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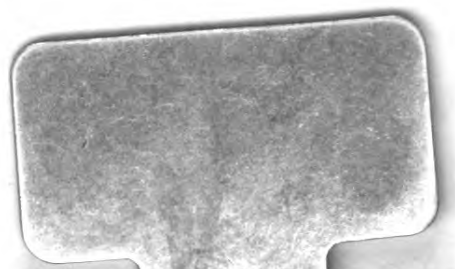
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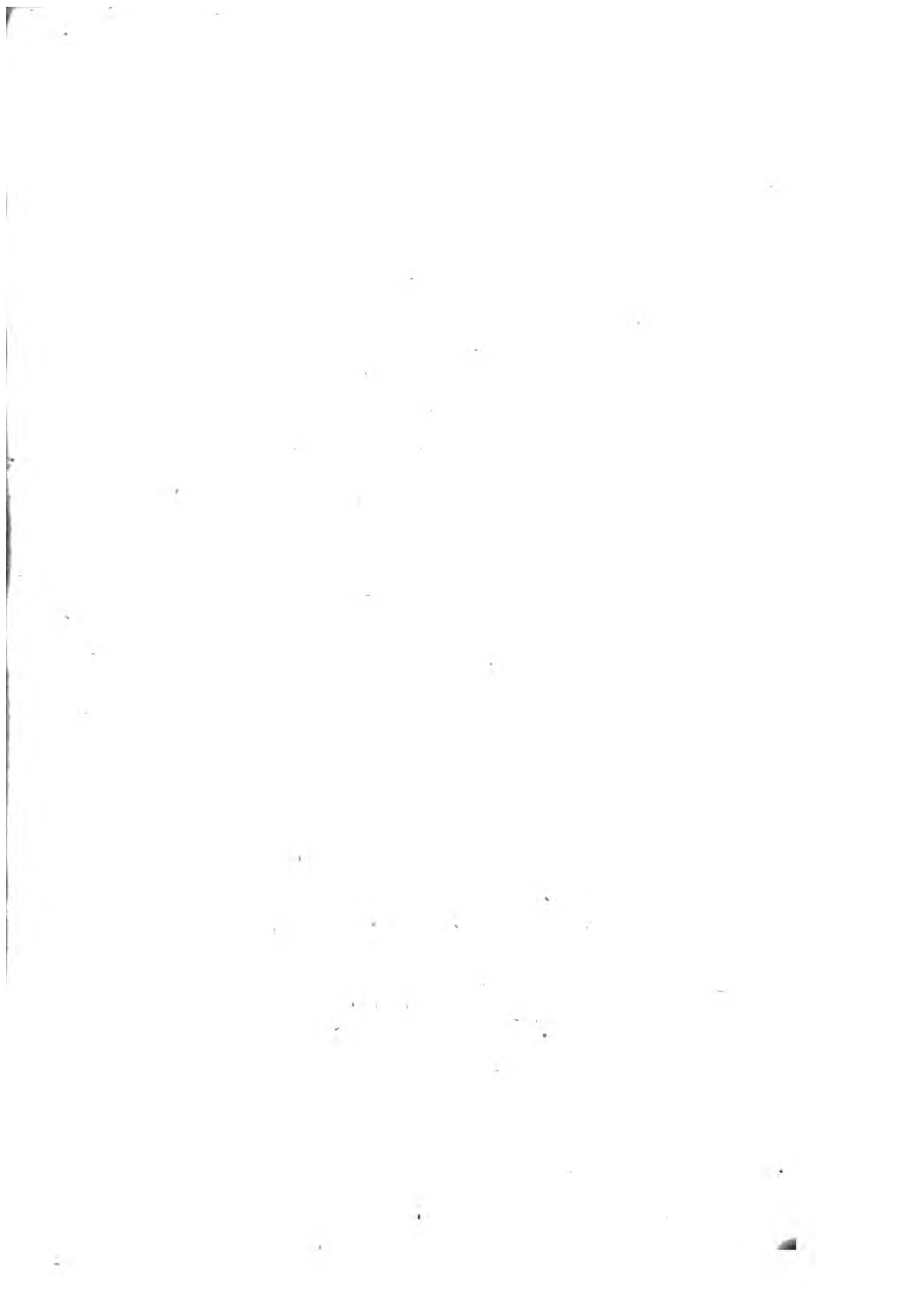
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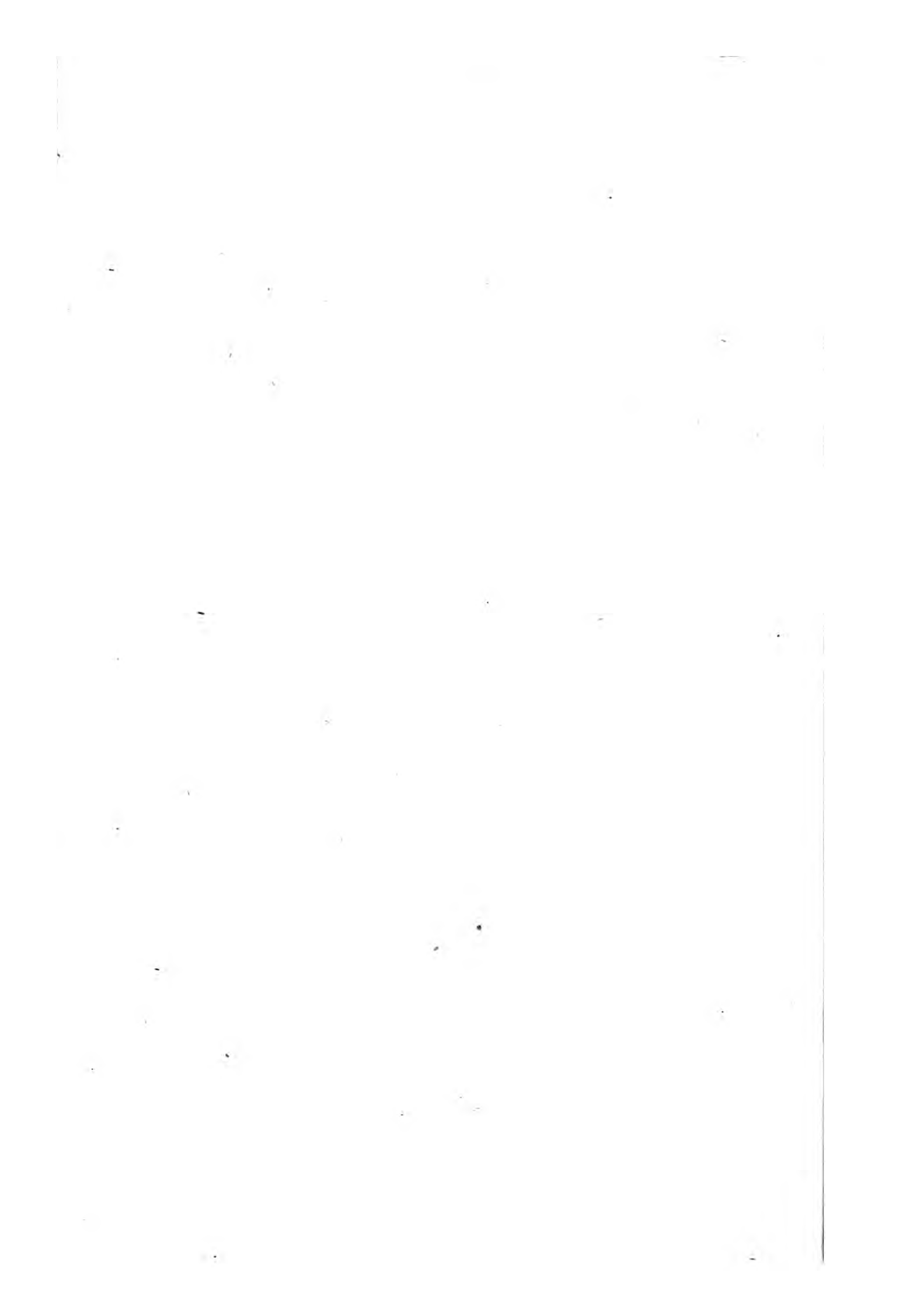












