was necessary to the increase of its population, as to the improvement of its commerce and its arts. *Where men are a little divided from one another, yet necessitated to continual intercourse; there*

a thousand diversities of genius, of exertion, of character, *must*, unavoidably, arise. It was thus, that all the elegant arts were first produced in Greece, or at least among people of the Grecian name, *chiefly*—by giving lightness and elegance to the clumsy though sumptuous artificial productions,—or by improving to a complexity not destitute of unity, and to a refinement in which simplicity had put off grossness, rude inventions such as those of the American or Siberian savages, which for laborious, yet simple elegance, have been so much admired by the nations of Europe in modern times. In the earlier ages, these Greeks had been only mariners, knowing no delights equal to those of a sea-faring life. A period succeeded, during which, the life of a husbandman was, alone, fondly preferred. In the subsequent period, *freemen* were *artists* (rarely *artisans*) husbandmen, merchants, mariners, and knew to relish all these different ways of life. This was the *first* truly flourishing age of Grecian commerce. The fleets which the Greeks fitted out, to resist Persian invasion, were such as only maritime trade and industry highly flourishing, could enable them permanently to maintain. Its commerce and its foreign possessions occupied with commercial views, were the fundamental supports of the grandeur of *Athens*. The seat of every celebrated *oracle* was, necessarily, a scene for the constant resort of trade: every political assembly of the people of any state, was an occasion favourable for the business of a market: the meetings of the *Amphictyons*, the concourses to the *Isthmian* and the *Olympic* games, were, all eminently convenient for internal and for foreign commerce;—they were the *fairs* of Ancient Greece. *Mines* of *iron*, *lead*, and *silver*, were wrought by the Greeks, chiefly in Thrace. Their marble was, chiefly, from isles in the *Ægean* Archipelago. At many of the principal cities were ingenious manufacturers of the useful arts. Their sculpture, their molten and cast works, nay their music, poetry, and eloquence, became, in no inconsiderable degree, the subjects of a lucrative trade. Their *navigation* was, indeed, only a coasting navigation: but, modern seamen confess, that this sort of sailing is greatly more dangerous and difficult, than that which launches out into the open seas: and it is, therefore, highly probable, that the sailors of Ancient Greece were, at least, not less dexterous and expert, than those of modern England, in all the more difficult toils of a seafaring life. In the progress of their arts and commerce, the Greeks so far outstripped the perfection of the arts of Asia,—that they soon found, in the wide dominions of the Persian Empire,—a vast market for many of their most elegant manufactures. The eminently flourishing condition of their

Italian Colonies, was equally favourable to the extension of Grecian commerce in the west.

The trade of the Mediterranean Sea and of the western coasts beyond its limits, was divided, about the age of Philip king of Macedon, between the *Phœnicians* of Tyre and Carthage, on the one hand,—and the people of the *Grecian* name, on the other. The prosperity of the trade of the Greeks, was not injurious to the trade of the Phœnicians: nor did the trade of the Phœnicians repress the advancement of the Greeks. That took place, in this instance, which must ever happen, in regard, even to rival nations: the wealth, ingenuity, and ~~in-~~ ^{and} industry of the one, served but to augment the wealth, to sharpen and refine the ingenuity, to enliven and confirm the industry of the other. The more widely the sphere of art and traffic was extended; so much the more did that art and traffic flourish, in each particular province of their empire. The Greeks and the Phœnicians were mutually gainers by the co-existence and the competition of their commerce.*

C.

HINTS ON THE CULTURE OF WHEAT AND POTATOES,
AND ON AN ENGINE FORMERLY USED IN ENGLAND,
FOR FLOATING LAND.

For the Commercial and Agricultural Magazine.

MR. EDITOR,

EVERY hint that has a tendency to encrease our present wheat crop, is, I think, worthy of publick notice. In addition to what one of your correspondents said last month in recommendation of the practice of hand-hoeing young wheat, I beg leave to intimate, that I have seen a light harrow drawn over this crop in spring, especially where the weeds have been rather predominant, or when the surface of the ground has been hard and stiff, to very great advantage. I have also seen foot sown upon wheat at this season, with a still happier effect. Indeed the farmers in this and the county of Lancaster, eagerly catch at this manure at a high price, in order to carry it ten or twelve miles for this purpose. In the neighbourhood of Liverpool, abundant crops of this grain have been produced upon as cold and as poor land as any in the kingdom, by the meer efficacy of foot, and the very masterly manner in which the summer

* The general facts in this paper, are derived from the invaluable books of Homer's *Iliad* and *Odyssey*,—from the precious history of Herodotus—*from truths scattered in Xenophon, and Thucydides,—from facts in Livy and Cicero, &c. &c.*

fallow is there managed. And here I cannot help saying, that, were the most implacable enemy to a summer fallow once to see the quantity of wheat thus raised, were he to see the quality of the wheat produced, and the quality of the land producing it, he would never more stigmatize a fallow with the base Latin phrase of "hiatus", I forget the other words.

It is almost superfluous here to say; that the above-mentioned practice of hand-hoeing will be found very beneficial in our potatoe crops, this season; that it will be instrumental in saving seed; that, if repeated, it will fill up almost the widest interval between the plants, and will render a thin-set crop equally productive with that which is thick planted. No plant that we are acquainted with, is more grateful for a deliverance from weeds, and for a little fresh earth frequently bestowed upon it, than the potatoe.

I have raised more than a peck of potatoes from one plant; and so may any one, in a good soil, that will take the trouble of laying down the shoots in different directions, and of heaping fresh earth upon them every fourth or fifth day.

I have lately met, Mr. Editor, with an old treatise on husbandry in general; which, though printed in the year 1687, mentions an extended cultivation of vegetables, such as the turnip, carrot, parsnip, and but for the use of cattle; and likewise the culture of St. Foyn, Trefoil, and Lucern; and other practices which our present agricultural writers call "modern improvements," as things well known and established in his time. The author of this book, (whose name I cannot discover as the title page is lost) is evidently a man of superior intelligence, observation and experience; and in the description which he has given of the method of "drowning or watering meadow-land," has very much excited my curiosity.

"On the borders of most rivers," says he, "lie several pieces of land that are not capable of being overflowed by the obstruction or diversion of the water, without a greater injury than the expected advantage would recompence; which may, notwithstanding, be improved very considerably, by placing some artificial engine in or near such river for the overflowing thereof.

"The most considerable and universal is the Persian wheel, much used in Persia, from whence it has its name, where they say there are two or three hundred in a river; whereby their grounds are improved extraordinarily. This wheel is made much after the manner of that of an under-shot mill." He then gives a very clear description of this wheel by references to a plate. "The best of these wheels was made" says he, "by my direction, anno, 1665, at Wilton in Wiltshire, carrying water in good quantity above twenty foot high."

"Another was made near Godalming in Surrey, which with

good success raises water for about six or eight foot, to water several acres of meadow."

I shall feel myself under a great obligation to any of your correspondents who will take the trouble of informing me, whether such engines as the above are now to be seen at the above-mentioned places, or in any other part of the kingdom. Mr. Marshall has given a description of the rural practices in the neighbourhood of these places, but has not mentioned any such machines. This, however, does not prove that there are none such in existence.

I am yours,
P. S.

Chester, March 13.

NATURAL HISTORY OF THE OX.

For the Commercial and Agricultural Magazine.

THE Ox, of all quadrupeds perhaps the most beneficial to mankind, is particularly worthy of attention where it is endeavoured to apply the science of *natural history* to the improvement of *husbandry*.

The *female* brings the *young* of this species into the world, after a period of gestation of nine months. The calf is, at its birth, about two feet in height, about three feet long. Its legs appear tall and slender, more than in due proportion to the bulk of the rest of its body. Its head seems disproportionately small. The mother naturally licks the calf which she has newly dropped; and thus cleanses it from the moisture which it brings with it in birth from the womb. It soon springs up, and sucks nourishment from the udder.

Her *milk* is for some time almost its only food. Nothing could be more favourably adapted to the tenderness of the stomach and bowels in the young animal. It is easily, yet not too rapidly, digested; and its action upon the bowels is rather constringent and corroborating, than laxative. It contains too, a very salutary and well proportioned mixture of those elementary principles which constitute the proper aliment of the animal body.

The young *calf* is naturally disposed to much of playful exercise. Such exercise serves to strengthen its limbs, to knit its joints, to give it the necessary acquaintance with its own powers and with the natural objects amid which it lives. It begins gradually to crop such tender and succulent vegetables as it can readily find. At length, it is able to take its whole nourishment in pasture; and is, therefore, to be no longer suckled by the mother. On the second year of her age, the young cow or *quey* becomes fit for pregnancy: but, it is not till the *third* or *fourth* year, that either the

male or the female grows up to its full bulk and strength. Towards the end of the fourth year, though the strength may perhaps not be absolutely mature, yet the bulk appears usually to be full-grown.

At this period of its age, an animal of the most common and the middle sized *variety* of this species, may be about *eight feet* in length, about *four feet* in height. The trunk of the body from the root of the tail to the origin of the neck, may comprehend about *two thirds* of the whole length. The rest is divided between the head and the neck. The height is divided almost equally between the trunk of the body and the legs; yet with the excess of length, whatever it may be, always in the legs. The back is straight, and of such breadth, that the sides descend from it without any considerable exterior appearance of arching. The breadth is greatest at the rump, and slenderest at the shoulders. The belly is neither lank nor swelling; the bones are covered with a considerable fullness and profusion of muscles; the glandular parts at the neck, and the udder of the female are considerably, though not loosely, full. The legs are more fleshy than those of the horse and some other animals. The joints are rather strong than excessively agile and flexible. The tail descends below the middle of the legs; and the bushy hair which covers its extremity is often of such length as to sweep the ground. The ears are erect; the head has often horns, arching with the convexity outwards; the hair is short and straight, except on the front and on the tail. The colours of the whole are black, white, and red, in a great diversity of shades and mixtures. The hoof is cloven. Such are the size, form, and colouring of a *cow* or *ox*, of the race the most common in Britain, and of that which is accounted a handsome shape. The *bull* is larger and more *burly* in the head; stouter and more vigorous in the limbs; broader of breast, more full in the neck, in general of a greater mass of bone, and of considerably more muscular activity and force.

The senses of this animal are, in no respect, remarkably acute. Its manners are sedate and gentle. Tender and succulent vegetables are its favourite food; but it eats also grains, and other vegetable matters, such as even in their consistency, even somewhat dry and hard. It is a ruminating animal: and while awake, is not easy unless it be either swallowing nourishment, or chewing the cud. To its young it is exceedingly affectionate. In regard only to them, and to things respecting her food or rest, does the cow display any eminent sagacity of instinct or intelligence. It is indeed possible, by commanding the fears of these animals, to acquire, in no small degree, the direction of their movements. A cow or ox knows its keeper, the dog by which

it has been pursued and bitten, the field or kitchen-garden where it has made stolen feasts of green corn or cabbages, the stall or folds where it has been fed or has rested. Their sense of hearing is perhaps more quick and delicate than any of their other senses. Their smell is also sufficiently keen and nice. Except in the tongue and the nose; they have not the nerves of touch of very refined sensation, any where over the surface of the body. Their taste and smell enable them to distinguish between those sorts of food which are noxious and those which are salutary to them. They are apt to be alarmed and frightened by strange sights strongly impressing the sense, by some peculiar smells, and by painful affections of the sense of feeling. The sagacity of these animals evidently increases with their years: and they are even observed to form amiable habits of attachment to persons, to places, to the society of each other. Some of them, living in forests in a state approaching to wildness, have been observed to hide their young in a sort of lairs, from the access of men or other animals. Some shew greater ferocity of disposition than is common to the rest. This ferocity is peculiar to certain races, to those which have lived chiefly in a wild state, and to such as have been by any accident particularly irritated, or even brought up in habits of frequent irritation. *Bulls* are much more fierce and violent than cows or bullocks. There are indeed few *bulls* that are not apt to push, gore, and trample those who have not acquired a sort of habitual authority over them, and especially who, when the bull threatens, flee timorously before him. The usual life of the cow, ox, or bull, is from fifteen to twenty years. But in domestication, these animals are rarely left to die by the decay of nature. The diseases by which they suffer are not numerous. These are principally such as commence in the stomach or bowels, in consequence of famine, of excessive repletion, or of the use of improper sorts of food. They are liable also to suffer at times very extensively, from epidemical and pestilential fevers. Extraordinary exposure to heats, to rains, to colds, is also apt to bring on distempers in these animals. They are subject to some diseases of the skin, such as the *cow-pox*, which have their seats in the exterior absorbent and excretory vessels of the lymphatic system, and do not occasion any dangerous fever throughout the frame. The *cows* readily yield milk in an abundance much greater than is absolutely necessary for the sustenance of their calves. The strength of this animal is very considerable. Yet in firm muscular energy, as in sprightly activity, it is not to be compared with the horse. It is impossible to say, to what degree the ox may be capable of that sort of docility which approaches to the human: for, since it has been cultivated by men chiefly for the sake of its milk, flesh, &c. the requisite

attention has never yet been paid to improve its powers to the imitation of human reason.

Of all quadrupeds, the Ox was perhaps the first domesticated by man. In the most ancient records of Egyptian, Assyrian, Hindoo, and even Chinese history, the species of the Ox is related to have lived among men, in a state of domestication, to have been valued on account of its uses in the draught and for its milk, to have been venerated as an object even of divine sanctity. From Asia, these animals were introduced into Europe,—partly by the careful conveyance of men,—in part, as it should seem, by the natural wandering of droves which had escaped from domestication, and roamed and multiplied in a state of wildness. Still as civilization extended its dominion westward; this gentle and useful species of quadrupeds accompanied its progress. They were carefully propagated and entertained in Greece. They were cultivated as principal objects in all the rural œconomy of the Carthaginians. They formed a very considerable part of the rural wealth of the ancient inhabitants of Italy. Even before the Roman conquests in Gaul, Germany, and Britain, herds of tame OXEN, as well as vast droves of wild ones, were common in these countries. By the Romans, the races of these cattle, which were the most esteemed in Greece and Italy, were naturally introduced, wherever they themselves formed settlements. In the ages of the decline and fall of the Roman Empire, cows, oxen, and bulls became almost the only tame quadrupeds which were generally and industriously multiplied throughout the middle and the western parts of Europe. When America was discovered, the condition of its inhabitants was contemned and pitied, scarcely for any thing so much, as for their want of such a domesticated animal as the Ox. In the advancement of the useful arts and the progress of civilization among the nations of modern Europe, this species of tame animals has been much more multiplied, and more industriously cultivated, than it ever was before.

It is not probable that there were originally any considerable diversities of this species. But, at a very early period, the *black*, the *brown*, the *white*, the *horned*, and those which *wanted horns*, seem to have existed, as so many distinct varieties. Their intermixture in propagation, produced all those numberless differences which have, since, been remarked in the species. In the southern countries of Greece and Italy, there was anciently, a much admired breed of milk-white OXEN; which were propagated, amidst the progress of the Roman conquests, in the more northern and western parts of Europe; were, four or five centuries since, numerous in Britain and Ireland; and are still to be seen, in a half-wild state, in some parks and forests in this country. The *black* and the *white* were the tame oxen the

most usually yoked in the plough, in the days of Pliny. The *Urus* or *Wild-ox*, which was anciently common in the forests of Germany, Gaul, and Britain, seems to have been a race that had wandered very early from domestication, and passed, gradually through the northern forests of Asia, into the middle parts of Europe. The nature of its food, and the other circumstances and habits of its life in the forests, might easily promote an augmentation of its whole bulk, and an excessive growth of its horns, such as are described to have distinguished it from the more common sorts of these cattle. In the Polish and Lithuanian forests, the race of the *Aurochs* or *Urus*, is said still to survive. The mixed races in Germany, Holland, and Britain, are, in part, descendents from the *Urus*. Other races, variously distinguished, have been formed, not by any original discrimination of species, but by the accidents of generation, pregnancy, and subsistence. Such are,—the *OXEN* of North America, with manes,—those which have a bunch on the shoulder,—others having even two bunches.

The *BUFFALO*, an inhabitant of all the southern countries of Asia, and of some of those of Europe; large, unwieldy, fullen, and untractable; delighting in marshes and mires; yielding milk, sometimes yoked in the plough, affording flesh which is less soft and juicy than that of the ox; appears, indeed, to be a distinct species: for, its period of gestation is *twelve*, not, as that of the ox, *nine* months; and it is distinguished by other remarkable peculiarities.

The ox is, in truth, the most useful of all animals, to man. It was yoked in the draught, long before the horse was sufficiently tamed, or common in every country. In most countries, *OXEN* still continue to be used in the plough: Several centuries, since, their use was universal in Britain. There are among us, proposers of innovation, who would have us, even now, to resume the use of oxen in our carriages and ploughs, and to discontinue that of *horses*. But it was, in truth, one of the greatest improvements that British husbandry ever received, which took place when *horses* were, first, generally taken into employment in the draught, instead of *OXEN*. The *milk* of the *cow* is, of all animal products, perhaps, in its various preparations, the most salutary for human food. *Beef* is, of all sorts of flesh, that can be generally procured in sufficient quantity, the most agreeable to the taste, and the most nutritious. The *tallow* of the ox is prepared into a number of useful manufactures and compositions in the arts. The *horns* and *hoofs* afford valuable salts; and are the materials of several important ordinary utensils. The *blood*, *hair*, and *hoofs*, are useful in the preparation of that admirable colouring matter, *Prussian blue*. The *hide* is tanned into *leather*. The *bones* are the materials for various manufactures; and they may even be, with some advantage, ground to a powder, and employed as a manure. The

best gift of the Spaniards to the *New World*, was the introduction of this quadruped into it. In the Spanish provinces of South America, OXEN of an European breed have been suffered to multiply in the woods and savannahs, undisturbed by man, till they are now, of all animals, the most numerous in those parts. The British government at BOTANY-BAY have, by a happy accident, been led to suffer their OXEN to multiply, unrestrained and uninjured, in the interior woods. These will probably increase to immense herds, like those of New Spain. They will, then, add prodigiously to the natural wealth of the territory adjacent to the settlement; and will afford to the colonists, one of the surest of all resources for perpetual plenty of provisions.

Its cattle of this species, are one very capital article of the wealth of Britain. Our British OXEN are a mixed race, for the improvement of which, much pains, and many different expedients, have been employed. Those of the mountainous parts of Scotland and Wales are small and hardy, without elegance of form. Those of the lower, more fertile, and better cultivated, districts of the isle, are, in various degrees, larger. In the improvement of the breed, it has been, sometimes, the principal object of the improver, to procure cattle, of which the bones should be as small as possible, in proportion to the flesh: sometimes it has been attempted to produce cattle as enormously large as possible: sometimes the care has been, to have cattle without horns: and sometimes it has been endeavoured to create a breed, of which the cows should yield extraordinary quantities of milk. Whim, prejudice, vain theory, partial views of the nature and utilities of cattle, have directed almost all these attempts.

The best breed of BLACK-CATTLE for BRITAIN, must be, one of middle size, without deformity of shape, more commonly possessing than wanting horns; preserving, between the quantity of the bone, and that of the flesh, the proportion which is requisite to firm and vigorous health; not apt to become fat too rapidly, but continuing firm and strong in its fatness; neither yielding an insipid and ill-formed milk in prodigious quantities, nor yet scanty of milk, as a sheep or a goat; capable of enduring without sudden loss of health and fatness; considerable fatigue in driving, the vicissitudes of temperature and season which belong to this isle, and those diversities of food, upon which it is necessary that our cattle should, in different places and seasons, be sustained. They deserve not the name of RATIONAL and PRACTICAL FARMERS who conduct their attempts to improve the breed of these cattle, upon other principles than this.

ORIGIN AND PREPARATION OF COCHINEAL.

To the Editor of the Commercial and Agricultural Magazine.

SIR,

I THINK it to be eminently the duty of gentlemen, who have learned, by personal observation, any curious and important facts relative to commerce, agriculture, or the useful arts, to communicate them, for publication in a Magazine like yours,—of which the design is skilfully contrived, and well intended,—the execution distinguished by singular propriety, ingenuity, and felicity. I, therefore, transmit to you, the following facts concerning the COCHINEAL-INSECT. They are known to me, from my own ocular observation, in South America.

The COCHINEAL-INSECT is named by Linnæus, *Coccus cacti canelliferi*. It has its residence on the prickly pear-tree: and hence the propriety of the specific distinction which that naturalist has adopted. The *Mexican variety*, which he describes, is of a flat back, black legs, tapering antennæ or horns. The *insect of Rio Janeiro* has bead-like antennæ, a convex back, legs of a bright red colour.

The *male* of this *Coccus*, is, at *Rio*, coloured over its whole body, of a bright red hue; has its breast but slightly attached to the head, and of an elliptical form; its legs of a red still more brilliant, than that of the rest of its body; exhibits two fine white filaments, about thrice its own length, projecting from the extremity of its belly; possesses two erect wings, of delicate texture, and of a faint straw colour.—The *female* is—of an elliptical form, on both sides convex, but especially at the back; marked, on the abdomen, with transverse furrows; with its mouth in the breast; armed with a purplish beak that serves to penetrate the plant on which it feeds; fitted with six legs of a bright red colour; covered, on the back, with a white downy substance, like the finest cotton.

The pregnancy of the *female*, takes place within twenty days after birth. An innumerable offspring is produced. Immediately after parturition, the mother dies. For the first day after its birth, the infant insect remains without exhibiting any signs of animation. On the second day of its existence, it begins to move with agility, over the surface of the leaf on which it was deposited. Viewed through a microscope, it seems, at this time, a small shapeless speck of red matter, thinly overspread with a downy cotton. Within three or four days, the downy covering becomes visible to the naked eye. The insect, meanwhile, grows larger, and continues to grow, till it is nearly equal in size to a grain of rice. At its full growth, it adheres to the leaf, in a state of torpor, brings forth its young, then dies.

The life of the *male* is of yet shorter duration, than that of the *female*. The young *males* are not, in parturition, deposited,

indifferently, among the *females*, but are placed in separate cells of a cylindrical form. The *males* are, in these cells, in the state of chrysalides. The wings soon appear; and, within three days after, the perfect insect arises to active animation. In a subsequent life of only three or four days, it impregnates the females. Its term of existence, is, then finished.

The plant on which these insects feed, seems to be that sort of the *Cactus* which Linnæus has named the *Cactus Opuntia*. Its height rises, variously, from eight to twenty feet. Its leaves are thick, oval, of a green colour which changes, in the progress of their growth, to a yellow. They are armed with round and tapering prickles.

At RIO JANEIRO, the full-grown insects are, twice or thrice a week, picked off with a pointed twig of bamboo, by slaves who pass among the plants, the leaves of which they cover. But, by a management so rude and careless, many *females* are, always, prematurely destroyed: and hence the quantity of insects obtained is necessarily much smaller than, with greater delicacy and care, it might be.