ARITHMETICAL QUESTIONS,

ON A NEW PLAN:

DESIGNED AS A

SUPPLEMENT

TO THE AUTHOR'S ENGRAVED

INTRODUCTION TO ARITHMETIC;

AND INTENDED TO ANSWER THE DOUBLE PURPOSE OF

ARITHMETICAL INSTRUCTION

AND

MISCELLANEOUS INFORMATION.

TO WHICH ARE SUBJOINED,

OBSERVATIONS ON WEIGHTS AND MEASURES,

WITH A COMPLETE COLLECTION OF ARITHMETICAL TABLES,

AND EXPLANATORY REMARKS.

FOR THE USE OF YOUNG LADIES.

BY WILLIAM BUTLER,

TEACHER OF WRITING, ACCOUNTS, AND GEOGRAPHY, IN
LADIES SCHOOLS, AND IN PRIVATE FAMILIES.

Numerorum notitia cuicumque primis saltem literis erudito necessaria est.

QUINTILIANI *de Institutione Oratoria*, lib. I. cap. 10.

Arithmetic is of so general use, in all parts of life and business, that scarcely any thing is to be done without it.

LOCKE'S *Treatise on Education*.

He that requires the attention and application of children, should endeavour to make what he proposes as grateful and agreeable as possible.

Ibid.

THE SECOND EDITION, ENLARGED.

London:

PRINTED FOR THE AUTHOR,
BY S. COUCHMAN, No. 10, THROGMORTON-STREET;
AND SOLD BY C. DILLY, IN THE POULTRY.

1795.

181. f. 30.



P R E F A C E.

IT has been well remarked, that “it is *every man's* duty who comes into the world, to *use his best endeavours, however insignificant*, to leave it as much wiser, and as much better as he can.” If this observation inculcates a general duty, it applies, with peculiar force, to persons engaged in instruction by their profession. Viewing the admonition in this obligatory light, I constantly endeavour to render the several parts of my professional occupation as subservient to the great end it aims to promote, as their nature will admit. Upon this plan most of the following questions have been composed, which, with several others of a similar kind, but on a more confined scale, have been long distributed among my own scholars; and I have often had the satisfaction of finding them signally instrumental in inspiring a desire of more extensive and circumstantial information. The hope of rendering the questions more generally useful, and the desire of removing the toil of frequent transcription, are my motives for the publication of them. I am nevertheless aware, that the accomplishment of the former far more important view, depends greatly upon the exertions of the teacher. Should he, inheriting the apathy of Mrs. Shandy, esteem it a matter of utter indifference “whether the world turns round or stands still;” he will, of course, benefit his pupils *just as much* by the common sums, as by any that could be selected for him. But other instructors, of more animation and zeal, will occasionally require minute accounts of the historical, geographical, chronological, and other subjects, which had before served as arithmetical themes. They will, perhaps, with the author, deem the time when the scholars are assembled in classes to repeat their tables (which, I shall take for granted, is always once a week) the best suited for promoting general emulation, and disseminating the desired knowledge

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knowledge among such as are less diligent, or less advanced*. It is, however, confessed, that the method now proposed, is impracticable in its *full extent*, except on the supposition that, during the master's absence, the senior pupils have access to books which treat more largely of the subjects recommended to their study. The mention of this circumstance naturally leads me to advert to the great utility of a school-library† for the use of those scholars.

In the best-regulated seminaries vacant hours occur, many of which will be often wasted in the perusal of pernicious, or at best,

* It will not, I trust, be thought irrelative to the present subject to remark in this place, that besides the method here recommended, of an attempt to diffuse, in some small degree at least, general knowledge, through the medium of a particular branch of education, a writing-master has it, moreover, in his power, to introduce much miscellaneous information into the schools which he attends, by means of a judicious choice of copies for the senior pupils*, particularly geographical ones, and such as contain historical facts, biographical anecdotes, &c. relative to *places, rivers*, and the like. These examples being transcribed by the scholar, committed to memory, the respective places sought in an atlas (a pursuit which will always afford great entertainment) and then recited to the master, *at the time above specified*, the pupil, withal, being enjoined to relate in what particular part of the map, section of the globe, &c. the places were found, will, in a short time, and with very little additional trouble to either party, be found to furnish even such as do not learn geography scientifically, with a considerable portion of the knowledge in question, and tend to impress, almost indelibly, upon the minds of those who do, the most valuable part of the lessons which they steadily receive in this delightful study. Let me add, that this is not a mere speculative, theoretical plan, but one whose practicability and success have been long sanctioned by my own experience.

N. B. It is meant, that the recital above mentioned should include the copies which were written on both writing-days, to give the pupils the habit of retaining what they learnt.

* See the preface to my engraved Introduction to Arithmetic.

† The examples here recommended should also be occasionally diversified with extracts from eminent moral writers and the best poets, agreeably to the observation of Quintilian, who says, "I would have the writing copy lines to consist not of idle sentences, but of such as should inculcate some moral precept. The remembrance will continue to old age, and the impression on a tender mind may prove conducive to a virtuous life. The sayings, likewise, of illustrious men, and select passages out of poets, things very agreeable to children, may be learned by way of diversion."

De Institutione Oratoria, lib. I. cap. 1.

† The following, it is apprehended, would be proper books for the formation of such a collection. The histories of Great-Britain and Ireland; of Greece and Rome, and of the most considerable European nations. Rollin's Ancient History. Plutarch's Lives, translated by Langhorne. Russell's History of Modern Europe. Biographical Dictionary, 12 vols. 8vo. last edit.

British

best, frivolous novels*, if better books are not at hand. We are fully sensible with Dr. Knox, that, as a regular course of history would too much interfere with other parts of learning in the academies of young gentlemen, some of the time of recreation must be allotted to the attainment of that invaluable acquisition. Females, in general, are exactly in the same predicament; and should, therefore, be encouraged to devote a part

British Biography, 12 vols. 8vo. British Plutarch, 8 vols. 12mo. Good Translations of the Greek and Roman Classics, so strongly and forcibly recommended to the perusal of the ladies, by the late Mr. Sheridan, in his lectures. Dr. Knox is also of opinion, that ladies, such of them at least as possess genius, should be brought to as much knowledge of the Greek and Roman classics, as their situation and circumstances will permit; and others, he says, "should be well and early acquainted with the French and the English classics.—Milton, Addison, and Pope, must be the standing models in English; Boileau, Fontenelle, and Vertot in French." The following are also proper books for such a school-library. Lempriere's Classical Dictionary. Mortimer's Student's Dictionary. Some of the best periodical publications. A large, but well chosen, collection of those small, but valuable tracts, expressly written for the improvement of youth, such as Sandford and Merton, Evenings at Home, &c. The Cyclopædia. The Encyclopædia Britannica. The Spectator, Tatler, Guardian, Rambler, and Adventurer. Mrs. Rowe's Letters, moral and entertaining. Gay's Fables. Moore's Fables for the Female Sex. Cotton's Visions in verse. Mason's Self-knowledge. Dr. Gregory's Father's Legacy to his Daughters. Mrs. Chapone's Letters. Ancient and Modern Atlases. Dr. Priestley's Historical and Biographical Charts, &c. Dr. Watts, the countess of Sillery, and other eminent writers on education, recommend that maps, charts, historical prints, &c. should be suspended at length, in rooms appropriated to education.

To a library thus furnished, the parents of such children, as are capable of benefiting by it, could not reasonably object to subscribe 10s. a year; a sum, which, in a tolerably large school, would, in no great length of time, completely reimburse the governess, for the expence incurred by the first purchase of the books, and enable her to make occasional additions.