The insects when gathered, are easily reduced into that state in which they are to be sold, as COCHINEAL. From an wooden bowl into which they were collected by the gatherers, they are spread upon a flat dish of earthenware, and in it, slowly roasted over a fire of charcoal, till their downy covering, and all but the *fixed red matter* of them, disappear. Great care is requisite to manage the torrefaction, so that it may destroy all but the *fixed red matter*, without injuring *that*. The insects are stirred with a tin ladle, and from time to time, sprinkled with water, during the process. When it is ended, they appear so many dark, round reddish grains, of which it might be hard for one who did not know their history, to determine, whether they were of animal, of vegetable, or of mineral origin. These grains are the COCHINEAL, that dyeing-stuff so precious to the Arts of Europe.

Thames-street,

March 5, 1800.

I am, Sir, your very humble Servant,

CHARLES WILSON.

For the Commercial and Agricultural Magazine.

SKETCH of the COMMERCIAL, AGRICULTURAL, and MANUFACTURING ŒCONOMY of CHINA.

THE vast empire of CHINA comprehends, in *China-Proper* and *Chinese-Tartary*, an extent of about two millions of square miles of the surface of this terraqueous globe. PEKIN, the principal seat of its government, is about four thousand and four hundred miles distant from London; and is situate in the

hundred and twelfth degree of eastern longitude—in the fortieth degree of northern latitude. An empire so extensive necessarily comprehends many diversities of climate, many inequalities of local elevation, numberless varieties of both animal and vegetable productions. It is intersected by mighty rivers. Its level is elevated into lofty mountains; is washed, around its coasts, by spacious seas; is conterminous, at its inland boundaries, with the dominions of various tribes and nations. *Chinese-Tartary* is, indeed, thinly peopled, and uncultivated. But, *China Proper* contains, on an area of 1,297,999 square miles, a population of 333,000,000 souls, or 256 human beings upon every square mile. The public revenue of the imperial government of *China*, is equal to about sixty-six millions of pounds sterling, annually; exceeding its yearly expenditure by more than 12,000,000*l.* of our British money. The armies entertained in the service of the Emperor of CHINA, amount to the number of about 1,800,000 men, infantry and cavalry.

Egypt, Assyria, Hindostan, and *China*, appear to have been the first seats of civilization in the times of ancient history. Hindostan and China, more fortunate than the two more western countries, had probably made greater advances than these in the culture of the arts of life, and in useful knowledge, before they were desolated by war and conquest. In CHINA, agriculture, manufactures, and traffic, have been very long cultivated with extraordinary ingenuity and industry, and with the most admirable success. War and revolution have passed over it, but as a famine or a pestilence—for the present, indeed, terrible and destructive—but leaving behind no traces, save such as must be soon, by the energies of nature, happily effaced.

I. The HUSBANDRY of the CHINESE is chiefly AGRICULTURAL. They are much more attentive, in general, to tillage than to the breeding and management of any sort of cattle.

They entertain, indeed, hogs, horses, cows, poultry, &c.—The *buffalo* is, also, common throughout CHINA; and asses and mules are not rare. They have sheep, chiefly of that race of which the tails swell to extraordinary size and fatness. But none of these animals is so abundant in CHINA as to form a capital part of the farm-stock, like the sheep, oxen, and horses of Britain. The *plough* is light and small, so as to be often drawn by women. Wheel-carriages, of all sorts, are in proportion to the population, to the numbers of the people, and the state of the cultivation of the country, very far from numerous. The Emperor and the great mandarins use *palanquins*, borne on the shoulders of men, not chariots and coaches, for all their purposes of state or luxury, in passing from one place to another. The people in general, of all ranks, subsist much more upon vegetable than upon animal food. From these facts it clearly appears, that the

rearing of animal-stock cannot be the primary object in the rural œconomy of the CHINESE.

Rice, wheat, yams, sweet potatoes, onions, carrots, cabbages, lettuces, turnips, &c. are the vegetables which are chiefly reared in the agriculture of CHINA. The *plough* and the *hoe* are the common implements of tillage. Their favourite *manure* is human excrement mixed with earth, and with almost every variety of vegetable and animal exuviae. They irrigate their lands by water raised from the canals and rivers, by contrivances sufficiently simple and sufficiently awkward: or, they conduct the water in trenches and rills from the rivers, lakes, and canals, throughout all their fields. The climate requires very great attention to be paid to *irrigation*: and they have, accordingly, attained to great comparative skill in this operation of good husbandry. *Hand-carts* and *wheel-barrows* are the carriages which they most commonly use in their labours. For the preservation of their accumulated manure, they form cisterns sufficient to retain moisture, without any considerable filtration: and in these they deposite their collected matters for fertilization; carefully adding urine and other liquid substances to the solid ones of which this manure principally consists. The *seeds*, of whatever sort, are always steeped, by the *Chinese* husbandman, in urine, before he sows them; a precaution which saves them from being destroyed by smut and insects. The *rice-fields* require to be covered over with water till the grain be nearly ripened. In the northern provinces, a particular variety of the *brassica*, a favourite article at the tables of the CHINESE, is very extensively cultivated. The *hills*, even where considerably steep, are formed into terraces rising one above another to the very summits: and these *terraces* being covered with artificial soil and with manure, are thus made to yield rich crops of vegetation in situations which Nature might seem to have destined to eternal barrenness. While their crops are growing, the CHINESE are solicitously careful to remove any weeds by which the vigorous springing of the grain might be hindered. *Farms* are usually *let* for terms of three, five, or seven years; at the end of any one of which the tenant is, by the engagement, at liberty to leave his farm, or the landlord to resume it.

The *sugar-cane* is extensively cultivated in the southern provinces of CHINA. *Tobacco* is, here and there, cultivated in considerable quantities. For *land-rent*, the produce is usually divided between the landlord and his tenant in equal parts: but the landlord has the tax to the sovereign to pay out of his share, while the *tenant* enjoys *his* without diminution. The *Lien-wha*, a water-plant yielding delicious seeds, is much cultivated on the lakes. *Vines* are cultivated, not for the sake of pressing wine from the grapes, but in order to use this fruit in its native state at the table. *Plantations of bamboos* are frequent and extensive

in CHINA. This species of cane is applied to a thousand uses: and to possess it in abundance is, therefore, an object of primary importance, in the general œconomy of life, throughout the empire. The *tea-plant* is to be seen in many parts of CHINA, growing in the neglected condition of a common shrub. It is every where, also, cultivated with care. Its plants are raised from the seed in rows, with intervals of four feet between them, and kept carefully clear from weeds. It is planted chiefly on dry hilly grounds: its branches commence at the root, and cover the stem upwards to its top: it is bushy, like the rose-tree; and the expanded petals of its flower are not unlike to those of the rose-tree. The quality of its leaves, as tea, depends very much on the nature of the soil on which it grows, and on the age at which they are gathered: the leaves must be plucked while they are still very young and tender, if it be desired to have *tea* of uncommon excellence. *Orange-trees* are very plentiful in CHINA; and their fruit is a common article at the CHINESE tables. An upright *barrow*, with wooden pins in the lower end, is the inconvenient instrument used by the CHINESE in harrowing the ground. The *rice* is first sown thick: within a few days, its shoots appear above the water, with which the field is covered: when these shoots have attained to the height of six or seven inches, they are pulled up, pruned of the tops, transplanted into rows, and again laid under water. The mode of conducting the water through the fields is not unlike to that which is, at present, in practice in Gloucestershire. The first crop of *rice* is ripe for the sickle in the end of May, or the beginning of June. The grain is cut with a sickle, not unlike to that which we use in Britain. The sheaves are carried from the field in hutches suspended between men's shoulders. The grain is separated from the straw by thrashing with a flail, by the treading of cattle, or by striking the sheaves on a plank, or on the edge of a tub. The rice is cleared from the husks by beating it in a trough, nearly in the same manner as the Scottish peasantry beat that barley which they cannot carry to the mill, before they have occasion to boil and prepare it for food. Sometimes, however, the CHINESE also *shell* their *rice* in the mill—as we our barley. The straw is *chopped* for food to the very few cattle which CHINESE husbandry employs. Tillage for a second crop, is commenced immediately after the reaping of the first. The stubble is burnt, and its ashes are scattered over the field. The former labours are then renewed. The *second crop* is reaped in October, or, at least, early in November. The stubble which remains from it is not burnt, but plowed down, to putrefy in the ground. Of *sugar-canes*, however, the CHINESE husbandman reaps only a single crop in the year. The lands are never suffered to lie *fallow*; nor does the CHINESE husbandman understand the use of a rotation of crops, in which one crop may re-

store that *pulverization*, and that *vegetable matter*, which another has changed or exhausted. Many parts of the empire are in a very uncultivated state. The peasants enjoy little more than the most scanty supply of necessaries: for animal food, they eagerly snatch at the vilest carrion or vermin. Fertility of *soil*, convenient supplies of *water*, benignity of climate, patient assiduity in *toil*—these are the only enviable advantages in the state of CHINESE husbandry. But the CHINESE peasantry exist, in general, in a state of abject misery and want, much like to that of the vine-dressers of ancient France. They take the *fishes* of their lakes, canals, rivers, ponds, and sea-coasts, with very watchful industry. *Millet* is an article of crop, of which they raise great quantities. The *mulberry-tree* and its silk-worms were *first* cultivated in CHINA: and they still continue to be here a capital object of general attention. The *cotton-plant* is not less extensively a subject of culture in CHINA. That variety of it which possesses naturally the colour of those *stuffs* which we call *Nankins*, &c. is the peculiar material they are made of, grows in one province only.

II. Of the MANUFACTURES of CHINA, many specimens have been long imported into Europe, which have been beheld, among us, with universal admiration. One grand object of the mechanic arts is in CHINA, as in other countries, the *construction of houses*. *Stone buildings* are comparatively far from numerous in this empire. Wood, bricks, tiles, are the common materials employed in building. The tiles are neatly put together. The general aspect, however, of Chinese architecture, exhibits but an assemblage of littlenesses. The streets of some of the great towns are paved with flat square stones. The bridges are steep, and have their arches narrow, but of strong masonry. The cities are surrounded with walls, strengthened by square towers, and, in their height, greatly over-topping the houses within. The houses are rarely furnished within with a sumptuousness approaching, in any degree, even to that of the houses of persons low in the middle ranks of life in England. *Horn*, *talc*, and *oiled-paper*, are, in CHINA, prepared for many of those uses to which we apply glass in Europe. The CHINESE distil *ardent spirits* from *millet* and from *rice*; but, with the preparation of wines and other fermented liquors, they are very little acquainted. They present their *meals at the table*, already portioned out in small quantities, and in separate dishes, and these dishes piled up, one above another, in considerable numbers, and in a pyramidal form. *Salt* is manufactured and consumed in very large quantities, in the Chinese Empire. The Government levies upon this article a great revenue. In some parts, an impure nitre is naturally found in such abundance, as to be taken as a cheap substitute for marine salt. The *marine salt* is coarse, and is prepared in the same manner as that which we call *bay-salt* in Britain. *Cotton-yarn* is spun

in the families by the *women*, who also rear the *silk-worms*, and are almost the *only weavers* throughout the CHINESE Empire. The manufactures of silk and cotton-stuffs are exceedingly extensive; as the clothing of the CHINESE consists almost solely of these stuffs; and vast quantities of them are likewise exported to foreign countries. The great towns exhibit busy scenes of manufactures and traffic. The hamlets and scattered houses in the country are inhabited by husbandmen alone. *Paper* is manufactured from the straw of rice, from the fibres of hemp, and from the bark of several other vegetables. The CHINESE extract from the carthamus, their finest *red* dyeing-stuff, and *dye black* with the cups of the acorn. They prepare *snuff* from their tobacco; and likewise use this herb, as well as opium, powdered cinnabar, &c. in smoking. The *Art of Printing*, not indeed with moveable and separate types, but with carved boards of wood, has been long in use in CHINA. It is employed solely as an engine in the hands of the government. Their paper is too thin and weak to receive impressions on both sides. Their *letters* are well known to be almost as numerous as their words. Though CHINESE artists know how to cut stone, wood, or ivory into the imitation of animal forms; yet they are strangers to all expression of grace, proportion, or anatomical truth. In the deficiency of animal fat, the Chinese extract from the berries of that which is called the fallow-tree, the *Croton Sebiferum* of Linnaeus, a vegetable fat, of which they prepare their candles. Many articles of their household furniture, and many utensils of various sorts, are manufactured by them from that admirably useful plant, the *bamboo*. The CHINESE inoculate for the *small-pox* by inserting into the nostrils a small portion of cotton, impregnated with infected matter: and hence blindness and weakness of sight are very often the consequences, in CHINA, of this distemper, even in its gentlest form. They make a *white mixed metal*, an amalgam of copper, zinc, and a little silver, with a small portion of iron or nickel, of which many very beautiful utensils are fabricated. They cast *plates of iron* with no common skill: but their smith's work is, in general, brittle, clumsy, and unpolished. *Gold*, though rare, and not much used as money, is collected from among the sands of some of their rivers, and is used in their works of embroidery, &c. They make much use of *tin* in a diversity of manufactures. Their *glass* is all, or almost all, from Europe. The Chinese discover great ingenuity in the *exact, servile*, imitation of European models of almost all sorts. They use, in their *porcelain*, mixtures of siliceous, aluminous, and calcareous earths, perhaps less adapted to afford the perfection of this manufacture, than those which we have learned to employ in Britain. Being judges of the perfection of earthen-wares, they regard with admiration the most beautiful specimens of that which is prepared in this country. *Porcelain* is manu-

factured in CHINA, in prodigious quantities: And it must be owned, that great excellence is, there, displayed in the encaustic colouring of it.

III. A vast *inland* Empire, like that of CHINA, cannot easily engage so much in maritime commerce, as if the sea-coast bore in its extent, a greater proportion to the internal area. Internal *traffic* is regarded, in CHINA, as much more important to the general welfare and prosperity, than foreign traffic. Carriages, stout horses, broad and solid highways, a post-office-system accommodated to the uses of trade, are, indeed, wanting. But, the *canals* and *navigable rivers* which extend, in almost every variety of direction, throughout the CHINESE provinces, *afford* such convenience to the intercourse of internal traffic, that the want of great roads and carriages, is little felt and little regretted. The canals and rivers are continually crowded with a sort of long, light vessels, which have, in CHINESE, the denomination of *Junks*. These convey from the northern provinces of CHINA to the southern, from the southern to the northern, whatever commodities are mutually wanted, and can be mutually supplied. Narrower canals and smaller vessels convey goods and passengers across the country, into the smallest districts. Still, however, this union of *canals* with *indifferent foot-roads*, in a country where coasting navigation can do, comparatively, little, is very *far from affording* those advantages to *internal trade*, which it derives from the combination of canals with highways in England. But, if all civilized Europe should form, in respect to commerce, as it were, but one empire; then would the *foreign trade* of each of its present principalities and kingdoms, be, at least nominally, much smaller than it now is: and, by a similar ratio, the *foreign trade of the CHINESE empire*, may be regarded as being much less than if that vast extent of territory were parcelled out into separate states and kingdoms. Its *internal trade*, however imperfect the channels by which it is conducted, is incomparably greater than its *foreign trade*. Its rivalships of trade are much smaller than those which act in the western world, among the same number of people, or within the same extent of territory: And hence, also, that comparison of things exceedingly dissimilar, and that emulation in elegance and fitness of manufacture, to which we owe the best improvements of our European arts, operate but feebly in CHINA. The great towns are indeed grand seats of internal commerce. In them reside the merchants and manufacturers. There, are accumulated the produce of the ground, the imports of trade, and the productions of the manufacturing arts. From these reservoirs of labour, capital, commodities, there is an incessant *diffusion* of them, by the canals, throughout the whole empire. *Copper coins* are the most common species of money in CHINA. The copper

of which they are made is imported from *Japan*. The smallest CHINESE copper coins are extremely diminutive, both in bulk and value. Silver has become continually more plentiful, since the commencement of a regular commercial intercourse between Europe and CHINA: yet, the value of money is still much higher in CHINA than in England. Nevertheless, the money price of many of the necessaries of life is as great among the CHINESE as in this country; a fact from which we may naturally infer the condition of the poor to be much less comfortable in CHINA, than in the British dominions in Europe. In CHINA, the merchants are subjected to many unjust exactions, and much oppression, from the Mandarines. The rate of the interest of money is excessively high in CHINA; and pawnbrokers' shops are common in the great towns.

The foreign commerce of CHINA, though inconsiderable in respect to the extent of the empire, and the immensity of its population, is, however, still very great. From *Tartary*, the CHINESE procure furs, charcoal, horses, and various other raw commodities. *Russia* furnishes CHINA with vast quantities of furs. *Japan* supplies it with copper. From other Asiatic isles, adjacent to its coasts, it receives birds' nests for the table, with a variety of other articles both of luxury and of necessary use. From *Hindostan*, opium, cotton, tin, pepper, sandal-wood, elephants' teeth, and bees'-wax, are imported into CHINA, chiefly by the way of Canton. From those which were lately the Dutch settlements in India; there is likewise an importation of a multiplicity of articles into CHINA. From England, are imported into CHINA, lead, tin, woollens, furs, &c. to the amount of more than a million annually.

Teas are the staple article of the EXPORT-TRADE of CHINA. Porcelain, nankeen, stuffs, alum, sugar, quicksilver, turmeric, camphor, rice, colouring matters, silk, &c. &c. are the principal articles of exportation from China. Till lately, China was wont to receive more of silver and of valuable raw materials, for those of its exports to foreign nations, than it gave for those foreign commodities which were imported into it. What is called the balance of trade, begins, however, to turn very much against the Chinese. And this effect must take place still more and more, till the Chinese government shall better understand the true relations of foreign trade to the internal prosperity of the empire.

S. A.

ON THE MEANS FOR PROCURING PAPER IN SUFFICIENT
ABUNDANCE, AND AT A REASONABLE PRICE.

To the Editor of the Commercial and Agricultural Magazine.

SIR,

THE present scarcity and dearness of PAPER are subjects of very serious and alarming concern. They threaten to check the diffusion of knowledge among the poor, and entirely to suppress much important literary communication. They already begin to deprive a very numerous and intelligent class of labourers of the means of subsistence. They tend to reduce all the publications of British literature to compilations and abridgements. They cannot, but in a certain degree, contribute to make both the exporting book-trade and the general literature of Britain, sink into a state of decline, in comparison with those of foreign nations.

It has occurred to me, that the following means may be usefully employed to render PAPER, once more, cheap and plentiful among us.

I. Let the growth of flax, and the manufacture of those cloths which are formed of it, be more attentively encouraged than they have lately been in Britain. It is, certainly, injudicious to abandon our *linen manufacture* for the sake of *cotton works*. The want of rags for paper, is, perhaps, the least of the evils which cannot but flow from this measure. The renewal and extension of our *linen manufactures* would, though not immediately, yet in the end, furnish that abundant supply of linen rags, of which the want so exceedingly enhances the present prices of our papers.

II. Our rags are not at all collected with sufficient care, for the use of the *paper manufacture*. The manufacturers of paper could not do better than enter into some general agreement with the *overseers of the poor* and the managers of *charity work-houses*, throughout the island, by which the *paper-makers* should be obliged to purchase at a certain rate, all the *linen-rags* which could be supplied to them; while, on the other hand, the *overseers*, &c. should engage to employ certain persons from among the poor under their charge, in the constant collection of rags throughout all the districts on the island. It cannot be doubted but a sufficient quantity of rags might be procured for the manufacture of our papers, if due care were taken to collect them. But our paper-makers have been, hitherto, content to depend for their raw materials on a supply from abroad. And the collection of *linen-rags* is a sort of parsimony and of industry which the people of Britain have not yet sufficiently learned.

III. *Cotton-rags*, of which Britain certainly affords a sufficient abundance, ought to be collected, ground down to sufficient fineness, and employed, like those of linen, in the manufacture of paper. Though less strong and tenacious in the union of their fibres, cottons are, in truth, of the same elementary composition as flax. In the threads of flax there is indeed more of resin, of closeness of structure, of a filamentous consistency. But in the manufacture, the disadvantages of cotton as a material for paper, might be, in a great measure, overcome. *Cotton rags* are already employed in a certain proportion, in our British manufacture of paper, but not skilfully. Let them be used in a proportion much more considerable; and let it be endeavoured to attain to perfect skill in the preparation of them for this use.

IV. *Flax* or *cotton*, used *directly* as materials for PAPER, would, indeed, be too expensive. It is only after they have been worn in cloth, that they can be afforded at a rate sufficiently cheap. But there are many other substances, which are now applied to no use in the arts, and which would answer exceedingly well as materials for the manufacture of paper. *The Chinese prepare much of their paper from STRAW*: and why might not we imitate their example? The rind of the nettle, the inner bark of the birch-tree,—the leaves of almost all ligneous plants, taken when dry, and not suffered to rot—may be ground down, bleached with oxy-muriate of lime, and easily made into excellent paper. It is to be remembered, that the first paper was the manufacture of the Egyptians, from the leaves of a vegetable. Let the society of ARTS, the booksellers and stationers of London, or any other eminent or munificent body of men, offer a very liberal premium for samples of paper made from STRAW, LEAVES, or the RIND of certain trees: Such paper will be easily furnished at a very cheap rate, and of excellent quality.

V. I do not believe, that there is sufficient diligence used in bleaching such coloured materials for paper, as are at present to be easily enough procured. Nor does it appear to me, that our English paper is made of the thinness and tenacity of texture which distinguish the paper of Germany. By the bleaching of coloured rags, and by making our common printing-papers thinner and of a less spongy consistency; a considerable additional supply of the materials for paper might undoubtedly be commanded. Why should not recourse be had likewise to this measure?

These, Sir, are the expedients which have suggested themselves to me, for rendering our supply of papers more plentiful and more cheap.

March 10th, 1800.

R. H.

ON THE EVILS OF MONOPOLY OF GRAIN, FARMS, &c.
WITH A PLAN FOR REMEDYING THEM.

To the Editor of the Commercial and Agricultural Magazine.

SIR,

AS the very unprecedented and alarming high price of every article of life, particularly Corn, is a subject that has drawn forth the attention of the Legislature, and consequently the first talents and abilities in the kingdom; much cannot be expected from the very inferior talents of your Correspondent.— Yet, as it is the duty of every one to take all opportunities of giving hints, or proposing any plan, that may tend to alleviate the distresses of the labouring poor, (distresses which at the present moment even reach the middling ranks of society); and as I consider no mode of communication better adapted for that purpose, than that which shall pass the medium of the Commercial and Agricultural Magazine; I beg your insertion of this letter.

In the first place, then, it will be necessary to enquire whether the present high price of Corn arises from a real or an artificial scarcity of that article. On this subject, opinion is much divided; and likewise, as to the deficiency of the crops. Some persons calculate the deficiency to amount to three months consumption; some, to only one month; while others contend that the scarcity is only artificial, arising from a system of monopoly in London, the ramifications of which are extended by the influence of monopolists to every part of the United Kingdoms.— It cannot, therefore, be deemed presumptuous in me to hazard an opinion on this subject, when I am convinced from my own knowledge, that *no real scarcity does at present exist*: It was, indeed, observed by a noble Lord, that the *Report of the House of Commons* was not satisfactory; as those persons who stated the present high price of Corn to be occasioned by a failure of the last year's crops, were not asked their opinion as to the quantity in hand, at the close of the last harvest; and as a knowledge of the quantity of corn then in hand, would decide, whether the present stock were equal to the consumption. No such question having been put, it is submitted, that, even the high authority of the House of Commons cannot, in this case, be considered as decisive.