* "The frivolity of the age, says an elegant writer, affords a very shameful encouragement to a species of literary composition called a NOVEL, which is nothing more than a *romance* taken from the manners of the times; and is, in general, worked up in such a form, as to corrupt the minds of young women, and to enable old ones to murder that time of which they have so little remaining." It is, indeed, possible, for excellent sentiments, and valuable knowledge, to be communicated in the form of a novel; but there are very few productions of this kind in our language; and, in general, it is much better for young persons to employ such time, as they can spare for that purpose, in the perusal of real history, and of biographical accounts of persons eminent for virtue and for knowledge. But among moral romances, and those from which useful knowledge may be derived, may be mentioned the following. Telemachus. Robinson Crusoe. Dr. Johnson's Rasselas, Prince of Abyssinia. Dr. Hawkesworth's Almorán and Hamet. History of David Simple. Julia, by Miss Williams. Eugenius; or, Anecdotes of the Golden Vale. And the History of Philip Waldegrave, lately published by T. EVANS.

of those seasons of relaxation to the acquisition of a species of knowledge, which, however necessary and ornamental, the multiplicity of ordinary business renders unattainable at other times. It is hoped, that the following performance will not be thought altogether ill calculated to facilitate the desirable end just mentioned; as many of the questions in it either create some new idea, convey some useful or pleasing information, or *fix the date* of some memorable transaction; a circumstance deemed of such consequence by Mrs. Chapone, that she observes, "It is to little purpose that you are able to mention a fact, if you cannot nearly ascertain the time in which it happened, which alone, in many cases, gives importance to the fact itself." The same judicious writer elsewhere remarks, not inapplicably to the general design of the following compilation, that "whatever tends to embellish the understanding, and to furnish the mind with ideas to reflect upon when alone, or to converse upon in company, is certainly well worth the acquisition."

But let us direct our attention principally to female education, which judicious observers have represented as so eminently conducive to the welfare of a state. Now, in order to estimate the high obligations women of cultivated minds may confer on the community, let us, first, reflect with Rousseau, that "the education of most consequence, is that which is received in infancy; and this first education belongs *incontestably* to the WOMEN." The early part of education must, therefore, be one of the mother's most appropriate and most important duties.

To select a few examples, among the ancients, especially the Roman matrons, among whom the æconomical virtues, particularly indefatigable industry in the cultivation of the minds of their offspring, continued longest to flourish. Cornelia, mother of the Gracchi; Aurelia, of Julius Cæsar; and Attia, of Augustus, superintended the education of their respective children.—Among the Greeks, he of whom antiquity, sanctioned by the testimony of an oracle, boasts itself as of the wisest of mortals, who is called by a modern author, "the Philosophic Patriarch, and the divinest man, who ever appeared in the heathen world," even SOCRATES himself, derived considerable advantage from the conversation of Diotyma and Aspasia, women who are said to have been excellently learned.

Why, demanded a Persian ambassador, are women held in such high estimation at Lacedæmon? Because, replied the consort of Leonidas, they only are competent to form men. To a Greek lady who displayed her jewels before Phocion's mother,
and

and expressed a desire of seeing her's, the latter introduced her CHILDREN, saying, *These are my jewels and ornaments ; I hope one day they will be all my glory.*

" Will the important business of DRESSING and going to " public places," asks Dr. Knox, " prove so satisfactory to " mothers, a few years hence, as the consciousness of having " sown the seeds of virtue, taste, and learning, in the infant " bosoms of their own offspring?" Pitiable, indeed, is the mother, if she deserves the name, who knows not, that such an office has sweets beyond the giddiness of pleasure, the incense of admiration, and the essence of perfumes.

If, in the next place, we observe, how greatly the conduct of men is influenced by the other sex; what effectual discouragement their influence gives to *vice* and *ignorance* in their male relatives and acquaintance; " that" as the elegant writer just quoted pertinently observes, " the dignity of female virtue, consistently supported, is better calculated than any moral lesson, " to strike confusion and awe into the breast of the EMPTY and " ARTFUL VILLAIN; and that they may indeed become the " BEST REFORMERS:" these, with other obvious considerations, will abundantly evince the singular advantages necessarily resulting from female improvement.