At any rate, both Houses of Parliament are intitled to the warm thanks of the Public, for their timely and patriotic exertions to lessen the consumption in their respective families.— But, my intention is to offer such observations, and propose such a plan, as, in my opinion, may tend, in some degree, to remove the present evil, and prevent future *similar* calamities; or at least to place them in such a point of view, that by the assistance of the superior abilities of some of your Correspondents, the desired purpose may be obtained.—It will therefore only be

necessary to state such facts as appear most prominent in causing the present high price of every necessary article of life.

The principal causes are, a monopoly of corn, cattle, fish, &c. by means of engrossers, forestallers, and jobbers, and the union or monopoly of small farms.

In the first place, I would observe upon the manner in which *the Corn Trade* is carried on in the country and town markets. In country markets, some of the farmers who attend them, bring only a horse load or two. Others, it is true, send in their corn by loads; but, if the price should not be so high as their avarice leads them to hope for: their corn is put in granaries; and, if the farmer should want money between the markets, or before it rises to his wishes; a jobber is called in, who advances the money; and the whole quantity is swept away without a fair competition in the market.

In the London markets, corn is there never brought in bulk, but only in small samples; which enables the factors, without expence, to expose the same corn to sale on many successive market days, 'till the price in some degree meets their desires. I will state means by which factors have and use the power of raising the price of corn. A factor's correspondents in the country, for instance, send him orders to dispose of twenty thousand quarters of grain; the factor at the same time may have five thousand quarters of his own corn. Two or three factors, in similar situations, bringing forward or withholding so large a supply, necessarily make a very great alteration in the price, by which the factors are enabled to acquire a large profit on their own grain, while their correspondents receive a proportionate increase.

Trade may be considered as fair, regular, and beneficial to the community, when provisions pass from the first producer of them to the last consumer, through the hands of such honest and lawful dealers and manufacturers only, as are requisite to fit them for consumption. Whoever, therefore, gets any of the necessities of life into his hands, without making them more fit for consumption, than they were before he had them, and without forwarding them to that end, is certainly a nuisance to the kingdom. Thus, for instance, where corn passes from the farmer to the mealman, and from him to the baker or maltster and brewer, and from them to the consumer; all these trades are useful in forwarding such consumption, and ought to be supported by reasonable profit and advantage. But the forestaller or monopolizer is, no ways, assistant to either of these lawful callings; all his business is to increase the price for his own unjust gain; which, consequently, tends to the injury of every family in Great Britain.

The same equally apply to those who forestall the articles of cattle, meat, fish, &c. The nefarious jobbing in the former

of these articles, is fully set forth in the Report of the House of Commons on this subject.

All endeavours whatsoever to enhance the price of any merchandize, and all kinds of practices that have an apparent tendency thereto,—whether by spreading false rumours, by buying things in a market before the accustomed hour, by buying and selling again the same thing in the same market, or by any other such like devices, are highly criminal and punishable by fine and imprisonment.

No person can lawfully buy within this realm any merchandize in gross, and sell the same again in gross, without being liable to be indicted for the same*.

The bare ingrossing of a whole commodity, with an intent to sell it at an unreasonable price, is an offence indictable at common law, whether the same be sold by an ingrosser or not†. So jealous is the common law of all practices of this kind, that it will not suffer corn to be sold in the sheaf, perhaps for this reason; because by such means the market is in fact forestalled‡.

In respect to the practice of forestalling, the preamble to the Acts of the 5th and 6th of Edw. VI. states, that divers good statutes had been made against this growing evil, which shews that it was of a much older date, and will serve to shew the baneful effects of the repeal of the statutes against monopoly, and how much it at present demands the interference of the legislature.

The next head to which I claim your attention, is *the junction of farms*. To mention the names of the monopolizers of farms, would be trespassing on the strict limits of your Publication, which I would by all means avoid. But, the inhabitants of the parishes of *Camberwell* in Surry, and *Beckenham* in Kent, well know that instances are not wanting, of a monopoly of farms taking place in both these parishes.

That the monopoly of farms is injurious to the country at large, and the farming interest in particular, I can venture to assert not only from my own knowledge, but from the evidence of gentlemen of very great agricultural talents.

Mr. PEARCE, in his Agricultural Report of the County of Berks, with a truly philanthropic spirit, observes, that small estates are the best barriers against the destructive practice too prevalent now, of adding farm to farm. And, he further observes, p. 42, that, by his observations, he is anxious to serve the humble, hard-working cottager, whose attachment to his family and domestic wants are as strong and urgent as those whose situation and education are superior, whose steadiness and firmness, in times of sedition, make him a valuable subject to the state, and who, though with scanty allowance, works thro' a life of toil and labour, yet does not repine, &c. &c.

* 1 Haw. 234. 5. † 3 Inf. 166. ‡ 1 Haw. 235. || Ibidem.

Mr. Fox, in his Report of the County of Monmouth, states, "The general cultivation of this county seems the soundest reasoning in favor of small farms: they promote plenty, population, and industry, and prevent monopoly, by constantly supplying the markets."

In addition to this, I may add, that the wives of great farmers are very little in the habit of attending the markets with either butter, eggs, or poultry, as the wives of the small farmers do: nor does the farm-yard, in this respect, bear so good an aspect.

To remedy this nuisance to the State, the statute of the 25th H. 8. enacts, that no person whatsoever shall take above two farms, and those to be in the same parish, under the penalty of 3s. and 4s. per week. Which act has never been sufficiently enforced to prevent many industrious families from being thrown out of bread, the number of people employed (which are the real riches of the country,) much diminished, and the monopolizers of farms enabled to keep back the produce of their land from market.

The neighbourhood to, and increase of, great towns, speak loudly in favour of small farms; as by their means, an increased supply of the most useful articles of life is procured; and, where monopoly does not exist, the public are materially benefited; as a proof of the last assertion, the Agricultural Reporter of Berks instances Newbury, which he mentions as being time out of mind an excellent Corn-market, and still retaining some customs which would be of great use if observed in other markets. Here the grain is pitched in open market, is ingenuously offered to the public, in small as well as large quantities, thus defeating as much as possible the artifices of monopolizers, and holding out to the industrious lowly hind, the chief nourisher of his existence, at a fair market price:—Another good custom is also observed here, that the farmer, let him sell little or much, has his money paid on delivery of the article, verifying the old observation on Newbury Market,

That the Farmer may take back
His money in his sack.

A late attempt to fix the price of labour has been abandoned as impracticable, as every attempt of that kind must necessarily be, from the very great disproportion that labour bears in value, in different parts of the kingdom. The following is humbly proposed as

A PLAN FOR PREVENTING MONOPOLY.

1. That no corn-factor or salesman of live cattle be permitted to buy or sell within this realm, any corn or live cattle on his own account, except such as shall be imported under pain of forfeiture.

2. That all corn be brought to market in bulk; and that no farmer or other person be permitted, under pain of forfeiture, to

house any corn that shall have been brought to market and not sold, but be obliged to carry same home.

3. That in London the same rule be observed: and that the corn may be conveniently pitched in the market, that three or more markets be erected in the suburbs, under the controul of the Lord Mayor of London, in the same manner as the present market in Mark-lane.

4. That every factor or salesman be obliged to enter in a book with the clerk of the market, the names and places of abode of the buyer and seller, and also the price, as now used in the Hay-market.

5. That no person, after the day of
be permitted to buy or sell corn within these kingdoms, either personally or by a factor, except the person or persons who grew or imported the same, under pain of imprisonment, and forfeiture of the goods exposed to sale.

6. That, as one great cause of the scarcity of provisions is a monopoly of farms*; and as a means of restoring them to their former size; an additional penalty be laid on all monopolizers of farms; and that all persons holding more than one farm be deemed monopolizers†.

7. As a means of enforcing any law to be made, the parish officers of every parish shall add the names of all persons holding more than one farm in their parish, or who hold one farm in their parish, and reside in another, to every rate made for the relief of the poor, together with the several sums such person or persons are liable to pay: such list of monopolizers to be signed by two justices at the same time with such rate, and the parish officers to have the power of recovering the penalties in the same manner as the poor's rate.

8. And in case the parish officers, on making each and every such poor's rate, shall not set down the names of such persons so holding farms as aforesaid, together with the several and respective sums they are liable to pay, or neglecting to recover such penalties, such officers so neglecting shall be liable to pay a sum at least equal to the amount of the penalties liable to be paid by the said holders of farms, or such larger sum as the justices in their sessions shall think proper, and the poor's rate be liable to be quashed.

9. As a means of proportioning in some degree the price of labor to the price of corn; and as the act of the 5th of Eliz. does not lay an obligation, but only gives a power to the magistrates to regulate the price of labour, which is by no means effectual; That the magistrates at every quarter sessions

* Vide 25 H. 8.

† Also see Mr. Pearce's Agricultural Reports for Berks, and Mr. Fox for Monmouth.

be *compelled* to regulate the price of wages for every ensuing quarter, according to the price of corn at the town nearest to where such sessions are held, on the market day, or the average of three successive market days next preceding such sessions.

Query. Whether the price of one peck of wheat be a proper price for one day's labour?

MODE IN WHICH THE INHABITANTS OF COCHIN-CHINA,
PURIFY SUGAR.

To the Editor of the Commercial and Agricultural Magazine.

SIR,

HAVING but lately arrived in England; I knew not before last week, that there was such a Miscellany as yours, in publication. It has been put into my hands. I have slightly examined, and I must own, not without considerable pleasure, a number of the articles in your first volume. Among others, I remarked your account of the happily simple process of the Hindoos, for the *manufacture of SUGAR*. From my own personal observation, I know it to be faithful and accurate. I am willing to enable you to add to it, an account of the very elegant manner in which I have seen SUGAR *purified*,—much better than in the French West India practice of *Claying*,—better, too, than in the houses of the sugar-bakers in London,—*by the native inhabitants of COCHIN-CHINA*.

They bruise the cane; boil, skim, draw off, and evaporate its juice; draw away the grosser syrup; then, with the *sugar* already granulated, commence their peculiar process for its farther purification. In this process, the *sugar* is placed in layers, each about *one* inch in thickness, *ten* inches in breadth. Over these, are then disposed layers equal in dimensions, of the herbaceous and moist trunk of the *plantain-tree*. The moisture from the parts of the plantain-tree, filtrates downward through the *sugar*, and conveys away all its impurities. That part of the layer of *sugar*, which now remains, is pure, white, and crystallized, porous almost as a honey-comb, and of extraordinary lightness. Nothing can be more simple than this process; nothing more beautifully pure, than the refined sugar which it affords.

I am, Sir, your obedient Servant,

Oxford-Street,
February 26th, 1800.

W. B. BRERETON.

We respectfully thank Mr. Brereton for his communication. But, we should suspect, that there must be a very great *waste* in this Cochin-Chinese method of refining sugar.

ANCIENT WELSH HUSBANDRY.

(Continued from No. III. p. 164)

IF thou shouldst have a diseased beast among thy cattle, it must be taken away; for if it be left with them it will contaminate the whole. And also, is thou rearest swine, procure them of good breed, and feed them in winter when they may not be able to turn up the ground; and especially during February, March, and April; for they will have young three times in the year, if they are not neglected; and they are of a nature to require a dry place to lye in, and they sleep much.

He that looks after the cattle of another man ought to consider four things: one is, to love his master; the second is, to be in dread of him; the third is, to do the best he can; the fourth is, that he do no unhusband-like act, nor waste more than is necessary for him of the property of another man; and, some servants do all these four things.

Sheep ought to be housed in the beginning of spring, when they are bringing forth lambs; and in winter they should be turned to places under the influence of the sun; and thou art not to fold them too much on fallow land. Shear them at Michaelmas, so that the marks of the shears may disappear upon them against the winter; and do not milk them later than August.

Set the plants of thy thorns from Michaelmas to the commencement of the winter quarter; for during that period they will not fail, if pulled up without bruising the roots; and especially the back root, which is called the spur of the tree; and, the white will also grow all times through the winter and spring, if any part of the roots be left with them; but remember not to take between the tops and spines of them. Farther, the hazels will grow freely if a little of the roots be left with them, and some of the mould from the place where they grew. Oaks and apple-trees will grow by setting them deep in the earth when the month of November is in full sway. Also, the willows ought to be lopped between the middle of February and the middle of April; and the poles ought to be put in wet land, and left there until they begin to bud a little; then they are to be planted in the hedge, and the ground about them weeded, and if platted with black thorns the better will be their growth.

Keep thy bees carefully, and examine that the hives do not let in the wet, and place them facing the sun. Feel the weight of the hives; and such as thou shalt find light support with food in this manner: steep some cakes of wheat-bran, or coarse oatmeal, with honey; make holes on one side of these with thy finger, and put them under the hives, and then the bees will get the honey to preserve their lives. Remove them about St. Patrick's day, and better will they increase and prosper.

(To be continued.)

PRINCIPLES UPON WHICH THE PROPER EXTENT OF
FARMS IS TO BE DETERMINED.

To the Editor of the Commercial and Agricultural Magazine.

SIR,

FEW subjects are at present more talked of, or less understood, than, — “Of what extent ought our farms to be, in Britain, in order that Agriculture may be rendered as perfect, and population, and all the necessaries of life, as abundant as possible, among us?” The following are the principles upon which I have endeavoured to decide for myself concerning this subject, than which a more interesting one will not easily be found in the whole province of rural œconomy.

I. In the first occupying of any territory, every family ought to have exactly that extent of land which their industry is sufficient to cultivate, and which, thus cultivated, will yield sufficient means for their subsistence. Such an exact distribution of lands has never actually taken place. But our present enquiry is, — not *what has taken place?* but, *what should take place?* Where savages subsist by *hunting*, a very extensive tract may be wanted to afford the necessary provisions to even a very small number of persons. Roaming *shepherds*, living as much on milk and butter as on flesh, will require for the support of an equal number of persons, a somewhat narrower tract of ground. A still smaller tract will be sufficient, — if it be in *tillage and gardening*, that the productive industry of the occupiers is to employed. These facts are established upon the universal experience of human society, in all ages of the world.

II. In every state of the application of industry to derive the means of subsistence from the appropriated ground, — it is necessary, in determining the proper extent of farms, — to regard also *the convenience and the possibility of cultivation*. If it be requisite, in the first place, to consider — *what extent of land may be sufficient to afford sustenance to the farmer's family?* it will be, in the second place, proper to examine, — *what extent can be the most advantageously wrought under the direction of one man? — what proportion of capital, a single person may the most usefully employ in the labour and the re-producing stock of a farm? — Upon what extent of a farm can a farmer have his implements, his stock, his servants, all the most complete for his purposes, and the most constantly and profitably employed.*

III. These then are the fundamental principles which must direct us in determining the proper extent of farms. A farm should be *that extent of land which is necessary to afford abundant sustenance to a family, neither too scanty nor too numerous, — on which a complete set of implements and stock can be the most employed, — and which can be the most perfectly improved under the management of one farmer.* — These are the only fixed invariable

principles by which the portioning out of land into farms, is to be always regulated. Others may be local and occasional in their authority; those are permanent.

IV. It may be proper to illustrate and explain these principles, yet more clearly and precisely, before we apply them to the present state of farming in England.

I. The *subsistence* which the farm should *afford* to the farmer's family, ought to be the most comfortable that they can enjoy, without being withdrawn by luxury, from productive labour. That class of the community who are employed in raising the first necessities for the support of the rest, and the raw materials for our staple manufactures,—have a charge highly respectable, confidential, and important. It is therefore just and necessary, that they be not restrained to live from hand to mouth,—and on the smallest possible portion of necessities. They are to be regarded as the *first* class of our labourers; and their emoluments ought to be proportionate to the importance of their functions. The subsistence which a farmer may derive from his lands, should afford him a comfortable house, abundance of nourishing fare, decent raiment, the means of educating his children for any condition in life, not excessively above his own, the power of laying up a capital for his relief in seasons of scarcity, for his support in sickness and old age, for the settling of his children when they shall grow up, in farms of their own, or in other suitable modes of life. In order to this, the farm ought not to be of the smallest possible extent, but should be sufficiently large to receive a capital in stock and implements, the *profits* of which, with the return from the labour they are employed in, may afford that income for *expenditure* and *accumulation*, which is here represented to be necessary.

As to the composition of the farmer's family, this explanation may also be made. If his own children have grown up to mature age,—and continue still to live with him;—he ought to entertain few or no servants. Are his own children still too young to assist his labours? It will then be reasonable, that he entertain so many servants as shall make his family to consist of from *five* to *eight* grown-up persons. Should his children's choice of profession, or ill-health, or misconduct, or stupidity, or any other accident except idle luxury, render them, even after they have grown up, unfit to be useful assistants in the work of his farm; it will then be proper, that he still entertain servants as before. Do his servants chuse to marry, and live in separate cottages on the farm? Even this also may be permitted. The only indispensable restriction is,—that *the farm be not larger than that the ordinary labour upon it may be performed by from five to eight persons*. Even this condition is indispensable, only where the condition of society admits of an original distribution of a territory

into farms, upon a system of rural oeconomy, independent of what ever existed before it.

2. A smaller farm will often require the same implements, the same houses, the same beasts, almost the same number of human labourers, which might suffice for the cultivation of one considerably greater. It is, however, obvious, that the extent of the farm should be just such as the implements, cattle, and labourers may be fully sufficient to cultivate, without being overstrained, and without remaining at any time sluggishly unemployed. A couple of ploughs,—a proportionate number of harrows, spades, &c.—a threshing machine,—two, three, or four horses,—one or two carts, with a barn, a cow-house, a stable, &c. are necessary even in the smallest farm,—if we wish to make the farmer, in his labours, independent of his neighbours. In order to a proper rotation of crops, too, and a proper distribution of the animal-stock, every farm is to be divided into a certain number of inclosed fields. In too small a farm, the inclosures occasion an awkward and troublesome smallness of the subdivisions. That these, then, may be of a reasonable extent; let the farm be so, too. *Let it be the largest that can be cultivated with that set of implements, cattle, and labourers, which are requisite to the suitable independent cultivation, even of any farm, however small.*

3. But, neither attention to the ease and wealth of the farmer,—nor any care to make him perform as much work as possible with the smallest possible number of implements and hands,—should be suffered to intervene to retard the progressive improvement of the soil and general husbandry of a country. When a farmer possesses too large a farm, he is apt to follow a more careless and less laborious plan of husbandry. You shall often see a greater produce raised by one man on a small farm, than by another on a large one. *On this account, each farmer ought to have a farm at least not larger than he is able to cultivate in the best manner, with the cattle, labourers, and implements, of which he has the command.*

V. We may now attempt to apply these principles to the rural oeconomy of Britain. In different parts of the isle, the lands are in different states of improvement and of natural fertility. That portion of land which would, in one part of the isle, be sufficient to occupy and to sustain a farmer's family, would be, in another, inadequate to these purposes. (1.) *Our farms in Britain must therefore be various in extent. Five hundred acres Caithness, in Argyleshire, in Cumberland, or in some other parts, would not be equal in produce, to one hundred acres in Suffolk, or in Berwickshire.* (2.) *The farms must be larger, where the ground is worse, and more imperfectly cultivated.* Throughout the whole isle, the rents paid to the landlords, bear very nearly one equal proportion to the actual produce, and to the profits of

the farmers. Hence, though we cannot fix one particular number of acres, as the proper uniform extent of farms, every where in England and Scotland; yet, we may name a *rental*, beyond which farms ought no where to be enlarged. Without descending into a very minute detail of particulars, we may assure ourselves, that we do not widely err, when we estimate this *rental* — (3.) as *never falling under 100l. a year, never exceeding 300l. a year.* The fair profits upon a *rent* of 100l. a year, are the smallest income with which it can be possible for a farmer to provide for his family, as has been above proposed. A variety of circumstances may occasionally occur, which shall render it *proper and desirable*; that the farmer's income be increased to the amount of the fair profits upon a *rental* of 300l. a year.

VI. Such might be the fittest distribution of the territory of Great Britain into farms; if it were, at this moment, free to be all distributed anew, without any violation of rights, any opposition from prejudices, any interruption of wise and beneficial plans, or any disqualification of personal usefulness. But, the present state of industry and property in Britain permits not any such sudden equalization of the extents of farms. Some *landholders*, acting as the farmers of their own estates, and taking pleasure in employing ampler means of cultivation, than the middling or petty farmer, will scorn any attempt which may be made, to leave them but a few narrow fields to cultivate; and where they do not abandon this business to stewards, but diligently and skilfully superintend and direct it themselves; would it not be unwise to make them withdraw their capital and their exertions from the improvement of the rural œconomy of their country? Among the great farmers, too, who pay annually from 300l. to 1000l. of rent; there are not a few who possess talents, capital, persevering activity, prudence, and enlightened liberality of spirit, which are employed, though on too wide a field, in a manner so eminently beneficial to their country; that it were extreme guilt and folly to harass, thwart, or restrain them. In many places in this island, too, the land is parcelled out among small tenants in portions, in which the possession of each family is not sufficient to employ their industry, and to afford them adequate subsistence. This excessive subdivision of farms, considered independently of local and accidental circumstances, is not adapted to promote the improvement of rural œconomy, nor of productive industry throughout the isle. Yet many serious evils would arise from any hasty endeavour to join the petty farms into larger ones of the proper extent: and it is not, therefore, to be recommended.

VII. It will be enough, then, if landholders, farmers, and the public in general, shall receive it as a certain principle of common sense, in respect to the extent of farms;—that,

wherever no secondary and accidental circumstances oppose the arrangement, they should *vary* from £100 to £300 a year of rent, at the present *fairest* rate of allowance to the landlord, out of the annual produce. Other things being equal, the smallest farmers should be placed in the vicinity of towns and cities; the greatest farmers in more remote parts of the country. The vicinity of markets, and the readiness with which produce may be sold, and conveniencies and implements purchased, render this the most advantageous situation for those who have but a small capital and a narrow field of exertion. Distance from towns, being at the same time distant from markets, requires, to the comfort and prosperity of the farmer, both a greater capital, and a somewhat larger farm.

VIII. Most of those clamours, which some multiply against large farms, and others against small farms, are without foundation in truth and reason.

To large farms it is often objected, that they are not favourable to the multiplying of geese, turkies, poultry and eggs for the market. But the grand and staple articles are wheat, barley, oats, potatoes, beef, mutton, and pork. These are necessities: the others are but luxuries and dainties. Give us these in abundance; and we shall have little reason to be discontent for want of the others. Now, these are precisely the articles, to the production of which, great farms are commonly appropriated. So far, therefore, as this objection is conceived, the cause of the great farms may be easily and triumphantly defended.

Another objection against the *great farms*, is, that they do not afford sustenance to so many people, as if they were parcelled out into small possessions of a few acres. This objection too, *as it is commonly urged*, is, very egregiously, a vulgar error. In truth, the great farms nourish as many persons as if they were subdivided into petty ones. But, the persons who are to subsist on their produce, live at a distance, in the manufacturing and commercial towns, in the army, in the navy, on board the shipping of our commerce, and in our West-Indian colonies. It is not as great farms, but as farms not sufficiently cultivated, that they do not nourish a sufficient population with their produce.

A third objection against *great farms* execrates them as peculiarly favourable to the *forestalling* and *monopoly* of provisions. This objection is also founded in mistake. Wherever the consumer lives near enough to the producer; the consumer will always deal as nearly as possible with him. But, where farmers are *small and poor*; living from hand to mouth; obliged to carry their produce to sale, if possible, on the very first day after it has been reaped; *there*, the *idle merchant*, who had no share in directing the agricultural operations, must unavoidably intervene. *He* has money; the *poor farmer* wants it. The produce of the har-

vest *must of necessity* be sold to this man, who can keep it back from the market till famine shall extinguish the fires in every kitchen. Where the producing farmer possesses a reasonable share of capital; he does not need to sell to the first bidder. He waits to deal with the consumer himself, and to take advantage of the rise of price in the market. But as the business of his farm must go on; he cannot wait so long as the merchant, who has nothing to do in husbandry: he is, therefore, obliged to sell to the consumer; and at a more reasonable price than would the great monopolizing corn-merchant who had nothing to do with agriculture; but bought from the very small farmers, in their necessity, at a very low rate, and then could wait also the extreme necessity of the consumer. It has ever been so in all countries, and in all ages. Wherever farmers were, to a reasonable degree, opulent, and capable of extensive dealings; there have provisions been the most regularly abundant.

On the contrary, it has been urged against SMALL FARMS, that there is a prodigious loss of labour in working them, and bringing their produce to market. In the case of farms so very small, as to be unequal to the support of a family; this may indeed take place. But where the farm is of the moderate extent here recommended, there will be no waste of labour that is not more than compensated by an excitement to labour, which, in the case of very great farms, cannot take place; and by an increased produce, the result of more perfect cultivation. The *one* or *two-horse* cart will be found, in most instances, as convenient and cheap in its conveyances to market, as the waggon. Besides, the journeys of the small farmer and his people to market, will rarely consume, of *necessity*, more time, than is in all conditions necessary to be given to prudent relaxation.

IX. In the whole, then, Sir, from a consideration of those *general principles* upon which the extent of farms is to be regulated, and those regards of prudence which are requisite under the present distribution of farming capital and industry in Great Britain; I cannot but conclude, that any wild unintelligent vulgar clamour against *great farms*, or any parliamentary interference to produce an immediate subdivision of our great farms into diminutively small ones, would be highly injurious to the improvement of our rural œconomy, and, indeed, to the general prosperity of the whole empire in all its branches of industry. It is enough; that the whole nation receive it as a fixed principle of common sense, that abundance of provisions, and the perfection of our British husbandry, are to be best accomplished by the gradual uniting of *small farms*, and the gradual subdivision of *great ones*, till there shall be none paying less than £100, or more than £300 of yearly rent; that farmers be persuaded that their capital may be much better employed in perfecting the

improvement of a farm of middle size, than in engrossing enormous large farms; *that land-holders* be convinced that the smaller farmers who possess sufficient capital, implements, sagacity, and industry, will much more augment the value of their estates, than the great engrossing farmers; *that* it be considered, that increased cultivation, requiring still more labour on a smaller space, thus naturally demands a continual subdivision of farms answerable to the progress of agricultural improvement.

I cannot doubt, Sir, but these principles will gradually force themselves upon the conviction of every person throughout the nation. The subject has never before been considered, otherwise than superficially, and with strong prejudices.

I hope, that I have, in this letter, explained the real *truth* and *reason* of the case; though, I must own, in a very poor style of composition. Should either the excessive subdivision, or the enormous enlargement of farms, become very extensive; it may then be proper for the legislature to interpose its authority. In the mean time, I should wish to see an association of land-holders mutually engaging to reduce, in all their new leases, their estates into farms of from £100 to £300 of yearly rent.

I am, Sir, your obedient servant,
Richmond, March 10, 1800. W—— B—N.

For the Commercial and Agricultural Magazine.

ENUMERATION of INVENTIONS in the ARTS, of which the PROPERTY has been secured to the INVENTORS under LETTERS-PATENT from the KING,—agreeably to ACT of PARLIAMENT.
(Continued from p. 118.)

1798.

May 25. Mr. W. Sanxter, of Horseheath, Cambridgeshire, for a plough for paring land.

June 2. Mr. J. Champion, of the city of Bristol, for a method of making wire from rolled and slit iron.

— 5. Mr. G. Pomeroy, of London, for an apparatus for manufacturing tobacco and snuff.

— Mr. John Palmer, of Maxtock, Warwickshire, for a new invention for clearing grain from the straw, &c.

— 8. Mr. Jonathan Hornblower, of Penrhyn, Cornwall, for a machine for raising water, &c. by means of steam, and otherwise.

— Mr. Abraham Bosquet, Lambeth, Surry, for a method of giving extraordinary durability, soundness, staunchness, &c. to ships.

— 14. Mr. John Hazledine of Bridgenorth, Shropshire, for a method of reducing pigs of metal into plates, bars, and hoops.

June 19. Dr. Richard Shannon, of St. Pancras, Middlesex, for a method of improving the process of fermentation, for brewing.

— 27. P. R. Nugent, Esq. London, for mathematical instruments, to ascertain the latitude and longitude of places, with the variation and inclination of the magnetic needle.

— 30. Mr. John Pearce of Wolverhampton, Staffordshire, for combs, and machines for combing wool.

July 6th. Mr. Day Gunby, of Cross-street, Hatton-Garden, Middlesex, for weights, bolts, and springs for jointed cabinet-work.

— 14. Mr. John Dickson, of Dockhead, Surry, for a method of constructing steam-engines, pumps, &c.

— Mr. William Row, of Newcastle-upon-Tyne, for a mineral lamp-black.

— Mr. Richard Marlow, of the parish of St. Margaret, Westminster, for a method of hanging a sash-window, &c. in which the lines and pulleys are concealed.

— 23. Mr. William Dupe, of Hammer-smith, Middlesex, for a manufacture of bars, of a mixture of iron and steel for gun-barrels.

August 3. Mr. Stephen Halliday, of the parish of St. Martin's in the Fields, Middlesex, for a new invention for the draught of carriages.

— Messrs. Philip Chell, and Henry Nicholls, of Birmingham, Warwickshire, for a machine for moving boats in canals, between one level and another.

— 7. Mr. John Ashley, of Islington, Middlesex, for a simple and permanent construction for raising water from wells of any depth.

— Mr. T. Staten, of Castle-street, Park, Southwark, for an apparatus for raising liquors in cellars from a lower to a higher situation.

— Mr. John Cochran, of Paisley, Renfrewshire, Scotland, for a method of spinning flax, hemp, and tow, by machines wrought by water, steam-engines, horses, or other powers.

— 11. William Birch, Esq. of Charlotte-street, Bloomsbury, Middlesex, for a method of purifying, refining, and preparing indigo for the use of dyers.

— 23. Mr. G. Dodgson, parish of St. Leonard, Shoreditch, Middlesex, for a method of making pumps, &c. for raising and discharging water.

— 29. Francisco Rapozo, of Lisbon, in the kingdom of Portugal, Captain of Engineers, in the service of her Most Faithful Majesty, for improvements in the construction of steam-engines.

(To be continued.)

A DESCRIPTION OF LESTER'S PATENT PENDULUM CHAFF
ENGINE FOR CUTTING HAY AND STRAW INTO CHAFF
FOR CATTLE, AND FOR OTHER USEFUL PURPOSES.

Side-View.

LETTER A represents the trough or box in which the yelm of hay or straw is laid; B B B B B, the frame of the engine; C C, the block or press, of more than one hundred weight, which presses the yelm and remains stationary on it, while the knife passes through the cut; D, a large cylinder of wood which keeps the hay down and prevents the moving bottom from slipping under it; E, a small cylinder of wood, which guides the end of the yelm under the press; both the cylinders revolve upon their own centers by the motion of the yelm coming forwards; *a*, a cylinder of wood equal in length to the width of the box, the surface of which is made rough; *bb*, a piece of sacking equal to the width of the inside of the box, which is drawn forward by the motion of the rough cylinder; *c*, a smaller cylinder whose surface is smooth; *d*, a frame of iron drawn back by a nut and screw to tighten the sacking occasionally; *e*, a brass racket wheel fixed upon the center of the cylinder *a*; *ff*, a jointed lever of iron; *g*, a spring; *h*, a rod of iron with a male screw at the top, and a catch at the bottom annexed to the press, by the raising of which the catch lays hold of the upper part of the jointed lever, and raises it, at the same time depressing the lower part from the center *i*, giving motion to the racket wheel; *k*, a female screw, the turning of which, raises or lowers the rod *h*, so as to bring the yelm forwards under the press, to be cut at any length required; *l*, a male iron screw, with a concave end, to receive one of the central points of the axis; *m*, the axis on which the lever and the arms that work the upright motion are fixed.

Back-View.

n, the iron arms that work the upright motion; at the extremity of each end of which is a small friction wheel; *o*, a bar of iron for the upright motion, with a joint at *p*; *q*, a male screw with a square head for a wrench, to raise or lower the press for a thick or thin yelm; *r*, the sacking at the bottom of the box; *s*, the nut, the turning of which tightens the sacking occasionally; *t*, the iron that carries the knife and supports it true on its center; being fixed to the lever.

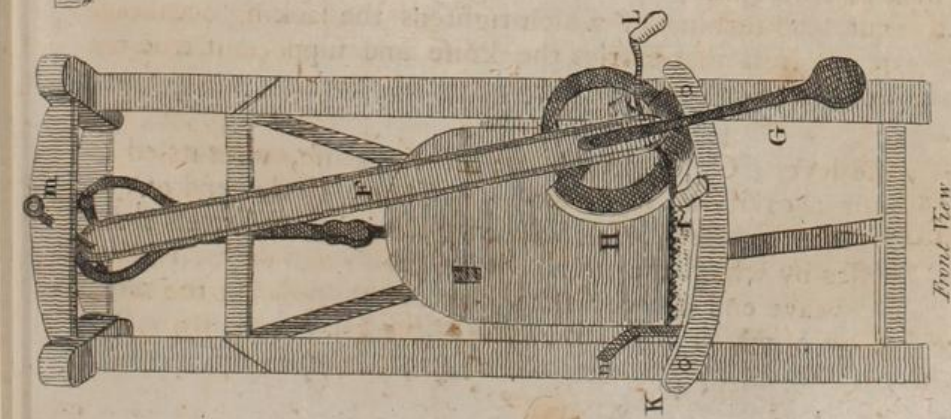
Front-View.

F, the lever; *G*, the pendulum; *H*, the knife, with its edge rolling in a cavity betwixt two bars of steel; *I*, the end of the yelm under the press; *K*, the cavity between the steels; *L*, the handles by which the engine is worked; *m*, a male screw, with a concave end to receive the other central point of the axis, the turning of which brings the edge of the knife to or from the yelm; *n*, the steel that guides the knife into the cavity.

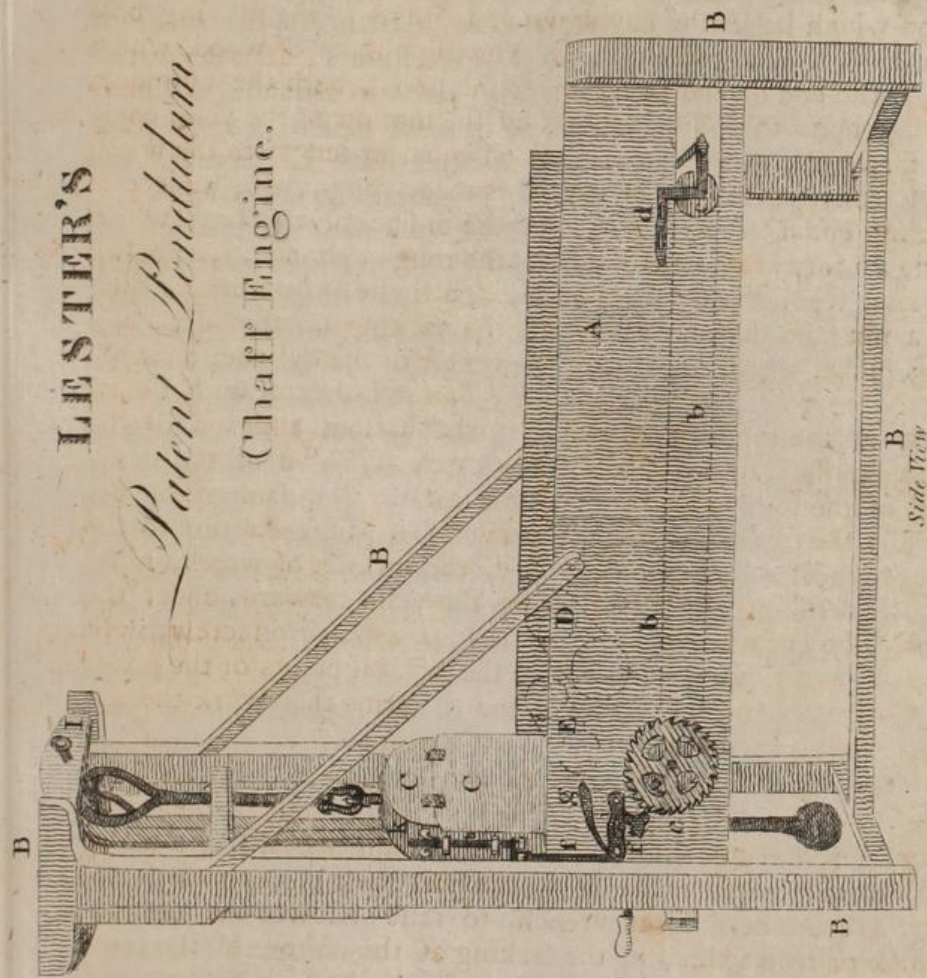
LESTER'S

Patent Pendulum

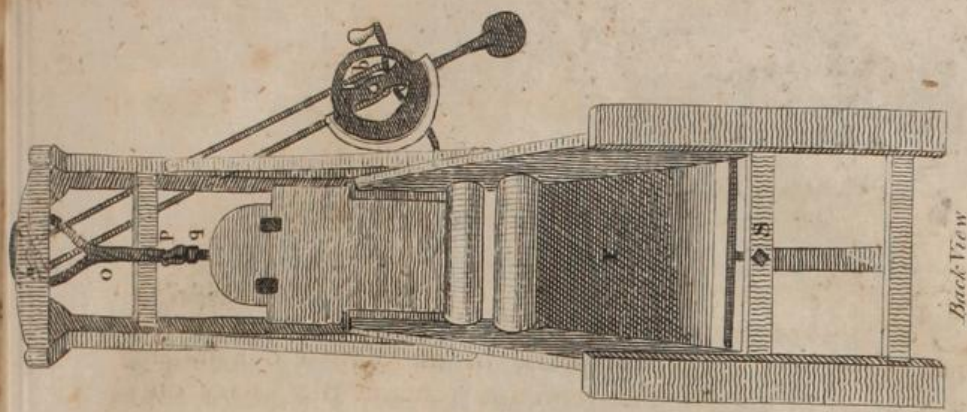
Chaff Engine.



Front View



Side View



Back View

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ON THE NECESSITY OF GUARDING AGAINST THE
DECLINE OF BRITISH COMMERCE.

To the Editor of the Commercial and Agricultural Magazine.

DEAR SIR,

IT is not to be denied, that the Commerce of Britain is, at present, great and flourishing above that of any other Empire in the world. Though it may experience occasional checks and vicissitudes; its prosperity is not to be suddenly subverted by any transient failure in sales, or any temporary uncertainty in mercantile credit. I must own, however, that I dread its decline, from the influence of other causes of more permanent and formidable agency, which seem to be fast rising to their full activity and strength. I shall explain what causes I mean.

The progress of commerce has been from the eastern shores of the Mediterranean Sea, to the western coasts of the Atlantic. In its progress, commercial greatness appears to have passed still from opulent, luxurious, indolent, and oppressed nations, to those who were daring, laborious, originally poor, and capable of living upon a little. A larger capital, more extensive connexions and establishments, a wider range of sea-coast, a greater number of harbours, and those more capacious and convenient, might, in many instances, retard the *Decline* of one great commercial state or city, in its competition with another in which the requisite commercial virtues were more prevalent. It is also true, that, *cæteris paribus*, the wider industry, civility, and wealth are diffused, so much the more will they naturally flourish, even in their primary seats. But, in spite of these advantages, it has invariably happened that the commerce of indolent, luxurious, and heavily taxed commercial nations, has declined in comparison with that of those which were poor, parsimonious, unweariedly industrious, and fearlessly enterprising.

The *Sidonians* and *Tyrians*, notwithstanding their local disadvantages, quickly exceeded the commercial and manufacturing prosperity of the *Egyptians*. The *Carthaginians* eclipsed the mercantile greatness of *Tyre*. The commerce, as well of *Carthage* as of *Tyre*, was destined to yield to the competition of the more active, ingenious and enterprising *Greeks*. *Italy* in the times of the greatness and strength of the Roman Empire, became the principal seat not less of the commerce than of the dominion of the western world. Commerce was seen to flit from *Italy* to *Constantinople*, and once more, to the *Eastern shores* of the Mediterranean sea, after the Italians had been utterly enervated and corrupted by wealth, and after *Constantinople* was made the capital of the Roman empire. It was their poverty, their industry, their freedom, their spirit of enterprize, that enabled *Venice*, *Genoa*, and *Florence*, in the dark ages of modern history,

to renew commerce and manufactures in the west. The same qualities enabled the *Portuguese* and *Spaniards* to out-rival the *Italians* in the trade with Asia, with America, and with the southern countries of Europe: and these very qualities enabled the Germans of the *Hanse Towns*, the *Flemings*, and at length the *Dutch*, to deprive *Italy* of those gains which it had formerly derived from engrossing all that was valuable in the traffic with the kingdoms of the North. The *Portuguese* lost all that was highly valuable in their Indian commerce; because they wanted the parsimony, industry, and persevering activity of the *Dutch* by whom it was taken from them. The *Dutch*, by the operation of similar causes, have seen their commerce, every where, to decay before the rivalry of that of *Britain*. The same, nearly, were the causes which enabled *Britain* both to engross to itself in a great measure the colonization of *North America*, and to acquire the commerce of the *Spanish* and the *Portuguese* colonies in *South America*, to such a degree as to leave to the *Spaniards* and *Portuguese*, little more than the advantage of being, in this trade, virtually factors for the merchants of *Britain*. It is by means of similar qualities, that *Britain* has deprived the *French*, the *Portuguese*, the *Dutch*, and even the *Malays* and *Chinese*, of the commerce of the *East*, from the Red Sea to the farthest extremities of *Asia*. So uniform is the operation of these qualities and causes, that we cannot doubt but they are among those necessities of human things, which, while man and society are the same, must ever continue to act, with undiminished force.

Now, Sir, when, with this general truth deeply impressed on my mind, I consider the territory, the sea-coast, the harbours, the navigable rivers, the staple productions, the active and ingenious inhabitants, of *NORTH AMERICA*; I am led to doubt, whether the commercial prosperity of the *BRITISH* Empire be not, at this moment, in considerable danger of being transferred to the *ANGLO-AMERICANS* of the *THIRTEEN UNITED STATES*. Already do the States of America gain more than Europe, from the European Colonies in the *West-Indies* or *Eastern American Isles*. They have, in the course of the present war, engrossed a very great proportion of the *Whale-Fishery*, both in the northern and in the southern seas. The *Fur Trade* they are about to snatch from both *Britain* and *Russia*. They more than share with *Britain*, &c. all that is valuable in the trade with all the European colonies in *South America*. They have extended their trade to *China*: and is it not with success? For whom, chiefly, has the famous *NAVIGATION-ACT*, the guardian of the naval power of *England*, been relaxed?—Enter the *Mediterranean*: are not the *ANGLO-AMERICANS* there? Would the *French* have dared to think of exacting tribute from the *American States*, if they had not known, how much the *ANGLO-*

AMERICANS gained by their trade with France and it's colonies? Who undersell the English at Hamburgh,—but the ANGLO-AMERICANS? Go to Liverpool, to London, to Bristol, to Glasgow, to every considerable part of Great Britain: Count the American tonnage that comes to it: answer me, as to the result of your counting? Think of the extent of the coast of the Anglo-American States,—of the extent throughout which their navigable rivers afford access to navigation into the very midst of the interior country,—of the vast quantity of raw materials, and the first necessities of life, which North America affords,—of the power which the *Anglo-Americans* have already acquired, even in the *South Sea Isles*,—of their intercourse with CHINA,—of their power and activity to outrival us, even on the coasts of Hindoostan: Then, say, whether British commerce be not in danger, from the rivalry of the *Anglo-Americans* of the *Thirteen United States*? It is, undoubtedly, in such danger;—unless our mere money trade be diminished; unless gambling speculation shall give place to honest traffic; unless trade shall be less loaded with taxes; unless needless monopolies shall be suppressed; unless British virtue, and parsimony, and industry, and moderation, shall be revived.—Believe, Sir, that unless these not very probable events shall take place;—the commercial prosperity of Britain must, ere fifty years more shall pass, decline before that of America.

Assist me to give this warning to my fellow-countrymen; and believe me to be ever yours,
 J. G.
 London, March 5, 1800.

ON THE LINEN, MUSLIN, AND COTTON MANUFACTURES
 IN THE CANTON OF APPENZELL.

For the Commercial and Agricultural Magazine.

LINEN began to be manufactured in the canton of Appenzell, about the middle of the sixteenth century. After the separation of the inhabitants of the Roman Catholic persuasion from those of the Protestant church, this manufacture daily flourished more and more among the latter. Although but little flax or hemp was cultivated in the country, these materials were procured without any considerable expence from the adjacent districts of Thurgau, Rhinedale, and Suabia. Habit and practice gave flexibility to the unpliant fingers of the mountaineers, unaccustomed to such employments; and desire of gain gave them perseverance to perfect their skill in spinning. The finest piece of linen, made in the course of the year, procured praise and honours for the weaver. He was styled KING! and carried his work, in triumph, through the principal village, attended by his brother weavers, holding nosegays in their hands. Though this procession be no longer in use, yet the weaver of the finest

web is still styled KING for the year, honoured, and respected. The price of a piece, acknowledged to be the finest, manufactured in the course of a twelvemonth, has sometimes risen as high as from 2 to 300 florins*. The Appenzell spinners have now attained to such skill and dexterity, that, out of half an ounce of flax, they are able to produce a thread from 900 to 1000 feet in length. Of this yarn, the finest cambrics are made. Each piece of linen contains from 120 to 130 (or about 80 English yards) Zurich ells, and weighs from 50 to 60 lb.; its breadth and length are determined by public regulations. Coarser linens are sold in the country, according to their differences in quality, as from 5 to 10 *Carolins* †. The linen, manufactured by the inhabitants of Appenzell and Thurgau, was, in time, so much sought after, that the trade carried on in this article by the merchants of St. Gall, Herisau, and Trogen, became extremely important, and continued in a very prosperous state until the middle of the present century.