Should any doubts still remain of the very exalted benefits, which, we contend, naturally and necessarily flow from female influence, let an appeal be made to matter of fact, I mean to ancient and modern history. To select only two or three prominent and decisive instances, out of the innumerable examples which the records of all nations supply in the utmost profusion. Who is ignorant of the patriotic ardour, the invincible intrepidity, inspired by the truly *laconic* admonition of the Spartan matrons to their husbands and sons, when, after the last embrace that preceded an expected conflict, they charged them " to return either WITH OR UPON THEIR SHIELDS*." In Dr. Gordon's History of the American Revolution, what decisive effects do we not frequently perceive resulting from the exhortations of the DAUGHTERS OF LIBERTY, on that continent, to their near kindred and others, to extirpate tyranny, and plant

* It was the first and most inviolable law of war with the Spartans, never to flee, or turn their backs, whatever superiority of numbers the enemy's army might consist of; never to quit their post; *never to deliver up their arms*; in a word, either to conquer, or to die on the spot.—And sometimes they that were slain were brought home *upon their shields*.

independence in the soil which the baleful weed had so long and so lawlessly appropriated. Our own country affords passages equally animating. Its annals will, in the persons of the queens Boadicea*, Matilda†, Margaret‡, and Elizabeth§, as well as ladies of inferior rank, exemplify not only how forcibly females have exhorted, but how magnanimously they have achieved. Of the distinguished success of the same sex in almost every department of study, even the most cursory notice is superfluous, at least in England, where we are all admiring witnesses of the deep reflection, manly eloquence, refined sentiment, and classic wit, which are displayed in many of their productions||. What just appreciator, then, of the eminence of our fair countrywomen in every literary, not to say scientific, pursuit, will charge the author with the introduction of many questions irrelative to female education? will censure him for having borrowed most of his themes from subjects in which, at this very day, so many adult ladies excel, rather than composing questions in the common *routine* way?

In the mean time, without expecting a formal defence of the propriety of every individual question in this collection, I am encouraged to hope, that the candid and the serious part of the public will approve of a design (however imperfectly it may have been executed) which has for its chief object a desire to facilitate the path of science, to allure the learner to mental exertions, to impress an early veneration and love for civil and religious LIBERTY, to exhibit the beauty of virtue, and the fatal consequences of vice and profligacy; to hold up to the admiration of the rising generation characters eminent for patriotism, benevolence, and general philanthropy; and to their detestation and abhorrence those of despots, tyrants, and persecutors; to inculcate rational and manly ideas of government, and to enforce

* Boadicea, a celebrated British heroine, who being defeated and ill used by the Romans, poisoned herself, A. D. 61.

† Matilda defeated king Stephen, and took him prisoner at the battle of Lincoln, in 1141.

‡ Margaret of Anjou, wife of Henry VI. signalized herself, by heading her troops, in several battles, against the house of York.

§ Every history of England is enriched with Elizabeth's speech to the troops which she had encamped at Tilbury-Fort, to oppose the expected Spanish invasion.

|| To such of our young readers as may not be acquainted with the respective merits and names of our most celebrated female writers, we earnestly recommend the perusal of an instructive and entertaining performance entitled "DIALOGUES concerning the LADIES," sold by C. DILLY, in the *Poultry*, and T. EVANS, in *Paternoster-Row*.

just notions concerning the inferior orders of society. And I am the more emboldened to expect the public approbation on this occasion, from the consideration, that in my endeavours to promote those prime views, no new burthen has been imposed, or any very considerable encroachment made on the time of the pupil, the information in question being incorporated with a branch of education in which ALL *must* be conversant.