In the year 1753, in the district of Outerooden, in the canton of Appenzell, the first attempts were made to weave *muslins*. This new branch of industry could not be attended in that district with any peculiar difficulties; as, from the linen-manufactories having so many years subsisted there, the inhabitants were skilful spinners and weavers. They easily conceived the difference which exists in regard to the two modes of weaving, acquired the necessary dexterity in the manufacture of cotton, and became not only the best muslin weavers, but also successful inventors of new patterns. The importance to which that extensive branch of industry has grown up from the first feeble attempts of a single individual, is truly astonishing. Forty years have scarce elapsed since those first attempts; and we already find almost all the inhabitants of the canton of Appenzell, of all Toggenberg, of what is called the ancient country of the Rhinedale, and of the South of Germany as far as Ulm, Augsburg, and the mountains of Tyrol, engaged in spinning, weaving, and embroidering for the cotton and muslin trade. This trade extends to all the countries in Europe, and is carried on by sixty commercial houses of St. Gall, thirty of the district of Outerooden, and several others established in the towns of Roschach, Rheinegg, Abstaedten, Lindau and Arbon.

In proportion as the spinning and weaving of cotton extended through the canton of Appenzell, the manufacture of linen decreased. But, the principal injury which this branch of industry received, was inflicted by the former government of France, which, in the year 1781, laid a very heavy duty on Swiss linens imported into the French dominions. After that time, the linen

* Twelve florins are nearly equal to one pound sterling.

† A Carolin is worth about one pound sterling.

manufactures in France soon attained a degree of prosperity, which enabled them to undersell their neighbours. From these two causes, the linen trade of the canton of Appenzell has decreased so considerably, that it constitutes at present not more than a fourth part of the commerce carried on by the town of St. Gall and the protestant part of Appenzell. France, however, had scarce rendered herself independent of her neighbours, as to linen, when she became more tributary than ever to the industry of the Swiss mountaineers. The merchants of Paris, Lyons, Marseilles, Nantz, Rouen, and other large cities of the kingdom resorted in the months of March and April in great numbers to Hersau, Trogen, Speicher and St. Gall, and emptied in a few days the warehouses of all sorts of muslins which had been filled in the course of the winter. The Swiss manufacturer, perceiving the eagerness with which the French merchants purchased his muslins and other cottons, before they had even been taken from the bleaching ground, redoubled his activity and zeal; and the number of spinners, weavers, embroiderers and manufacturers increased every year in this canton and all the surrounding districts. A number of French merchants purchased, yearly, cottons to the amount of from 30,000 to 40,000 florins in St. Gall and Outerooden: and the sale was so considerable, that, notwithstanding the utmost activity, the merchants of Appenzell and St. Gall were not able to execute all the orders which they received, and therefore began to procure muslins from the canton of Zurich. While, under these circumstances, the price of cottons rose exceedingly high on account of the increase of wages to both spinners and weavers; there appeared, in France, in the year 1785, the prohibition of foreign cotton manufactures, which operated, like a thunderbolt, upon the trade of Appenzell and St. Gallen. Spun cotton immediately fell in price, at the rate of from 20 to 25 per cent. and the diminution in the price of plain muslins, in general, was from 15 to 20 per cent. Many small manufacturers of Appenzell, who, in the first alarm, carried their stock to St. Gall for sale, lost from 30 to 50 per cent. Spinners' and weavers' wages immediately fell; and numbers of people were reduced to a state of the utmost consternation and uneasiness in regard to their future subsistence. Yet, it was extremely fortunate, that the above prohibition was not published till the month of July, when all the warehouses in Switzerland were already emptied for the whole year. The Swiss gained time to recover from their consternation; and the active spirit of mercantile speculation soon discovered a new channel. The merchants of Appenzell and St. Gall began to sell their cottons to the Dutch, who, by virtue of their treaties with France, possessed the right of importing them unmolested. In a short

time, the above prohibition was laid a-sleep; and the French merchants supplied the custom-house officers on the frontiers with powerful motives to shut their eyes. By their means, the trade to France was preserved in great prosperity, until, in the course of the wonderful revolution which has now upwards of ten years convulsed that vast empire, the emission of assignats proved far more destructive to the trade with Appenzell and St. Gall, than any prohibition issued by the ancient government. The Swiss were now frequently necessitated to give the French merchants from 12 to 18 months credit; and yet sustained, after all, a considerable loss from the intercourse of exchange. In proportion as the quantity of paper-money was thrown into circulation; the mistrust of foreign merchants in regard to the assignats increased; and the war, which broke out in 1792, rendered all commercial transactions with the French so extremely dangerous, that several of the houses of trade in Appenzell and St. Gall sold their commodities on no other terms, but for ready money, and refused all credit even to such French traders as had been, for years, their best customers. This produced a considerable stagnation in the sale of Swiss manufactures, which was severely felt by traders and manufacturers of every class and description. Yet the active and enterprising spirit of the more wealthy and opulent Swiss merchants saved this important class of manufacturers in the East of Switzerland from the dreadful consequences of a permanent or increasing stagnation of trade. The house of *Zellweger* at *Trogen*, which has warehouses in France and Italy, and carries on an extensive trade to Spain, America, Germany and Denmark, formed new commercial relations with Poland and Russia, and established a house in Petersburg. This attempt of extending the sale of Swiss muslins and cottons, having been crowned with success, several other merchants of Appenzell turned their attention to the North of Europe. Neither the immense distance, nor the fatigues inseparable from travel in those inhospitable regions, could deter them from their purpose. They left their peaceful, rural retreat, their families and friends, passed to the North of Germany, Poland, and through the Russian dominions, as far as Moscow; and years elapsed before their return. Their exertions were successful; the Swiss manufactures and commerce acquired new life and vigour. After the paper money had disappeared in France, the trade with that country was revived; and the importation of Swiss commodities, having been sanctioned by an express decree of the legislature, as early as in Spring 1797; the number of buyers was so great, that the price of cottons rose 30 per cent. Under the influence of these favourable circumstances, the cotton and muslin manufactures of Appenzell and St. Gall, have, of course, revived.

The muslin manufactures, established in several parts of Great Britain, excite no small uneasiness in the mind of the Swiss manufacturer and trader, as our carding, roving, spinning and weaving machines enable our manufacturers to undersell those of Switzerland. On account of the present war, the Swiss merchants and manufacturers have not yet felt all the consequences of this superiority of the British manufacturer, in their trade with France; although the spinners already complain of a diminution of labour and wages, because several houses of St. Gall and Appenzell purchase considerable quantities of spun cotton in Ireland and Scotland, to be wrought into muslins in the district of Outerooden. There can remain but little doubt, that as soon as the conclusion of a general peace shall have restored the former freedom of trade, the Swiss muslin manufactures will no longer be able to contend with the British. The Appenzell manufacturers, aware of this, have of late endeavoured to erect machinery for spinning, in imitation of ours. As but little cotton is spun in the district of Outerooden, and the number of spinners hardly amounts to one thousand persons of both sexes; the introduction and general use of these machines could do little injury to the Protestant inhabitants of Appenzell. An inhabitant of the parish of Rehetobel has lately invented and completed some carding and spinning machines, which begin now to be used. The raw cotton, which is made use of by the manufacturers in the East of Switzerland is procured from Lisbon, and from different parts of Italy and France. It is spun chiefly in the district of Innerooden in Toggenburg, in the territory of the Abbot of St. Gall, in Thurgau, in the Rhine-dale, the country of the Grisons and Suabia. The trade in this cotton yarn, which is called *Loethlegam*, is said to be as considerable, as that in muslins. As no custom-houses exist either in the district of Outerooden or at St. Gall: and the inhabitants enjoy an unlimited liberty both in regard to their exports and imports; it is impossible, with any degree of precision, to estimate the yearly amount of the export trade of Appenzell and St. Gall. The city of St. Gall is said to have sold, in its most prosperous years, 100,000 pieces of plain and 50,000 pieces of embroidered muslin, in the course of a twelvemonth. From the following particulars, we may form some notion of the importance and extent of the manufactures and trade of the East of Switzerland. The number of women, who perform tambour-work for the trade of St. Gall alone, amounts to from 30,000 to 40,000. The inhabitants of Suabia and Tyrol earned, before the French revolution, a million of florins yearly, from the merchants of Appenzell and the city of St. Gall, by spinning cotton-wool, but especially by *tambouring* muslins. As the wages of the tambour-workers are lower, by several florins,

in Germany, than in Switzerland; the muslins are, in general, embroidered in the former country. Every house of trade has its agents or factors among the peasants of Suabia and Tyrol, who receive the muslins, and distribute them to be adorned with tambour-work. When the muslins, thus wrought by the coarse fingers of the poor inhabitants of those parts, come back to Switzerland from their dark and mean rooms; they are commonly black and dirty. They are washed, bleached, and pressed, and thus acquire that dazzling whiteness, that softness and pliancy, on account of which they are preferred for the dresses of women. Such muslins, as are embroidered in gold or colours, cannot be washed and folded, and must, therefore, be preserved clean. For this reason, the merchants have these embroidered under their immediate inspection in the district of Outerooden and the city of St. Gall, while the others are sent to Germany. Embroidered muslins are sold for from 20 to 150 florins each piece. The merchants of St. Gall and Outerooden also procure several thousand pieces of the finest East-India muslins to be, every year, embroidered, in gold and silver; and these, sometimes, sell even for 60 carolins each piece*.

* APPENZELL was one of the cantons of Switzerland; of an area of 270 square miles; having, for its chief town, APPENZELL, at the distance of 455 miles from London; inhabited partly by Protestants, partly by Papists.

POETRY.

Invocation.

SWEET muse, whom I long with fond
passion have lov'd,
Whose ear with soft courtship I've often
essay'd;
Who hast smil'd, till I fancied my vows
were approved.
Then, mock my warm hopes, and my
weakness betrayed!
Once more, nymph of heaven! for thy
grace would I sue;
Be kind but this once; I'll ne'er ask
thee again.
Thy visions enchanting to give to my
view;
Or, thy music, melodious, to pour
through my strain.
One strain, O inspire! these wild defarts to
still;
'Mid which, war, and sedition, and ty-
ranny strive.
All humanity's joys to empoison with ill,
And bid nought but fell hate and mad
outrage survive!

A MORNING WALK ON MALVERN
HILLS, from Dr. BOOKER's beautiful
POEM OF MALVERN, &c.

NOT distant now, ye Mountains! I ad-
mire
Your form stupendous; (but oft wish'd)
approach
Early, while yet the noiseless village sleeps,
To gain your summit; season fit to rise
Above the level plain so high in air.
No burning sun now vapours grey exhales
From humid meads, enveloping the view:
No winds yon cottage chimney's curling
smoke
Disperse, scarce e'en disturb. The slender
stems
Of hare-bells blue are motionless and still:
The thistle-down assumes its silvery wing,
As if to wanton with the morning breeze,
But to the ground, unboyant, soon de-
scends.
Tranquillity the elements pervades,
And harmony the woods. No cloud ob-
scures
The wide horizon's undulating line,
Where join'd seem earth and sky,—where
azure mist

Veils the soft landscape melting into light,
—This winding path, close cropt by nib-
bling sheep
(Its end the summit)—now my steps pur-
sue.

Keep earthward bent the eye,—forbear-
ance wise,

Diminishing, by no impatient gaze,
Its pleas'd astonishment when sudden bursts
The full, the wide Circumference on its
view.

—When shall forbearance cease?—my beat-
ing heart

Pants, like an eager steed, for liberty,
When sounds the trumpet, to rush into the
war.—

—Now level treads the foot—the sum-
mit's gain'd—

"GREAT GOD OF NATURE!—these thy
glorious Works!

"ALMIGHTY! shinet his universal frame!
Say, who from these aerial Heights can
view

A scene so vast, so various, and so grand—
Woods, hills, inclosures, vallies, brooks,
and fields—

Unwarm'd by Extacy's celestial fire?
Not, surely, that poor Worm who proudly
dares

Deny the dread SUPREME—Hail, Princi-
pal fair!

Replete with Deity! that preacheest more
Than human tongue can preach, save on
one theme,

(Fall'n man thro' Grace restor'd) of Pow-
er divine,

Of Goodness, Mercy, Wisdom infinite,
Enkindling rapture in th' adoring mind!

—Here vision roams unwearied:—sweetly
woo'd

By nature's thousand charms: nor resting
finds,

Nor resting needs, the gladly-roving eye.
So wanders freely o'er some gay parterre

The Bee melliferous,—on each fav'rite
flower

That tempts his stay—alighting; yet with
none

E'er tarrying long: From honeysuckle
sweet

To sweeter rose the vagrant pilferer flies;
And thence to where syringa's luscious
bloom

Lies the mild zephyrs, or where lilac
blends

Its purple with laburnum's golden pride.

From these stupendous Mountains,
(when as now)

No envious mist forbids, the wandering
eye,

By telescopic aid, delighted sees

A hundred temples rise; ten fertile Shires;
Three Cities fam'd, with their Cathedral
Towers;

Villas innumerable glittering to the sun,

With many a rural Cottage, the abode
Of pastoral Simplicity; blossom'd Trees,
Silvering the distant Orchards—earnest
bland

Of overflowing vats, the wasted strength
Of labouring kind to renovate, and cheer
The village throng, when even-tide in-
vites

To rustic revelry and festive glee.

MALVERN Springs. From the Same.

YE Springs and Gales!

Which renovate th' enfeebled frame
—Oh nerve

In me what'er is weak, and bid ascend,
In vigorous flight, the Spirit that attempts
To celebrate your Virtues!—Claim not
these

The tributary lay? Ah me! a lay,
Worthier than mine to pour, whose artless
tongue,

Little regal'd at Aganippe's Spring
Warbles as Nature and my Heart inspire.

—But what if that fam'd Spring, so hard
to gain

On Helicon's high top, its aid deny?
Thou HOLY WELL! dost to thy still Re-
treat

My footsteps welcome 'mid these Moun-
tains huge;

Whence, gurgling down the pebbly steep
to meet

Morn's earliest beams, thy waters softly
flow.

—Hail, hallow'd Fount! that, in thy
ceaseless course,

"Health to the Sick, and solace to the
"Swain"

Impartest freely! while thy copious tide
I trace, and, in thy liquid mirror, view
My form reflected vigorous—unimpair'd—

How ought my Soul with pious warmth to
glow

That to thy ever-fluent Source I come—
Not, as afflicted thousands, to regain

Lost Health! Yet (that transcendant blef-
sing mine)

Tho' not a suppliant for thy wonted boon
I thee re-visit (with no thankless mind

To Him who keeps me whole)—thy
sparkling wave

I seek, for Inspiration in my Theme;—
A Theme by thee enrich'd and made to
please:

And scantiest portion from thy hallow'd
source

Will far more grateful be than ampler tides
From pagan fountain.—Hail then, Holy
Spring!

On whose soft bank perchance some bard
sublime

Whilom reclin'd; or, later, He who sang
Fall'n Man,—Lost Paradise,—shut out alas!

From this inferior world; but soaring thro'
The heaven of heavens on resistless wing.

CRITICAL CATALOGUE.

I. **MAGAZIN ENCYCLOPEDIQUE, &c.** Par A. L. MILLIN, &c.—We cannot but think, that a sketch of the characters of those *JOURNALS of Foreign Science and Literature*, which are almost the only books regularly transmitted from the Continent to Britain, must be exceedingly useful to the English Public, to which no similar sketch has ever yet been presented, and especially to those gentlemen of liberal curiosity, to whom this Magazine is, throughout all its departments, particularly addressed.

We begin with the *French MAGAZIN ENCYCLOPEDIQUE*, of which, the Editor is Mr. MILLIN. The commencement of this publication, was, since the æra of the republican revolution of France. Its plan is, to present, every ten days, an account of—every new system and fact in science, every new addition to the beauties of elegant literature, every happy elucidation of any of the mysteries of erudition, every elegant mimetic work, of every beneficial effect of literature and science on public and private life, of every new institution destined to promote their influence, that shall become known in PARIS.—It mingles analyses of new books—with letters of science and erudition, elegant extracts from publications which have, or have not, been analysed in it—paragraphs of news, and short original flights or essays in prose or rhyme.—It records, with ambitious diligence, the meetings, the readings, the proposals, the enquiries, the experiments, of that incongruous and unskilfully framed combination of all the relics of their ancient academies, to which the Republican French have given the ill-coined, quaint, and unclassical appellation of NATIONAL INSTITUTE.—From *Foreign Literary Journals* are derived, for it, by abridgement and translation,—abstracts of the new books of Britain, Germany, Italy, and the northern continental kingdoms,—and occasional hints concerning the new inventions and discoveries which these countries, from time to time, produce. Correspondents in Germany, France, and Italy, contribute many communications which are, first, printed in this Journal. Among its French correspondents, are many of the most distinguished scholars and philosophers of Republican France. Even its lighter articles are composed with an intelligence and a propriety of writing, not unworthy of a reputable periodical publication. It is evidently an effort of the philosophers and literati of Republican France, to exhibit to Europe a Journal of science and literature, such as may do honour to the Revolution.

Yet, even this *Journal*, thus composed, exhibits no transcendent, no unattainable excellence. There exists, indeed, at this hour, in France, an enthusiasm for the classical literature of the ancient Republics of Greece and Rome, more zealous than that of the scholars of any other country. And hence, in almost every Number of MILLIN'S *MAGAZIN*, there appear some exquisitely curious articles of classical discussion and research. It exhibits, however, much more of the cant, than of the reality, of science. Its *reviews of books* afford but an imperfect and unsatisfactory account of the publications even of

French literature: For, they select only a few; they are not written with that expansive comprehension and discrimination of mind which can, alone, confer true authority on the judgment of the critic: they are puffs or libels, just as the intention was to gratify a partisan, or to blast the reputation of a rival: upon a comparison of the criticisms with the books criticised, we find the former to have been, in many instances, written without a careful perusal of the latter. The style very rarely exhibits either the light and lively graces of *Fontenelle* or *Voltaire*, the impressive copiousness of *Rousseau*, or the concise energy of *Bossuet* or *Mirabeau*. In the judgments of the productions of the Fine Arts, and of the Exhibitions at the Theatres, there appears nothing of that union of philosophical principles with native delicacy of taste, without which, all the cant of the connoisseur and the critic, is but a miserable *verbiage*.—To us, in Britain, however, a *Parisian* publication, such as this, acquires a relative value, much greater than its intrinsic and absolute worth; as it communicates intelligence, however imperfect, concerning the progress of Science and Literature on the Continent, which we might, otherwise, desire, in vain, to obtain.

II. ALLGEMEINE LITTERATUR-ZEITUNG, &c.—This is the well-known Review, which has, long, been published at JENA, in Saxony. It is a daily paper, printed in a form in which it is transmissible through the Post offices, like any of our British newspapers. It is filled with reviews of books in all languages, with annunciations and advertisements of the intended or the actual publication of new books, with news concerning the transactions in Academies, Universities, learned Societies, and with biographical communications concerning deceased members of the Republic of Letters. Amid the greatness and diversity of that quantity of matter which it contains, there cannot but be much information, such as men of literary and scientific curiosity must earnestly desire to know. Of the articles of *Review*, there are many which display soundness of judgment, a widely extensive knowledge, delicacy of taste, and extraordinary felicity in elegant GERMAN composition. Others are slovenly, partial, written without a due knowledge of the subject, or a sufficiently careful perusal of the book under review. Of English and French books, the accounts seem to be formed, merely by translation from English and French Journals—not by an actual acquaintance with the books themselves. Having acquired reputation and interest with the Public, the Authors of this Review, act often, as if they thought, that these might excuse them from the present exercise of ingenuity or care.—Antiquities, Philology, Theology, Medicine, fill, in proportion to their respective importance, more of this Review than the other branches of human knowledge.—Of all the Continental Literary Journals, this, however, is adapted to prove, by much, the most useful to gentlemen in Britain. It often conveys much interesting information concerning Commerce, Agriculture, and the useful Arts.

III. LE NORD, &c. Par M. OLIVARIUS, Publié à KIEL.—This Monthly Magazine or Journal, began to be published about three years since, at KIEL, in the University of which, its Author is a Professor. Its design is, to communicate—throughout Germany and the kingdoms of the North, a knowledge of the Politics, Lite-

ture, Science, and Manners of France; throughout the more Southern parts of Europe,—news of the Literature, Manners, and Politics at Russia, Denmark, Sweden, and the other Countries of the North. It is filled with extensive extracts from new books, and with anecdotes selected from such books, or from the Newspapers—The selections are rarely dull or unentertaining: The original matter is, for the greater part, written in a style, lively and elegant. But, M. OLIVARIUS is not a deep thinker: Nor does he take any laborious pains to fill his pages, when the necessary quantity of Letter-press can be more easily, though less interestingly filled. He is, besides, a zealous disciple of Republicanism; and anxious to promote Revolution throughout the kingdoms of the North. The late Numbers of *LE NORD* are filled with worse matter than that of the former Numbers.

IV. *PHYTOLOGIA, &c.* By E. DARWIN, M. D. 1 vol. 4to. JOHNSON, St. Paul's Church-yard. The Author of the *Botanic Garden*, and of *Zoonomia*, has again turned his attention to the œconomy of Vegetation. In this work, he explains the organic structure and functions of vegetables; enquires, by what chemical changes, soils, manures, and the elements of the atmosphere, are made to afford aliment to living vegetation; and deduces, both from the physiology of vegetables, and the chemistry which enters into their functions, many important advices and laws, to direct the whole œconomy of Gardening and Agriculture. From *Malpighi* and *Crew* to *Von-Ussler* and *Ingenhousze*—Dr. DARWIN has, in this work, laid under contribution, every ingenious and philosophical enquirer into the physiology or chemistry of vegetables. Scarce a series of facts has been observed, or a theory formed on these subjects, but what has obtained a place in this agreeable volume. The predominant, original, and systematic idea of Dr. DARWIN himself, is, that *vegetables are animals*; that vital power predominates over every other principle, in all the functions of vegetation; that, there are, in vegetables, parts corresponding to every remarkable part in the system of the animal body. This book abounds in error, in ingenuity, in originality, in borrowings apt to be mistaken for originalities, in benignity of sentiment, in exuberance and sprightliness of fancy, in elegance of literary composition. There is more of sound sense in the *chemistry*, than in the *physiology* of this volume.