The title announces this small treatise to be designed for the use of YOUNG LADIES, because the author's department of teaching is *solely* confined to them. Perhaps, however, it may be thought equally adapted to the other sex, when it is considered that a youth, capable of working through the *whole* book, and of delivering a satisfactory account of each operation, would be qualified for almost any of the common concerns of business. Vulgar and decimal fractions, and the extraction of roots are of little utility, except in a few particular employments; and as to interest, profit and loss, barter, fellowship, exchange, and some other rules which have distinct heads in the ordinary treatises of arithmetic, they all belong to the rule of three, and the questions in each may be worked with the greatest facility, by any one well versed in that and practice.

The generality of the questions being too long for the learner's transcription, they have all been numbered. Accordingly, the number, with a word or two of the sum (for instance, No. 1, Chronology, No. 2, Solar System) will be a sufficient reference to the operation at large, at any future period. The pupil, however, if sufficiently qualified in writing, should by no means omit copying the whole process of each sum in a common sum-book. To prevent the possibility of plagiarism, and to perfect the students completely in this important branch of education, they should, on presenting a sum, be constantly made to assign a reason for every part of the operation, and, moreover, occasionally be exercised with a variety of *manuscript* sums in each rule.

WILLIAM BUTLER.

Oxford-Court, Cannon-Street,
August 3, 1795.

ADVER-

ADVERTISEMENT.

Published by the same Author, for the Use of YOUNG LADIES.

AN engraved INTRODUCTION to ARITHMETIC, consisting of examples in the four principal rules, and a collection of tables: designed to facilitate the progress of young beginners, and to diminish the labour of the tutor.

Ready for the Press, and speedily to be Published.

AN Easy INTRODUCTION to the USE of the GLOBES, in which will be incorporated some Miscellaneous Matter which the Author has found to be entertaining and useful to his own pupils.

The above little manual will be immediately succeeded by a small tract of Scripture Geography, with maps: to which will be annexed, a brief sketch of the different principles maintained by the chief Christian sects, and other introductory information.

On the completion of this last-mentioned work, which is already nearly prepared for the press, the Author means to resume the printing of his larger geographical and biographical performance (advertised in his Introduction to Arithmetic) which will be accompanied with a general ATLAS.

ADDRESS TO THE PUBLIC.

MR. BUTLER, Teacher of WRITING, ACCOUNTS, and GEOGRAPHY, respectfully informs his friends and the public, that, having frequently found himself prevented, by prior engagements, from attending LADIES SCHOOLS and PRIVATE FAMILIES, which had honoured him with applications for that purpose, he has engaged as partner, Mr. THOMAS BOURN, Jun. of Mare-Street, HACKNEY. This connection will not only better enable Mr. B. to avail himself of the kind partiality of his friends, but, by introducing to their acquaintance, will recommend to their protection, a much-esteemed pupil of exemplary moral conduct, and great professional ability, with the happy talent of communicating instruction, united to indefatigable assiduity and zeal in the discharge of his engagements.

ARITH-

ARITHMETICAL QUESTIONS.

A R I T H M E T I C

IS a science, which explains the properties of numbers, and shows the method or art of computing by them. It has five principal rules, namely, NUMERATION, ADDITION, SUBTRACTION, MULTIPLICATION, and DIVISION; and these are the foundation of all arithmetical operations.

We have very little information respecting the origin and invention of arithmetic; history neither fixes the author of it, nor the time of its discovery. Some imagine, that it must have taken its rise from the introduction of commerce, and ascribe its invention to the Tyrians. That, however, it had a much earlier introduction into the world, even before the deluge, we may gather from the following expression in the prophecy of Enoch, as mentioned by Jude: "Behold the Lord cometh with ten thousand of his saints." This shows that, even at that time, men had ideas of very high numbers, and computed them also in the same manner that we do, namely, by tens. The directions also given to Noah, concerning the dimensions of the ark, leave us no room to doubt that he had a knowledge of numbers, and likewise of measures. When Rebecca was sent away to Isaac, Abraham's son, her relations wished that she might be the mother of thousands of millions; and if they had been totally unacquainted with the rule of multiplication, it is impossible to conceive that they could have formed such a wish. It appears, therefore, certain, that the four fundamental rules of arithmetic were known, in some nations, in very early ages of the world; though at what time they were discovered or invented cannot now be exactly ascertained.