V. *OBSERVATIONS on a TOUR through the Highlands, and Part of the Western Isles of Scotland, &c.* By T. GARNET, M. D. &c. Cadell and Davies, Strand.—This work fills two splendid Quarto Volumes; and contains, beside the *Letter-Press*, a Map and fifty-two Engravings from original Drawings, &c. We find in it much entertaining matter, in a style of composition not at all discreditable; though but little from which we can infer Dr. GARNET to have much of the philosopher in him; or to have actually visited, with a curious and discerning survey, the scenes of which he writes.

HISTORY.

National Transactions,

CIVIL AND MILITARY.

IN INDIA, the dominions of the late *Tippoo Saib* have been partly divided between the *British* and the *Nizam*, in part assigned to a dependent *Rajah*, who is permitted by the conquerors to reign in *Mysore*. The territory appropriated to the *British*, promises to afford no inconsiderable addition to the Company's clear *annual profits* upon their *imperial* and *political* transactions in INDIA.

In INDIA, as in Europe, the *Portuguese* have found it necessary to put themselves under the protection of their *British* Allies. A detachment of *British* troops was lately sent, at the request of the government of GOA, to reinforce the *Portuguese* garrison of that place.

At the CAPE OF GOOD HOPE, the *Dutch* colonists, though enriched greatly above whatever they before knew, since the *British* conquest of that settlement; are not at all content under the government of the conquerors. But the military force is sufficient to maintain the subordination of those colonists. In the mean time, the expenditure and the shipping, introduce an excess of new wealth, which must go, in part, to extend and improve the cultivation of the lands. Provisions of all sorts have, for a considerable time, been incredibly dear, at the CAPE.

The little Isle of ST. HELENA must still be infinitely valuable to the *British* East India Company; though the settlement of the *Cape* should remain, permanently, a *British* possession. Its harbours are more accessible and more secure than those at the *Cape*. If neglected by Britain, it might become extremely formidable, in the hands of any rival nation. The salubrity of its air and climate render it of almost all places in the world, the best for the refreshment of persons who are sick and languid, from the effects of a long sea-voyage. Much has been done for the improvement of the culture of this isle, within these last *three and twenty years*,—chiefly by the intelligence and exertions of Major PIERIE, who resided there, as engineer and commandant of Artillery. Of late, *curiosities* have been much more attended to than matters of *substantial improvement* and *direct utility*. In the end of the year 1799, the planters in general were in considerable distress for want of fresh provisions; in consequence of being prohibited from sending out their boats to fish, *even in the bays*, and *under the protection of the forts*, to the leeward of the isle. The Court of Directors have, since the middle of the present month, transmitted their orders to the Governor, to remove that inconvenient prohibition.

The TURKISH EMPIRE may perhaps be speedily torn in pieces, never more to be re-united under the House of Othman. The principles of its government appear to have lost all their original power. The *Janissaries* are disorderly, undisciplined, imperfectly armed, even to such a degree, as to be utterly unfit to oppose a regular army: the *Pachas* assume the importance of independent Chiefs. Both *Pachas* and *Janissaries*, though cowardly against a foreign foe, are fierce and bold in rebellion, in intestine dissensions, in all those practices of insubordination, by which a government is necessarily disarmed and dissolved. In EGYPT, there is still a *French* military force. It

is even said, that the *French* have found means to insinuate into the *Divan*, suspicions against the designs of the *Russians*, by which the *TURKISH* Court may, perhaps, be moved to abandon their alliance.

MALTA still remains in the possession of the *French*.

Austria, the Neapolitan sovereign under British protection, and the *French*, in the vicinity of *Genoa*, are masters of the fate of *Italy*. The *Sardinian* monarch has been, indeed, restored to his dominions, in consequence of the successes of the *Austro-Russian* arms, during the last campaign. But he is suffered to administer, only the civil government. *Austrian* troops garrison all the strong places in *Piedmont*, and leave to its monarch little more than merely nominal authority.

BONAPARTE has been exalted to the head of the government of *France*: and that which was to be the most perfect of all possible republics, is, now, a mere *military despotism*; but its spirit seems to be mild. The artifices of conciliation are preferred by the usurper and his associates, to the menaces and the inflictions of terror. He permits many of the emigrants to return, in safety, to their native country. He encourages that splendid and elegant luxury, in which the *French*, above almost every other nation, have long delighted and excelled. Peace on almost any terms, is now the fondest wish of a great majority of the people of *France*; and *Bonaparte* has not disdained to ask peace from *Britain* and *Austria*, that, if successful, he might be honoured as its author, if unsuccessful, he might renew the indignation of the *French* against those by whom it should be denied. *Britain*, with a magnanimity and firmness worthy of her ancient reputation, and of her high rank in the alliance, refused to negotiate with a mock-monarch, whose new greatness might prove but the pageant of an hour. It is doubtful, whether *Austria* have not somewhat more favourably entertained *Bonaparte's* proposals. In the western Departments, there is, still, a very formidable force of *Royalists*, whom, the whole strength of the republic, might, in vain, strive to exterminate. Since the very beginning of the war, this royalist opposition has existed. Often have the *Republicans* boasted of its entire suppression. It has still burst out anew, with augmented strength and obstinacy. Even now, while the *Consular Government* proclaim, that the *CHOUANS* have been finally subdued, they find it necessary, in the same breath, to call for new levies of troops by whom those very *CHOUANS* may be opposed. Zeal for the ancient religion, loyalty to their ancient sovereigns, resentment for wrongs, obstinacy of political opinion, and the money, stores, and emissaries of *Britain*, must, no doubt, all conspire to maintain this inextinguishable, intestine war, in the western parts of *France*. On the *Rhine*, the *French* are said to be preparing, with many advantages, for a vigorous renewal of hostilities in the ensuing campaign. In *Switzerland*, they make similar preparations. *Bonaparte* is, himself, expected to assume the command of the army, on the side of *Germany*. *Carnot* who was believed to be the author of all those plans and arrangements, to which the *Republican French* have owed their most splendid successes, is, again, to be the efficient minister for war. But great arrears are due to the army. It will be exceedingly difficult to find the means of supplying the other requisite expences, and, at the same time, making payment of these arrears. The armies, if unpaid, will hardly be very well disposed to fight for the Consulate of *Bonaparte*.

Of the transactions in *HOLLAND* and *BELGIUM*, there has not been much authentic and important information very lately received in *London*. Both these countries are trampled under the controul of *French* principles and *French* troops. Their wealth is exhausted, to supply the expenditure of the *French* government; and the flower of their population, to recruit its armies. Preparations are earnestly made, in them, for the renewed warfare of another year. *Admiral de WINTER* is said to have been recently nominated to the chief command of the *Dutch* fleet.

Austria, Prussia, Russia, Britain, and France, regulate the political temper and designs of the kingdoms, states, and principalities of GERMANY.

AUSTRIA prepares to renew the war, with mighty armies, on the Upper and the Lower Rhine, as well as in Italy. Its imperial sovereign is said to be dangerously sick or even dead. But while the Archduke Charles survives, it is not probable, that the illness, or even the death, of the Emperor, can materially enfeeble the counsels or the military energy of the Austrians. The pecuniary assistance of Britain is, again, ready to support their efforts in the opening campaign. Peace has been solicited by the French at the Court of Vienna; whether with hopes of success, we do not yet certainly know. Unabated dissensions between the Austrians and Russians, render it probable, that *their* armies will no longer co-operate, in the prosecution of the war. It seems, now, probable, that, by the issue of this war, the general strength and influence of Austria may be augmented rather than diminished.

PRUSSIA still maintains a cautious neutrality. The object of its monarch, is, to aggrandize himself by holding and swaying at pleasure, the balance between France and Austria. He maintains, however, a great military force, ready to make his neutrality constantly respectable. Both the king and queen of Prussia are, in the highest degree, popular among their subjects. The young monarch assiduously promotes all the more splendid arts of peace, by such conspicuous interpositions of his authority and favour, as may seem anxiously to ask that public applause which they command. But it must be owned, that, under this administration of the Prussian government, republican principles of wild, fanciful texture and mischievous tendency, make, *at present*, a more rapid progress in Prussia than even in France.

DENMARK and SWEDEN remain neutral, as to the war; successfully improving their Agriculture, manufactures, and commerce; a prey to the invasion of democratical principles, which their governments have too long refrained from opposing; watching, with fearful jealousy, the movements and designs of Russia, their too powerful neighbour.

At the Court of RUSSIA, the dread of French principles and the influence of French emigrants are still powerful. If the Emperor withdraw his troops from co-operation with the armies of Austria; he is, however, still ready to aid the arms of Britain, and still zealous to suppress the wild ambition of the Republican French. He, more than any other of the Continental Allies in the war, has, like Britain, preferred the cause of the civil and political order of Europe, to all selfish considerations. General SUWARROW is, now, at Petersburg; and as that veteran commander enjoys the entire confidence of his sovereign; his representations may be expected to have considerable force in deciding—what precise part the RUSSIANS are to act in the opening campaign. For the benefit of the human race, it is devoutly to be wished, that the counsels of the Russian government should be, henceforth, directed, much rather to promote the civilization of that vast Empire, than to extend its limits.

GREAT BRITAIN presents, in the deliberations and acts of her legislature, in the general transactions of her government, in the discipline, disposition, and military achievements of her armies, in the victories and captures of a navy that triumphs upon all the seas, matter incomparably interesting, not to Britons alone, but to the world in general.

One grand object in regard to which, the Lower House of PARLIAMENT annually exercise their most important legislative function, is, the supplying to government, *money and credit* for its necessary expenditure in the current year. It is natural, that the Chancellor of the Exchequer should both communicate an estimate of the probable expence, and suggest the most convenient means for raising the supplies from the nation. On the 24th of February, therefore, in a Committee of Ways and Means, consisting of the whole House of Commons, Mr. PITT stated, that, for the total expenditure of the govern-

ment, in the year 1800, the sum of 39,520,000 l. sterling, was necessary; that of this sum, a part, the authority of the House had already authorised the minister to provide, by voting the continuance of former taxes, and giving the credit necessary to obtain a *Loan*; that, for what it was requisite to procure in the way of *Loan*, the Minister had already bargained on the terms of receiving from the lender, every 100l. as if it were 100l. 10s. 5d. and of allowing for each 100l. of acknowledged debt, an annual interest of about 4l. 14s. 2½d. per cent.; that the fine of 3,000,000l. for a renewal of the charter to the Bank of England, an increase of the tax upon tea, with a similar increase of the tax upon British spirits, rum, and brandy, would be fully sufficient to supply whatever more was wanted for the yearly expence of the government, including the interest upon the national debt, new and old. Mr. TIERNEY and Mr. JOLLIFFE complained; that, though the new taxes which Mr. PITT proposed, could not but be lightly felt and easily levied; the Income-Tax renewed and perpetuated, must prove, beyond all others that could be devised, impoverishing, afflictive, inevitably fatal to the national prosperity. The *motions* of the Chancellor of the Exchequer, passed, nevertheless, into *resolutions* of the Committee. The *Report* of the Committee was, on *Tuesday*, Feb. 25, formally presented to the House, approved, and ordered to be formed into the necessary Bills, that the resolutions might, with as little delay as possible, receive the full authority of law. On *Thursday*, Feb. 27, the Bills, for the *Loan* of 20,500,000l. for the additional duty on Tea, and for the new duties on British spirits, rum, and brandy, were presented to the House, and read a first time. They have, since, advanced through the wonted forms. And the probable expenditure of the British government for the year 1800, is thus adequately provided for.

On the 28th of February, the discussion of the old question—What is the object of the war with France? was renewed by a motion from Mr. TIERNEY. The discussion was prolonged, and kindled into animated debate. All the well-known arguments, and none but those, were urged, to prove, *on the one side*, that it was the restoration of the ancient monarchy, with the extermination of the spirit of republicanism,—*on the other*, that it was only such security as might be obtained by nothing but peace with a government in France, which should be likely to be permanent. It is not necessary for us to relate whether Mr. Tierney's motion was adopted by the House.

The excessive dearth of provisions, and the danger of an absolute want of corn and bread, before another crop can be reaped, have, very happily, engaged much of the attention of Parliament, during these last six weeks. In consequence of a previous motion, commitment, and report; a *Bill* to prohibit the sale of all bread, till it has been at least twenty four hours removed from the oven,—was, on the 20th of February, moved, in the House of Commons, by Lord Hawkesbury. With the utmost rapidity of procedure, it was read a first and a second time, committed, reported upon, read a third time, passed and transmitted to the House of Lords. On the same day, it was finally passed, likewise, in that House; was sanctioned with the royal assent; became law. On the same day, his Grace the Archbishop of Canterbury moved, in the House of Lords, “that their Lordships should oblige themselves, by a voluntary engagement, not to suffer more than a quartern loaf of bread, a week, for each person, to be consumed in their families, from the 24th of February to the 10th of October next.” A recommendation was substituted by the House, instead of the engagement which his Grace had proposed. A *Bill* “to prohibit, for a limited time, the consumption of grain in the distilleries in Scotland;” intended, also, to prevent the dreaded scarcity; was, on the 27th of February, after proceeding through the previous forms of discussion, passed into an Act of the House of Commons. Not satisfied, even with these attentions to a subject of such high national importance; the Commons appointed a farther investigation into the causes, the extent, and the means for the supply, of the scarcity of the present year. The

Report of the Committee who made this investigation, was presented to the House by Lord Hawkesbury, on the 6th of March. The allowance of a bounty on corn imported from the Mediterranean Sea and from America; the recommendation of the use of a substitute for bread; a new assize of bread, with new regulations respecting millers; the stopping of the distilleries; the encouragement of the importation of rice and fish, and of the culture of potatoes; were the additional measures to prevent a famine, which the Committee recommended. Their report was printed by the order of the House. On the 7th, the consideration of it, was renewed; the several measures which it proposed, were adopted, as resolutions of the House, and were ordered to be presented in so many different bills. These bills were, on the 10th, introduced and read a first time. On the 13th, the 14th, the 17th, the discussions relative to them, were successively renewed and prosecuted. They have, in part, after being enacted by the Commons, passed under the discussion of the House of Lords. One of them, the Bill for "prohibiting the manufacture of starch from wheat," was, on the 20th, finally passed by that House. While these discussions proceeded in the House of Commons, Lord DARNLEY, on the 27th of February, presented various documents in the House of Peers, of which the purport was, to evince; that the scarcity was much less than the alarm; and that, what by the remains of the crop of 1798, what by the produce of 1799, and by importation, the grain in the country would be adequate to the consumption of the year.

A petition from 23,028 Journeymen Cotton Weavers, was, on the 5th of March, presented to the House of Commons, by Col. Stanley. It complained, that the combinations of their masters made it, at present, impossible for them to obtain wages, even sufficient for their subsistence; and prayed that the House would, therefore, interpose, to establish an equitable mode of regulating their wages, and of settling their differences with their masters. Another Petition, from the Master-Cotton-Manufacturers, was, at the same time, presented by the Colonel. It concurred with that of the journeymen, in requesting the interposition of the Legislature, to regulate the wages of the workmen, and to fix a method for the settlement of such differences as might arise between them and their masters. It was ordered, that both these petitions should lie on the table.—Mr. D. P. COKE, on the same day, obtained leave to bring in a Bill "for the better regulation of disputes between Masters and Mistresses, and their menial and domestic servants."

On Wednesday, March 12, Mr. MANNING, after stating, among other things, that COALS sold in retail, in London, cost nearly eight times as much as when sold wholesale, at Newcastle, moved, "that a Committee should be appointed to enquire into the present state of the Coal-Trade of this kingdom, and to report their opinion to the House." A Committee was accordingly appointed.

On Tuesday, March 18, Sir JOHN SINCLAIR moved for "the appointment of a Select Committee, to consider of the most effectual means for facilitating, under the authority of Parliament, the inclosure of waste lands, uncultivated commons, commonalties, and common of pasture." A Select Committee was, accordingly, appointed to make the desired enquiries. On the 21st of March, a discussion arose, in the House of Lords, from a motion by Lord MULGRAVE; in the course of which it was suggested by the Lord Chancellor; that it might be made a standing order of the House, "that no divorce-bill should pass, unless it contained a clause to prohibit the future marriage of the offending party."

On the same day, in the House of Commons, Mr. TIERNEY opposed the third reading of a Bill "for renewing and extending the Charter of the Bank of England, by urging; that the advantages of monopoly which the Bank enjoyed were not compensated by its utility to the general interests of the country; that its opulence and exclusive privileges enabled it to exercise over the merchants, a capricious tyranny, highly injurious to the commercial prof-

perity of England; and that its political connexions and dependencies rendered it so much a mere auxiliary office to the treasury, that it could not possibly transact the proper business of a bank dedicated to the service of commerce and general industry. The Bill was, however, read a third time, and enacted, without a division of the House.

To the number of 50,000 men have been, for some time, sufficiently in readiness, in this country, to go upon any foreign expedition, without leaving the island destitute of the requisite defensive strength. Another *secret expedition* has been supposed to be meditated. Its probable destination has, happily, remained more effectually secret, than did the design of the late unfortunate invasion of Holland, when it was threatened. An embarkation of troops has, already, begun to take place, at Portsmouth. Malta, Egypt, Minorca, Gibraltar, are mentioned, as the places to which these troops are likely to be sent. But, the uncertainty of the conjectures sufficiently evinces, that our war-ministers have, at least, in this instance, wisely kept their own counsel. A similar embarkation has, likewise, taken place at Deal.

Three Companies of Artificers, of all denominations, have been raised to accompany the expedition.

La Modeste, a French letter of marque, 600 tons burthen, 16 guns, 70 men, laden with cotton, coffee, tea, sugar, indigo, &c. and bound for Bourdeaux from the Isle of France, was captured, on the 28th of February, by the English vessel *La Nymphe*, commanded by Captain Frazer.

The *Nuestra Senora Carmen*, a Spanish privateer logger, 2 guns, small arms, and 44 men, was, in January last, captured by the *Maria*, an English private ship of war, in latitude 42°. 10'. N.—long. 9°. 14'. W.

A *Circular Letter*, from the Duke of Portland's Office, has been sent to the British Consuls in the several states of Barbary—requiring them to employ all their influence to encourage the exportation of grain from those states to Britain.

On the 13th of March, the *Josephina*, a French cutter privateer, was captured by the British sloop of war, *La Suffisante*, commanded by Mr. Wittman.

The French are said to have a numerous fleet at Brest. But, an English naval force of adequate strength, is in sufficient readiness, to watch and to meet their movements.

IRELAND is, at present, sufficiently full of British troops, to be secure equally against intestine rebellion and invasion from abroad. The seditious and rebellious disorders, however, which so long ravaged that isle, have not, even yet, entirely ceased; notwithstanding all the vigilance of the magistrates, and the wise distribution of the military force. The highways are infested with parties who make insurrection a pretence for robbery. The houses of persons eminent for wealth and loyalty, are occasionally broken into and plundered, with the massacre of their possessors. Industry is thus disturbed and interrupted: and the prosperity of the country is fatally wasted. The minds of the Roman Catholics, and those of the Protestants, are still more and more alienated from one another. It should seem, as if the reign of barbarism were hastening to be renewed among the Irish.

In order to put an end to these disorders, the design of a LEGISLATIVE UNION of Ireland with Great Britain, was, some time since, conceived. It has been advanced by many steps, forward, into execution. It has engaged all the attention of the Irish Parliament, almost since the very opening of the present Session. In the end of February, it was brought by a message from the Lord Lieutenant, under the immediate and express consideration of both Houses. Both the Lords and the Commons appointed the subject of the UNION to be fully investigated, each in a Committee of the whole House. In the enquiries concerning the probable effects of the different arrangements; manufacturers, merchants, and others acquainted with the state of arts and industry in the isle, have been carefully consulted and examined! Those

Members in both Houses of Parliament, who are adverse to the measure of the UNION, have, in vain, tried every artifice of policy, and all the powers of eloquence, to defeat its success. Petitions and addresses from almost every competent body, in IRELAND, have been received, either encouraging or depreciating the expected UNION. It has appeared, that the UNION, though beneficial to all the grand national interests of the IRISH, may, probably, prove, in the first instance, hurtful to some of those manufactures which have been established, under the advantage of *protecting duties* that the UNION must abolish. The *Minority* have called for an *appeal* to the nation at large; but, without being able either to move the *Majority* from their purpose, or to inflame the zeal of the people, much higher against the measure. On both sides, especially on that of *Minority*, the conduct of the Scots, when the UNION was accomplished between Scotland and England, has been carefully imitated. But, neither in art, in eloquence, nor in steady and vehement zeal, has the Irish *Opposition* equalled the *Minority* in the last Parliament of Scotland. The speeches of *Ponsonby* and *Grattan* are exceedingly inferior to those of *Andrew Fletcher* and Lord *Belhaven*.

In the WEST INDIA or *American Isles*, no very remarkable political events have recently taken place. A conspiracy to betray *Guadeloupe* to the British, is said to have been detected and frustrated.—A powerful and deep-laid conspiracy for an insurrection of the Blacks, in *Jamaica*, has been discovered and defeated; not, however, without exciting an alarm and terror which still pervade the whole isle, so that the families of the planters yet tremble for their safety.—The French colony of *Cayenne* are said to have followed the example of the Dutch of *Surinam*; and to have invited the British to assume the government and protection of that settlement.—From *Canada* and *Nova Scotia*, we know not that any political news have been lately received.

The people of the *United Anglo-American States* have, again, signalized their national gratitude, by honouring the memory of General WASHINGTON with all the solemnities of a general and public mourning. His eulogy was pronounced with extraordinary enthusiasm of feeling, in the assembly of their legislators. Exhibitions, destined to gratify and express the public sorrow, were presented on the theatres. The very newspapers were made to wear mourning; having their columns beset with black lines, not less than half an inch in breadth. There is reason to fear, however, that by the death of this great man, that party in the AMERICAN Councils may be not a little weakened, by which the friendship of Britain has been, hitherto, the most zealously cherished, and democratical innovation the most steadily opposed.

Commercial Affairs.

The trade of BRITAIN, and especially of London, still flourishes, in spite of every alarm, and of every vicissitude of temporary distress.

The stagnation in the sales of *West India goods* has already ceased. Aid and indulgences from Government, the liberal support of the Bank, the assistances of private merchants to the necessities of one another, enabled the great dealers in *Sugar* to keep back from the market a very large proportion of the quantity that had been imported, of this commodity, at the time when sale for any price worthy of being accepted, was almost utterly impossible. In the mean time, the hopes of profit from purchases of extraordinary cheapness, brought a greater number of buyers into the market; the consumption of sugar was still going on, was augmented by its cheapness, was enhanced by the comparative dearth and scarcity of grain, and other articles, instead of which, sugar might be advantageously used; the disappointment of the planters in the sales of their last year's produce, has an unavoidable ten-

dency, of which the merchants must be well aware, to diminish the cultivation, and by consequence, the crop of the year now current: during the time which has passed since the last great importation from the West Indies, much of the sugar then imported, has necessarily been consumed. Hence, the prices of almost every different sort of sugar, have risen gradually higher since the beginning of the present year. Between the 14th and the 21st of January, the rise was rapid. It continued advancing till the end of that month. Throughout February, its advance was slower; but it still continued to advance. In the beginning of March, the prices were augmented with a sudden quickness. In its progress, they have been farther augmented, though not with the same rapidity. The price of those which are called in the market *powder-loaves* of sugar, was lately £5. 5s. a cwt. that of the *clayed sugars* of Barbadoes £3. 9s. per cwt.: the other *raw sugars* of the East and West Indies, of various prices, from £2. to £3. per cwt.

London is for *Cottons*, no less than for *Sugars*, the greatest market in the world. From the territories of North and South America, from the American Isles, from the countries on the Mediterranean Sea, from our wide possessions in Hindoostan, there is a constant importation of *raw cotton* into Britain. *Cotton-yarn* is, also, imported often in great quantities from Smyrna. The sales of these prodigious quantities of cotton are, principally, to the manufacturers of cotton-yarn and stuffs in Great Britain and Ireland. The mill-machinery for spinning, and the abbreviations which they have introduced also into weaving and bleaching, enable them to prepare both thread and cloths of cotton for the market, much cheaper than can yet be done in almost any other part of the world. Other nations gladly purchase, at a market in which, since the largest quantities are produced, the choice must be the greatest, and the prices commonly the lowest. Between the 18th of February and the 18th of March, all the best cottons in the market, have risen in price from one penny to two-pence per lb. The cotton of *Surinam* is now sold at 2s. and 7d. per lb.: Cotton of *Barbadoes*, at 2s. and 1d.: Cotton of *Pernambucca*, at 2s. and 9d. a lb.

The crop of *Hops* was, last year, but a scanty one. And the price of this commodity, therefore, was soon enormously enhanced in the market. But, the deficiency was far from being so great as alarm and interested artifice had, at first, represented it. It is now known, that the quantity of *hops* in store will be, in a reasonable degree, sufficient for the consumption of the brewers during the present year. Those who preserved in store the greatest quantities, find it necessary to convert their stock into money. The price of *hops*, therefore, has been diminished by about 6s. a bag, for the hops of Kent, Sussex, and Essex, since the middle of February last. The hops of these three counties, are now sold at from 14l. to 14 guineas a bag. The reduction of the price upon *pockets*, is in proportion to this.

The *flax* and *hemp* produced in Britain, are not in large quantities. Russia, Holland, and North America, have been our usual markets for these important raw commodities. The consumption of hemp, in cordage, is necessarily very great: As is also that of *flax* in the various uses to which it is applied. There has been, in the course of this last month, a rise of from £1. 10s. to £2. in the price of flax; and a similar rise in the price of *hemp*.

The prices of those ashes of *wood* and *seaweeds* which afford *potash* and *soda*; materials of primary utility in our soap-works, glass works, and bleachfields, as also in many preparations of the apothecary; have been lately diminished, in the market. The diminution is at the rate of from 2s. to 10s. a cwt. It is exceedingly probable, that the increasing use of *oxy-muriate of lime*, instead of *potash*, or *oxymuriate of potash*, by the bleachers, must occasion a permanent reduction in the price of those ashes from which *potash* is obtained. The increasing attention to the manufacture of *kelp* on the British shores, and the contrivances for extracting *soda* from sea-salt, may, also, as one should hope,

speedily relieve us from the necessity of importing *barilha* from Spain and Sicily.

Teas and most other East India goods remain, without having experienced, during this last month, any remarkable fluctuation of price. *Leather, timber, furs*, have as little risen or fallen in the market. *Dyeing and tanning stuffs*, too, continue nearly at the same prices at which they have been, for some time, sold.

The prices of *STOCKS*, that is, of debts due by the nation and its government, and of the Capitals of the BANK OF ENGLAND and the EAST INDIA COMPANY, those great public bodies trading under the benefits of Charters,—have lately, though with many trivial fluctuations, rather risen than fallen in the market. The possibility of a peace in the course of the present season; the prospect of a new consolidation of the strength of the British Empire by the Irish union; the cessation of that fearful alarm of scarcity which was some time since industriously propagated; with a variety of other concurring causes, have naturally tended to produce this favourable operation on the state of the public funds.

The rate of *EXCHANGE* is ever an important object of commercial curiosity, even independently of the direct and immediate utilities which are connected with the knowledge of it. When we have more money to pay, in any foreign country, than we, or our neighbours, have to receive from it, the remittance must then prove more difficult and more expensive. When we have to receive much money from any foreign place, an order for a payment in money, in that place, will be so much the more cheaply obtained. The exchange of LONDON with *Leghorn*, is now more favourable to London than it was a month since;—with *Palermo*, the same without variation; with *Lisbon*, more favourable to the Portuguese; with *Hamburg*, within this last month, more favourable than it was before to the Germans. Such is the course of the usual remittances between the capital of England, and those cities on the continent with which its commercial intercourse is now the most regular and the most considerable.

Our *gold* and *silver* are obtained in Britain, from the Brazils, by the way of Portugal; either directly or indirectly from Spain, in consequence of previous importation from the Spanish colonies in America; and by extraction from the lead ore of our own mines. The present price of Portuguese gold in *bars*, and in *coin*, varies from £3 17s. 7d. to £4 an ounce. The price of silver varies from 5s. and 5½ to 5s. and 8d. an ounce.

INSURANCE is, of all mercantile contrivances, one of the happiest. It reconciles enterprise and advantage with commercial prudence. Abstracting a little from probable profit, it secures from that total loss, of which bankruptcy is the unavoidable consequence.

The rate of *INSURANCE*, if fair and prudent, always exhibits the direct ratio of the security and the frequency of the trade in that particular channel to which it relates. The present insurance from LONDON to *India*, is twelve guineas per cent;—to *Africa*, and the African Isles, ten guineas; to the more distant ports on the Mediterranean, twenty guineas; to *North America*, ten guineas per cent; to *Hamburg*, ten guineas per cent, for the voyage outward.

Coffee, cotton, hydes, skins, silk, linen-yarn, &c. have been lately imported into the Thames in considerable quantities. A great diversity of other goods have been, in various proportions, also introduced.

The drawing of the *English LOTTERY* has, in the progress of the present month, afforded much scope both for a lawful and for an illicit money-trade connected with it. The great prizes have remained long in the wheel; and the price of tickets has been consequently enhanced; and the expectation and anxiety of the foolish and idle part of the public are excited, and absolutely stretched on the rack to a very extraordinary degree. It is exceedingly

to be regretted that a lottery should have become absolutely necessary to keep the English Public in good humour; and that no effectual expedient can be adopted to suppress the practice of illicit insurance in the lottery.

The new COPPER COINAGE of half-pence has begun to find its way into general circulation: they are elegant; though, in the beauty of the impressions, exceedingly inferior to the brass money of ancient Rome. It is unfortunate that the interests of the small shop-keepers and retailers should still be adverse to the circulation of them.

Nothing can be more certain than that the inhabitants of LONDON are highly entitled to the interposition of the legislature, to give them relief in respect to the price of COALS. They cannot have the advantage of receiving their fuel by inland navigation; because, the coal trade is, of almost all nurseries for seamen, the best. They pay an ancient duty, the legal inheritance of the Duke of Richmond. They are subjected to an additional modern tax. The coal-masters of Newcastle and Sunderland; the masters of the vessels in the coal-trade; the coal-merchants in London; thus enjoy a monopoly against the inhabitants of London, which ought to be subjected to some equitable regulations. Its advantages are exceedingly abused. Coals sold by retail in London, have appeared, by certain evidence, often to cost the poor purchasers nearly eight times the price for which they are bought at the mouth of the coal-pit, at Newcastle. Between the coal masters in the north, the coal-merchants in London, and the proprietors of the vessels employed in the coal-trade, it was last summer contrived to employ the shipping otherwise than in the carriage of coals, at the time when the inhabitants of London had been wont to provide their winter-stores. These winter-stores were, consequently, not laid in; hence, a continued scarcity and dearth throughout the winter. For the general benefit of the empire, it is necessary that London should continue to maintain that nursery of seamen, the existence of which depends on its receiving its supplies of coals by sea. But, if the metropolis submit to such a monopoly in one of the primary necessities of life; 1st, that monopoly ought to be subjected to certain equitable regulations; 2d, the ancient duty ought no longer to be paid; and, 3d, the additional tax should be taken off. The inhabitants of London would, after all this, still pay to the true national emolument, a sufficient tax upon their coals, in remaining subject to a monopoly so exceedingly important to the strength and prosperity of Britain.

The inland navigation in Lancashire gives to Liverpool infinite advantages which it never before knew in its trade to Germany, the Baltic, and all the ports of the north. Hence is it, that the salt from the Liverpool salt-works goes in such great quantities, at this moment, to the Continent. Hence, also, is it, that Bristol has declined into such commercial inferiority in comparison with Liverpool.

The herring-fisheries on the Scottish coasts derive much encouragement from the present scarcity of grain; as herrings and potatoes, even without bread, make an exceedingly hearty and nourishing meal to a hard-working labourer. Had the importation of Swedish herrings been encouraged, the British fisheries would have been much injured. The Swedish herrings, when best preserved, are cured with English salt.

Much useful information has been often derived by government, and many benefits have accrued to the trade of Scotland, from the extensive and accurate information of the chamber of commerce at Edinburgh.

In the course of the year ending, in the Company's settlement of their accounts, in March 1800, the assets of the East-India company have been increased by the sum of £2,945,354; their debts by the sum of £1,557,174. Their capital has, therefore, been in this year improved by the net sum of £1,108,527; the dividends, and the interests upon their debts, have, in the mean while, been paid as usual.

The quantity of tea sold at the East India Company's sales in the course of the year 1799, amounted to no less than 25,000,000lb.

It may be expected, that the change which must take place by the union, in the commercial relations of Great Britain and Ireland, will excite, and afford scope for, many new speculations in trade, and undertakings of manufacture.

It is pleasing to remark, that our commercial shipping has suffered since the beginning of the present year, *comparatively*, very little, from the privateers of the enemy.

By letters received from the masters of ships that sailed in the last fleet from Cork to the West-Indies, we learn that those ships have suffered much from storms, and have been exceedingly dispersed in their passage.

Manufactures and Useful Arts.

THE manufacturers in Birmingham and other places in this country, of whose arts the raw material is *copper*, have for some time complained, that the excessively high price of British *copper* has begun to destroy the prosperity of their manufactures, by rendering it impossible for them to meet the competition of Foreigners in those markets in which they had hitherto found their principal sales. On the other hand, in an investigation which was, during the last session of parliament, instituted before the House of Commons, it appeared that the search for mines of copper was so expensive, and their discovery so uncertain, that so vast a capital was requisite to the profitable working even of the richest of these mines, and so many accidents in the works and such vicissitudes of sale were apt to intervene, that such, too, was the heavy expence of the wages and salaries to the persons whom it was necessary to employ in performing and conducting the operations of the mines; —that, if the importation of *foreign copper* should, for the sake of the manufacturers, be encouraged, the owners and workers of the copper-mines in Britain must be utterly ruined. The complaints of the manufacturers have again been renewed; It is said that Birmingham has lately suffered by a decline in the demand for *light half-pence* since the emission of Mr. Bolton's fine coinage of *pennies* and *halfpence*. The interposition of parliament is again requested, and a new investigation into the state of the copper-mines and manufacturers is about to take place. It will appear, as we should suppose, that both the owners of the mines and the manufacturers are considerably in the right. It will probably be found that, if any, only a very small, diminution of duty upon the importation of unwrought *foreign copper* can be prudently made. It will appear, that some expedients must be adopted to relieve the manufacturers, without injuring the miners. New inventions for the abbreviation of labour; new researches for the discovery of *copper-mines*, in which Britain is, perhaps, richer than we are yet aware; attempts to acquire a new command over the powers of nature; and that general improvement of the country, which can alone produce such an abundance as may prevent the exorbitant augmentation of the rate of wages: these are, assuredly, the sole means by which the evils which threaten the ruin of our copper-mining and copper-manufacturers, are to be successfully alleviated.

We have considered with particular pleasure the principle of the PATENT INVENTION of Mr. HINDMARSH of Walworth for a method of applying a physical power to blast furnaces and other works in which such force is required. As water remains always in an equilibrium of its different particles; the water in an upright tube, only an inch in diameter, will, if that tube communicates at the bottom with another tube alike high, parallel to it, and even a yard or more in diameter,—maintain the whole column of water requisite to fill

the great tube at the same height precisely to which the slender tube is filled. In all cases, therefore, in which the command of an immense mechanical power is wanted, oppose to each other, tubes, parallel, mutually communicating, even of any conceivable inequality of diameters. The smallest possible portion of water in the one, will *elevate* the largest possible column in the other, or even any different body in that other, if such body be not of greater weight than the specific weight of the great column of water which it represents.

It is curious to remark, how, that all the more refined and ingenious manufacturers take their refuge always in a great metropolis. Other towns, cities, villages, in Britain, are filled with shoemakers, weavers, bakers, brewers, &c. But, it is in London alone, that those arts are ordinarily practised, which are subservient to ingenious philosophy, to capricious idleness, to luxury in which desire flags, till it is, from time to time, kindled and re-kindled by the researches of imagination.

We observe, with very great concern, that the balance of trade with CHINA has been, during the last year, considerably against the British East India Company. The exportation of goods of *British manufacture* to China, should be pushed as far as is advantageously possible.

The *distillery* of *ardent spirits* from grains, fruits, roots, &c. has been, for at least one part of the process, exceedingly simplified in Scotland, in the course of these last ten years. Constructing their *stills* exceedingly shallow, and of extraordinary breadth at the bottom; they pour into them, quantities of *wash*, so as to cover the bottom of the *still* only to a very small depth. An intensity of heat is then applied, sufficient to raise the *alcohol* in the space even of 2½ minutes. The *still* is then filled anew with cold wash: and the process may thus be endlessly repeated. Nay, without employing the process of malting, or waiting for the commencement of the vinous fermentation, they produce by the force of heat alone, that formation of *alcohol* for which the saccharine change, and the vinous fermentation are commonly thought necessary. But this mode of distillation should be more discouraged than it has hitherto been. It decomposes, or precludes, the composition of, that *saccharine* and that *resinous* matter which accompanies ardent spirits of slower distillation: and it, on the other hand, forms those *empyreumatic acids* which give their burning acrid taste, and their almost poisonous unwholesomeness to Scottish spirits distilled in the Lowlands. Subsequent rectification is rarely or never employed sufficiently to free the *ardent spirits* from these *empyreumatic acids*. Of this, the committee appear to have been not sufficiently aware, when they formed their late reports on the distilleries.

We have been exceedingly pleased with the invention for the improvement of grates, stoves, furnaces, and chimnies, for which Mr. JAMES BURNS of Glasgow, has lately obtained a PATENT. Its principle is, to draw, from without, by a valve, cock, or small door in the wall—not from the atmosphere within any apartment—the air necessary to maintain combustion in the chimney, &c. The benefits arising from the use of grates, &c. constructed upon this principle,—are—the maintenance of the air, heated in a room for any length of time,—and to prevent the ashes from falling forward on the hearth, and being blown through the room,—as they ever are, more or less, when the grate is kept open at the lower part of its front, for the admission of air. In Mr. BURNS's grates, it is contrived to have a drawer for the reception of the ashes, which may be shut and opened occasionally.

We have just received information from a very respectable friend, who, within these few days, visited BIRMINGHAM, that some manufacturers of that place have recently contrived an admirably happy improvement upon vessels of CAST-IRON for the kitchen, the table, &c. This contrivance consists in plating these vessels internally with porcelain. The impurity of common cast-iron, and its too ready susceptibility of calcination, are well known to render pots, kettles, &c. which are made of it, liable to communicate a

certain contamination to meats and liquors heated or boiled in them. If plated with porcelain, they must be entirely freed from this disadvantage. Happily, too, the expence of this plating does not enhance the price of the vessels to such a degree as to prevent them from coming into general use. The authors of this contrivance are indebted to the Rev. Mr. CARTWRIGHT for the hint of *preparing, in the same manner, complete sets of tea-table equipage, or even of all sorts of dishes for the table.* These dishes being painted elegantly on the outside, while they are, within, plated with porcelain, will thus possess all the cleanliness, lightness, and beauty, without the fragility of China or Staffordshire wares.

In regard to what are called by them *heavy goods*, such as guns, swords, &c. &c. the manufacturers of BIRMINGHAM have at this time, very much encouragement, large orders, high prices, ample and incessant employment. But their manufacture of *light, fancy goods* is now in a very languid and declining state.

Mr. E. SHORTER, of Newington, has recently obtained a patent for an engine fitted to produce the progressive motion of vessels of all sorts, without the assistance of sails or oars.

Agriculture.

THE Winter has been mild. Frosts, thaws, and open weather, have been in the course of it so intermingled, as to fertilize the ground, without injuring the winter-crops. The quantity of wheat annually sown in the isle, became, after the last winter-scarcity, considerably greater than it had ever been before: and we should hope, that, in like manner, the wants of the present season, and the favourableness of its general temperature for rural labour, will be found, hereafter, to have given occasion to a larger sowing of wheat, than ever before took place in Britain. Unless the frosts and East winds of April shall prove exceedingly destructive, we shall certainly have the promise of a very plentiful crop, in the progress of this year.

We would earnestly recommend to the farmers, who may have sown too little wheat, that they plant early POTATOES on as extensive tracts of land as they can, now, spare for this use; take these early potatoes from the ground in the month of June; carry as many as possible of the potatoes to the market; use the stalks, leaves, &c. to feed their cattle, and to increase their dunghills; then sow the ground on which the potatoes have grown with SPRING-WHEAT. This *Spring-Wheat* will be ready for the sickle in September. Neither the crop of the *Spring-Wheat*, nor that of the *potatoes*, will be *alone*, equal in value to a similar crop of our *common Wheat*. But, the two crops together, will be more valuable, after the payment of every expence, than any single annual crop that we are, in this country, wont to cultivate. Besides, the two crops, being both articles of salutary vegetable food, and coming after one another, with a due interval between; will thus contribute exceedingly to make provisions plentiful in this country. The land, too, will be more improved and less exhausted under this, than under almost any other culture.

The information of the ingenious and accurate Dr. LIDDERDALE, enables us to state—what we think a very curious fact in the history of vegetation; that *apples* from a young apple-tree, growing in a field of *turnips*, contract, in their growth, much of the taste and flavour of a turnip. This fact seems to prove, that living vegetables take in very much of their nourishment, by absorption, over the whole surface of the vegetables.

In December, we presented to our readers an account of Sir John Sinclair's proposals for the institution of a number of EXPERIMENTAL FARMS in different parts of the Isle. Since that time, many subscribers have allo-

ciated in a FARMING SOCIETY, in order to effect the establishment which Sir John Sinclair proposed, and to prosecute its objects. About FORTY THOUSAND POUNDS has been, for this end, subscribed. At different meetings of the subscribers, much interesting agricultural discussion has taken place. A correspondence with the other Agricultural Societies, throughout Britain, has been commenced. Application made to his Majesty to incorporate the society, under a Royal Charter, has been graciously received: and the Charter is expected to be, within a few days, finally and formally passed. Men of all parties concur in favouring that institution. *Ministry*, and the *Members of the Board of Agriculture*, are said to be highly friendly to it. In the list of subscribers are very many of the most distinguished names in this country. The capital of 80,000*l.* will, it is evident, be speedily, and without difficulty, made up. The consequences cannot but be highly advantageous to all the best interests of Britain.

On the 24th of March, the price of wheat in the London market was, from 4*l.* 8*s.* to 5*l.* 12*s.* a quarter: the price of rye, from 3*l.* 16*s.* to 4*l.* per quarter: the price of barley, from 1*l.* 16*s.* to 3*l.* 12*s.* 6*d.*

Our Correspondents, from all parts of the Isle, inform us, that the favourableness of the season, and the advantages resulting from the investigations of Parliament, have already contributed to make all the articles necessary for subsistence, every where, cheaper and more plentiful. Nothing but a blasting April, a torrid June and July, or a watery August and September, can hinder general abundance from being restored in the progress of the year.

Within these last ten years, the culture of WHEAT has been very much extended beyond what it formerly was in Scotland. Twenty or thirty years since, the culture of wheat was scarcely at all known in that part of the Isle. It was tried in very small quantities. The attempt was, at first, thought ridiculous; as both the soil and the climate were believed to be unfit for such a crop. In various instances, however, a good return was obtained, of wheat not inferior in quality to that of England. It found a ready sale: and the trials continued to be extended. At length, on years of scarcity, the profits of WHEAT were found to exceed those from every other sort of crop. Hence, on the eastern and on the western coasts, and wherever there is a good soil, and no excessive exposure to the severity of the seasons, WHEAT is now becoming among the Scots, a staple article of crop.

The breed of the SPANISH SHEEP, in every instance in which they have been tried in this country, have thriven extremely well, in every respect, except that they have been subject to the *foot-rot*; a disease so infectious that it is communicated to all other sheep which range the same pastures with those which are afflicted by it.

A gentleman of Northumberland, or the bishopric of Durham, has lately made public an interesting process for making bread from a decoction of bran. The quantity of bread which this preparation affords, is said to exceed, in weight, both the weight of the *bran*, and that of the water absorbed by it: and some of our philosophers, in London, have been exceedingly puzzled to think, how this could be. But, this formation of bread from *bran* is, in truth, no new discovery. The Scots have been long accustomed to prepare, from an acidified solution of that *bran of oats* which adheres to the *hulks* when these are separated in the mill, a substance which they call *forwen*, and which is known in England by the name of *flummery*. This substance is the acidified solution, thickened by boiling, and by the dispersion of a part of its oxygen, reduced from an acid into a slightly saccharine state. It is also heavier than the water and the *bran* or flour of oats, from which it was prepared; for it attracts matter from the atmosphere, into combination with it, during the preparation. It swells likewise beyond the original bulk of its component parts; for, it consists, like the *bran* of flour, chiefly of gelatinous matter; and it is the nature of this matter, as is well known, always to thicken and swell when it is mixed with boiling water. What takes place in regard to

the bread from a decoction of bran of flour, is precisely the same with this train of changes. There is, therefore, little occasion for that wonder which this matter has excited in some of the higher circles.

Lord Nelson is said to have lately transmitted to his Lady, in this country, a quantity of various seeds of Egyptian plants, which her Ladyship has sent to be cultivated in her garden, in the neighbourhood of London.

We hear, with great pleasure from various parts of the kingdom; that many farmers are about to give to the poor people in their respective neighbourhoods, the use of tilled ground for raising potatoes, on the condition, that the poor persons thus accommodated, shall provide dung and seed-potatoes; shall, from time to time, *carefully* weed the potatoes, and raise fresh earth about them, in the rows; and, when the potatoes are, at last, taken from the earth, shall leave the stalks and leaves to be plowed down, and to putrefy thus, in the ground. They have found, that they themselves are actually gainers by this beneficence; and that no sort of fallow equals this culture with potatoes, for the improvement of their fields.

We have great pleasure in understanding, that the *larch*,—that timber so valuable for a multiplicity of uses,—is daily planted, in great quantities, in various parts of the isle. We are sorry to observe, that, the *ash* is, every where, too much neglected.

Natural Phenomena.

AT Brighton, on one of the first evenings of this month, the *tide*, though a bright, northerly wind blew in opposition to it, rose to a greater height than had been known in the memory of the oldest inhabitants of the town. Fishing-boats were swept away from the beach—almost from the very foot of the cliff. This phenomenon is not easily accounted for.

A *sea-unicorn*, the first that has been caught in these seas, was lately taken, at Frinton, on the coast of Lincolnshire.

A *curious* specimen of a large *bone* of a terrestrial animal, from a great depth, in a lead-mine in Wales, was lately presented to philosophical inspection, in this city. It consists,—partly of argillaceous, or siliceous stony matter, deposited in the structure of the bone, where that had perished—partly of calcareous matter, a remainder of the bone, which has lost its phosphoric acid—and in part, perhaps, of a portion of the original bone, in perfect preservation. It is an eminently interesting specimen. Many important inferences are deducible from the situation in which this natural curiosity was found, the state of preservation in which it appears, and the nature of the matter deposited in it.

A chest of Natural Curiosities has been lately sent from Bengal, by a French Physician, to the Museum of Natural History at Paris. It was transmitted by the way of Denmark. It contains 150 specimens hitherto non-descripts.

An *epidemic* *dysentery* of terrible severity, is said to have, within these two or three last months, exceedingly thinned the numbers of the French forces in Italy.

Fine Arts, Science and Literature.

ANew edition of the Poems of HECTOR MACNEILL, Esq. containing, beside those very beautiful and popular ones which he has already published, many other pieces of not inferior excellence, will appear at Edinburgh, in the course of the ensuing summer.

An edition of the COMPLAYNT of SCOTLAND, an ancient poem, interesting alike by its poetical merit, and by the many curious particulars which

it includes, illustrative of the manners, arts, and literature of the age in which it was written, is about to be published also at Edinburgh, by Mr. Constable, bookseller. The edition will be very splendid. Not more than 80, or 100 copies will be printed. Notes, illustrations, and an ample glossary, will be added to the text.

There is nearly ready for publication;—by a FARMER and BREEDER;—a NEW FARMER'S CALENDAR: the object of which is,—to describe, practically, the particular business of every different month in the year,—and to afford directions concerning the best plan on which a *Farmer's Accounts* may be kept. The work includes, also, a plain and accurate account of the chief modern improvements in husbandry. The best method for the management and subsistence of annual-stock in winter, is, likewise, pointed in it. Considerable expectations have been already excited among Farmers and Landholders by the promise of this work.

Several handsome and correct editions of small classical works from the elegant press of MUDELL, have likewise been published in Scotland, in the course of the present season.

In consequence of some unpleasant differences among the members of the ROYAL SOCIETY of EDINBURGH, the learned and ingenious Dr. ROTHERAM of St. Andrews is no longer a fellow of that Society.

A part of a new volume of the Transactions of the Royal Society of Edinburgh has been lately printed. It contains, among other things, some eminently curious experiments upon the fusion of whinitone, by Sir James Hall, bart. and Dr. Kennedy. These experiments appear to throw much new light upon the nature and formation of *Lava*.

It is with very great pleasure we learn, that ample funds have been subscribed for the support of the *royal institution* which was last year proposed by Count Rumford; that its apartments have been opened to the subscribers; that Dr. Garnet, the ingenious professor of natural philosophy and chemistry, has begun his lectures; that they are eagerly heard by many persons the most distinguished for fashion, taste, and scientific curiosity; and that, so far as can be judged from present appearances, this institution will amply fulfil those beneficial uses which its worthy and ingenious proposer taught the public to expect from it.

One of the most splendid specimens which have ever been produced of British topography, has just issued from the press at BENSELEY'S. It is a poem by Mr. PYBUS, one of the lords of the treasury. It is intitled the SOVEREIGN, and is inscribed to PAUL, EMPEROR of all the RUSSIAS.

Morals and Manners.

NOBLE proofs of benign humanity in the breasts of the higher classes of the community, have been exhibited in that earnest and assiduous liberality with which the great have interposed amid the scarcity of the present season, to supply the necessitous wants, and alleviate the general distresses of the poor. The *soup-houses*, the charitable donations in every form, the earnest anxiety with which want and distress have been every where sought out, that they might be relieved, are certain evidences that we live among men whose hearts are not strangers to the obligations of duty, or to the tenderest feelings of virtue.

Divorces and notorious violations of the faith of marriage have not been lately frequent among us. We cannot but admire that firm, dignified, and moderate, yet vigorous conduct of the House of Peers, and of those presiding in the courts of justice; which is so eminently adapted to restrain this most unhappy of all corruptions of the manners of the age.

The *spirit* of gambling too, if it have not been entirely subdued, has been somewhat checked. It now shews itself less boldly, and with less of a wanton defiance of infamy.

ALPHABETICAL LIST of BANKRUPTCIES and DIVIDENDS announced between the 20th of February, and the 20th of March, 1800, extracted from the London Gazette.

BANKRUPTCIES.

(The Solicitors' Names are between Parentheses.)

ADCOCK, R. Syden, victualler. (Collett, Wimburn, and Collett, Chancery-lane.)
 Ashburner, J. Bolton-le-moors, cotton-spinner. (Hulton and Cross, Bolton-le-moors.)
 Bate, J. Stourbridge, draper. (Hunt, Castle-st. Holborn.)
 Bale, J. and R. Packharnis, Manchester, cotton-spinners. (Kay and Renshaw, Manchester.)
 Barnett, J. and J. Naden, Stockport, cotton-spinners. (Ellis, Curfitor-street.)
 Bone, N. Strand, baker. (Clement, Ratcliffe-highway.)
 Bridge, J. Leuchford, clothier. (Duell and Mathews, Temple.)
 Brown, J. Manchester, merchant. (Ellis, Curfitor-street.)
 Brodie, H. Falcon-square, hardwareman. (Webb, St. Thomas's-street.)
 Bury, J. and S. Barnes, Manchester, factors. (Foulkes, Hart-street.)
 Burton, R. Ivy-lane, book-binder. (Wild, Warwick-st.)
 Chadwick, J. Captainfold, cotton-manufacturer. (C. Barrett, Manchester.)
 Clark, A. Liverpool, merchant. (Manley and Lewis, Temple.)
 Chilton, J. Reading, vintner. (Davison, Clement's-inn.)
 Clegg, J. and J. Cain, Liverpool, grocers. (Batty, Chancery-lane.)
 Clegg, J. Lymington, cotton-manufacturer. (Kay and Renshaw, Manchester.)
 Crolley, J. Bath, coach-maker. (Gabbell, Lincoln's-inn.)
 Cornish, R. Wootton, dealer. (Micheil, Union-courts.)
 Coy, W. New Sarum, dealer. (Wegener and West, Red Lion-street, Wapping.)
 Crighton, W. Great St. Helen's, merchant. (Douce and Livingston, Feuchurch-street.)
 Chamberlayne, T. Gwynn's Buildings, coach-maker. (Morris, Temple.)
 Du Pont, L. Pall-mall, printer. (Duff, Thavies-inn.)
 Doughty, T. Market-Raisin, innholder. (Lyon and Collier, Bedford-row.)
 Dickens, F. Bristol, soap-boiler. (Edmunds, Lincoln's-inn.)
 Ellis, H. Vedwidge, and L. Hughes, Pynion, horse-dealers. (G. Edmunds, Lincoln's-inn.)
 Farrer, R. Holbeck, linen-draper. (Bleasdale and Alexander, New-inn.)
 Foy, G. Gloucester-street, Stepney, scrivener. (Bloomfield, Smith's-buildings.)
 Forster, J. Bartlett's-buildings, merchant. (Day, Pump-court.)
 Green, J. Chorley, calico-manufacturer. (J. Hodgson, Chancery-lane.)
 Green, J. Huddersfield, maltster. (Batty, Chancery-lane.)
 Gevers, W. Penmonville, stable-keeper. (Kent and Mears, Clifford's-inn.)
 Gill, W. St. St. Ives, shopkeeper. (Cooper and Lowe, Southampton-buildings.)
 Harding, S. Ludlow, linen draper. (Edmunds, Lincoln's-inn.)
 Hammer, T. jun. Bristol, grocer. (Gabbell, Lincoln's-inn.)
 Hunt, J. Bath, shoemaker. (Taylor, Bath.)
 Jenkins, J. Watling-street, London, and W. Redaway, Manchester, warehouse men. (Nethercole, Essex-street.)
 Kavan, M. Liverpool, shoemaker. (Windle, Bartlett's-buildings.)
 Kilborn, S. Deilborough, dealer. (Price and Williams, Lincoln's-inn.)
 Linnekar, A. H. Liverpool, merchant. (Blackstock, Temple.)
 Lewis, L. Cleveland-street, stable-keeper. (Clark, New-inn.)
 Martin, R. and M. Law, Watling-street, warehousemen. (Swale, Clifford's-inn.)
 Miles, J. Swansea, shipwright. (Price, Lincoln's-inn.)
 Murray, W. Manchester, cotton-spinner. (Sharpe and Eccles, Manchester.)
 Martin, R. Bristol, mariner. (Biggs, Hatton-garden.)
 Martin, R. St. Michael's-alley, bookbinder. (Murphy, Bouverie-street.)
 Markland, T. Bolton-le-moors, cotton-manufacturer. (J. Cross, Bolton.)
 Molyneux, W. Halifax, hardware-merchant. (Coulthart, Bedford-row.)
 Moon, R. sen. and jun. Greenfield, manufacturers. (Sykes, New-inn.)
 Mathewman, G. Tadcaster, innkeeper. (Sykes, New-inn.)
 Norton, J. Oxford-street, haberdasher. (Dixon, Nassau-street.)
 Newall, T. Dickfield, cotton-manufacturer. (Key and Redshaw, Manchester.)
 Price, T. Holywell, innkeeper. (Tarrant, Chancery-lane.)
 Porral, J. prisoner in the Fleet prison, merchant. (Williams, Lion-college.)
 Pratt, C. Cambridge, hair-dresser. (Gowd, Temple.)
 Rawcy, J. G. Horsley, clothier. (R. Jones, Cooke's-court.)
 Parr, J. O. London, insurance-broker. (Ward, Dennett and Greaves, Henrietta-street, Covent garden.)
 Priestley, G. Leeds, merchant. (Lambert, Hatton-garden.)
 Pearson, W. Caistor, liquor-merchant. (Barber, Gray's-inn.)
 Rogerion, W. Gerard-street, stationary. (Allen, Frith-st.)
 Rider, J. Warrington, shoemaker. (Hartley, Gray's Inn)

Stevens, G. Eton, innkeeper. (Murphy, Bouverie-street.)
 Staples, R. T. St. Ives, draper. (Weinhead, St. Ives.)
 Spencer, T. Kingston, Hull, brewer. (Roffer, Kirby-st.)
 Steane, W. Aulley, maltster. (Lodington, Temple.)
 Thivest, J. Manchester, J. Gally, Bread-street, London, and T. Munday, Manchester, merchant. (Ellis, Curfitor-street.)
 Turner, J. St. James's-street, silversmith. (Stacy, Poland-street.)
 Van Tuyl, F. Haydon-square, merchant. (Willett and Annesley, Finsbury-square.)
 Wimpenny, J. Kenley, Yorkshire, clothier. (Beatty, Chancery-lane.)
 Wilson, R. Colchester-street, merchant. (Eaton, Birchington-lane.)
 Winkinson, J. Kingston, Hull, block-maker. (Roffer, Kirby-street.)
 Wright, G. and J. Leeds, flax-spinners. (Scott, Newgate-street.)
 Wilton, R. South Stoke, farmer. (Shepherd and Addington, Grey's-inn.)
 Willis, J. and H. Hill, Bull-lairs, soap-manufacturers. (Comrie, Fleet-street.)
 Yare, J. Oxford-street, linen-draper. (Nelson, Swallow-street.)

DIVIDENDS ANNOUNCED.

Aiker, W. Samlesbury, tanner, April 10.
 Birkett, T. Barnaby upon the Marsh, cornfactor, March 19.
 Birchmough, M. Salford, dyer, March 24.
 Beardmore, G. jun. Ashborne, cornfactor, April 1.
 Brookes, J. High Holborn, pawnbroker, April 5.
 Burtford, J. Holborn-bridge, linen-draper, April 7.
 Cotford, F. Bishop's Stortford, upholster, May 10.
 Crutchell, R. Buckland-Newtown, shopkeeper, March 24.
 Calf, S. Fleet-street, haberdasher, April 5.
 Chambers, T. Nottingham, coach-maker, March 31.
 Cox, J. Stratford, Avon, draper, April 7.
 Dutton, S. J. Hopley, and M. C. Williamson, Liverpool, merchants, March 26.
 Danby, J. Leeds, linen-draper, April 1.
 Dalton, W. Surrey-square, mariner, May 3.
 Drew, T. Exeter, linen-draper, March 31.
 Edge, J. Blackburn, shopkeeper, March 24.
 Fisher, S. Sheffield, scrivener, April 29.
 Filton, A. Salford, fishmonger, March 22.
 Farthing, R. Blakeney, merchant, April 9.
 Forster, C. Poultry, bookbinder, April 5.
 Grimshaw, R. Gorton, and J. Grimshaw, Manchester, merchants, March 10.
 Green, T. Upper Thames-street, ironmonger, April 20.
 Gibbons, F. Hayes-court, haberdasher, April 21.
 Gibbons, J. Ox-ord-street, April 19.
 Geller, J. H. Crown-street, feather and fringe-manufacturer, April 5.
 Hart, M. Bermondsey-street, merchant, April 1.
 Heath, W. Little Cowell, brickmaker, March 18.
 Hamidge, Great Farningdon, corn-dealer, March 18.
 Harris, T. Childwell-street, victualler, April 5.
 Harris, T. Paul's-court, hofier, April 8.
 Jones, R. Bolsover, maltster, March 25.
 Jones, W. Wolverhampton, potter, April 25.
 Jackson, J. Hales Owen, mercer, March 22.
 Jardine, R. Haverford-west, shopkeeper, April 1.
 Kent, A. and M. Pemberton, Lime-house-square, merchants, March 15.
 Knight, M. Gun-dock, Wapping, sailcloth-maker, April 5.
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 Lawton, S. Rotherhithe, ship-carver, March 1.
 Lucas, J. York-street, linen-draper, April 8.
 Lane, B. Freeman's-court, insurance-broker, April 29.
 Longstaff, S. Sunderland, ship-owner, March 25.
 Leach, B. J. Curtain-road, horse-dealer, April 29.
 Lea, G. W. d-rect, victualler, March 25.
 Lewis, W. and J. Douglas, Liverpool, joiners, April 10.
 Langley, J. Whitehorse-lane, Carpenter, April 8.
 Mann, T. Piccadilly, builder, March 15.
 Midgton, M. G. W. W. porter merchant, March 24.
 Nicholson, M. Howdon, grocer, March 14.
 Omond, E. Bristol, brewer, April 9.
 Pats, T. R. Byrchall, and J. Tombs, Union-street, cotton-manufacturers, April 29.
 Poyzer, B. Burge-row, chocolate manufacturer, April 3.
 Redshaw, S. Newhall under Lyne, upholster, March 19.
 Reddy, J. St. Mary Axe, merchant, April 5.
 Role, A. Birmingham, button maker, April 4.
 Reith, C. Haverhill, linen draper, March 22.
 Striven, T. sen. and jun. and T. Andrews, Alcester, needle makers, April 1.
 Stacy, G. Balinghoke, grocer, April 1.
 Taylor, J. Manchester, machine maker, April 15.
 Tuley, G. Grand Hatter, April 24.
 Watton, H. St. Mary Axe, merchant, April 5.
 Webster, W. Fore-street, linen draper, March 19.
 White, J. Hertford, draper, April 29.
 Wadburgh, W. Sheffield, cutler, March 24.
 Wakers, W. York, inn maker, March 27.
 Wall, J. New Bond street, Hatter, April 29.
 White, H. Nottingham, victualler, March 31.
 Whotton, H. Fore street, Limehouse, corn chandler, April 10.
 Williams, G. Tuley street, cheese monger, April 5.
 Winkinson, R. Maining tree, grocer, April 16.
 Young, S. Burford, fishmonger, March 10.

AVERAGE PRICES OF CORN, &c. FOR MARCH, 1800.

Counties Inland by the Standard Winchester Bushel of 8 Gallons.

	Wheat	Rye	Barley	Oats	Beans	Pease	Oatmeal
Middlesex	112 7	82 0	50 2	43 10	59 1	61 6	
Surry	111 4		57 0	43 8	62 6	68 2	
Hertford	111 6		52 9	45 0	60 9	55 4	
Bedford	125 2		57 10	40 4	60 4	57 2	
Huntingdon	117 3		59 8	40 8	56 7	60 9	
Northampton	111 4	73 6	58 4	38 4	68 6	41 0	
Rutland	102 6	60 0	69 0	44 0	54 0	80 0	65 4
Leicester	99 6		50 10	39 8	77 7	76 4	75 1
Nottingham	111 8	82 0	55 2	44 8	88 0	82 0	
Derby	117 8		52 10	48 0	81 8	70 0	
Stafford	117 3		60 2	49 8	82 5	52 2	68 7
Salop	113 2	74 0	62 2	39 2		67 4	90 4
Hereford	111 5	70 4	53 9	37 3	60 9	59 2	84 0
Worcester	117 4	71 1	55 10	43 2	72 1	69 9	
Warwick	113 10		67 8	44 5	76 9	96 0	67 1
Wilts	102 4		48 0	39 0	76 8		
Berks	107 6		38 0	40 6	55 2	60 4	
Oxford	110 11		42 1	37 0	65 8	63 2	
Bucks	109 4		48 0	41 10	67 3	64 6	
Montgomery	124 9	86 4	60 9	32 0		64 0	76 4
Brecon	99 4		56 0	36 9		54 5	72 1
Radnor	110 3		53 10	32 7		49 5	89 2

Maritime Counties.

Essex	108 8	70 6	53 0	42 4	53 6	53 6	
Kent	101 0		47 0	42 6	60 0	73 0	
Sussex	112 8		49 8	40 6		54 0	
Suffolk	113 1	74 7	45 8	38 4	42 10	57 7	85 2
Cambridge	104 5		47 11	29 8	50 11		
Norfolk	105 3	80 0	41 0	36 1	38 0	58 0	
Lincoln	98 3		50 5	36 9	96 2		
York	93 1	69 8	48 4	38 0	96 6	93 4	70 9
Durham	104 6	101 0	56 3	48 1			
Northumberland	90 2	82 2	46 9	41 11		92 0	
Cumberland	93 1	84 0	62 10	42 2			59 11
Westmorland	112 7	96 4	64 6	42 11			36 0
Lancaster	110 2		54 2	47 4	74 8		44 10
Chester	114 2			53 1			45 7
Flint			51 11	34 4			
Denbigh	121 6		66 6	44 7	103 4	70 6	76 4
Anglesea			54 0				
Carnarvon	104 0	82 0	58 8	30 8	80 0	120 0	66 9
Merioneth	98 6	79 5	64 0	54 9	92 0	64 0	65 10
Cardigan	91 9		64 0	19 8			
Pembroke	94 5		52 9	23 3			
Carmarthen	98 15		52 0	23 9			
Glamorgan	111 11		52 0	30 9			
Gloucester	115 7		52 2	41 0	66 11	68 3	
Somerset	114 2		43 11	36 5	64 0	64 0	
Monmouth	118 0		56 3	34 0			
Devon	112 8		45 8	29 4	69 6	84 0	55 9
Cornwall	103 11		49 11	30 5			
Dorset	121 0		41 4	39 11	52 0		
Hants	116 11		47 7	37 6	59 6	60 0	

PRICES OF COALS AT LONDON, FROM THE 20th OF FEBRUARY TO THE 20th OF MARCH, 1800.

Names of Coals	Fri 21st.	Mon 24th.	Wed 26th.	Fri 28th.	Mon 3d.	Wed 5th.	Fri 7th.	Mon 10th.	Wed 12th.	Fri 14th.	Mon 17th.	Wed 19th.
	S. D.	S. D.	S. D.	S. D.	S. D.	S. D.	S. D.	S. D.	S. D.	S. D.	S. D.	S. D.
Benton						58 6	59	57				60
Byker						58 6						
Blyth						59 6	60	60				
Brandling						58	58 6	8				
Bladon Main												
Bigg's Main					73 6	60	60	60 6				62
Baker's Main												
Benwell												
Greenwich Moor												
Gate's-head Park												
Hartley												
Holywell Main						56 6	57					58 6
Howard's Main												
Montague Main						57 3	57 6					59 3
Donnerdale { Windfor												
Donnerdale { Simpson						56	57 6					53 3
Donnerdale { Silverpool								56 6				
South Moor					73 6	54	56					
Sheriff Hill												
Pitt's Tanf. Moor						56 6	57 6					58
Adair's Main						56	56					
Bowe's Main							54 6					
Team							56					
Walker						60	60					62
Willington	63					60	60					62
Wall's End				80		60	61	61 6				63
Walbottle Moor						56 6	57 6					58 6
Wylam Moor							54					
Heron Main	63			80		60	60					
Hebburn Main						60	60					62
SUNDERLAND												
Boundry							60					
Bourn Moor						56 6	56 6	55 6				
Biddick new Main					73 6							
Newbottleburn					73 6	54 6	55 6					
Moor												
Rectory				80				55				
Ruffell's Main						55 6	55 6					
Wharton Main												
Washington							54					

AVERAGE PRICE OF SUGAR,

Is 64s. 9½d. per cwt. inclusive of the Duty of Customs paid or payable thereon on the Importation thereof into Great Britain.

A TABLE of the Prices of STOCKS in March, 1800.

Day	3 per Cent. Reduced.	3 per Cent. Consols.	4 per Cent. Consol.	Old 5 per Cent. Navy.	New 5 per Cent. 1797.	Long Annuities.	Short Annuities.	Omnium.	Imperial 3 per Cent. Annuities.	Irish 5 per Cent.	Bank Stock.	India Stock.
27	63 $\frac{1}{2}$	62 $\frac{1}{2}$	7 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
28	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
29	Sunday											
30	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
31	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
1	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
2	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
3	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
4	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
5	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
6	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
7	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
8	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
9	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
10	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
11	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
12	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
13	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
14	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
15	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
16	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
17	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
18	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
19	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
20	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
21	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
22	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
23	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
24	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		
25	63 $\frac{1}{2}$	62 $\frac{1}{2}$	8 $\frac{1}{2}$	93 $\frac{1}{2}$	94 $\frac{1}{2}$	18 $\frac{1}{2}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$	61 $\frac{1}{2}$	11 $\frac{1}{2}$		

T. BISH, STOCK-BROKER, Old State Lottery Office, No. 4, Cornhill, London.
 £40925, drawn a Prize of £20,000 the 20th Day, was sold at this Office.

15. 5s. Pm.
 4s. 5s. Pm.
 5s. 6s. Pm.