The Greeks were the first European nation among whom arithmetic arrived at any great degree of perfection, and they made use of the letters of the alphabet to represent their numbers. The Romans followed a like method, and, besides characters for each rank of classes, they introduced others for five, fifty, and five hundred. Their method is still used for distinguishing the chapters of books and some other purposes. From the Romans arithmetic came to us; but the

common arithmetic among us, which makes use of the ten Arabic figures 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, was utterly unknown to the Greeks and Romans, and came into Europe from the Arabians by way of Spain. The Arabians are said to have received them from the Indians. This most perfect method of supputation is supposed to have taken its origin from the ten fingers of the hand, which were made use of in computations before arithmetic was brought into an art. The Eastern missionaries assure us, that to this day the Indians are very expert at computing on their fingers without any use of pen or ink. And the natives of Peru in South America, who do all by the different arrangement of grains of maize, are said to excel any European both for certainty and dispatch with all his rules.

N U M E R A T I O N

TEACHES to read or write any proposed sum, and to find the different value of any given number of figures.

E X A M P L E S.

No. 1. CHRONOLOGY. Chronology is the art of measuring and distinguishing time past, and referring each event to the proper year. Its use is very great, being called one of the eyes of history. Epochs, in chronology, is a term or fixed point of time, whence succeeding years are numbered or computed. That principally regarded among Christians is the epocha of the nativity of our Saviour; that of the Mahometans the hegira; that of the Jews the creation of the world; that of the ancient Greeks the Olympiads; that of the Romans the building of their city, and that of the ancient Persians and Assyrians, the epocha of Nabonassar king of Babylon, its institutor, 746 years B. C. The building of Rome took place 753 years B. C. The Olympics or Olympic games, so famous among the Greeks, were instituted in honour of Jupiter. They were holden at the beginning of every fifth year, on the banks of the Alpheus, near Olympia, to exercise their youth in five kinds of combats. Those who were conquerors in these games were highly honoured by their countrymen. The prize contended for was a crown made of a peculiar kind of wild olive, appropriated to this use. The Olympiads ended with the year of Christ 440, making in all 364. The hegira, or flight of the impostor Mahomet, the founder of the Mahometan religion, from Mecca to Medina, happened A. D. 622. The computation of years from the birth of Christ did not begin to be used in history till the year 748. The current year of the Christian æra is 1795.

N.B. A. M. denote Anno Mundi, the year of the world; U. C. Urbe conditâ (ab, from, being understood) the building of the city, i. e. of Rome; B. C. Before Christ; A. C. Ante Christum, before Christ; A. D. Anno Domini, in the year of our Lord.

No. 2. SOLAR SYSTEM. By the solar system is meant the order and disposition of the several heavenly bodies, which revolve round the SUN, as the centre of their motion, and receive from it their light and heat. These celestial spheres consist of planets and comets. Under the denomination of planets are comprised Mercury, Venus, the Earth, Mars, Jupiter, Saturn, and the Georgium Sidus.

Mercury is said to be about 37,000,000 of miles from the sun; Venus 68,000,000; the Earth 95,000,000; Mars 145,000,000; Jupiter 495,000,000; Saturn 908,000,000; and the Georgium Sidus about 1,800,000,000 of miles distant from the sun.

The hourly motion of Mercury in its orbit is about 109,000 miles; Venus 80,000; the Earth 68,000; Mars 55,000; Jupiter 29,000; Saturn 22,000. Saturn is supposed to be more than 90 times as big as the globe which we inhabit. According to the same calculation, Jupiter is above 200 times larger than the earth.

It has been remarked, that the planets, and all the innumerable host of heavenly bodies, perform their courses and revolutions with so much certainty and exactness, as never once to fail; but, for almost 6000 years, come constantly about to the same period, without the difference of the hundredth part of a minute.

It is also observed by Mr. Hervey, that "it may seem unaccountable, to an unlearned reader, that astronomers should speak such amazing things, and speak them with such an air of assurance, concerning the distances and magnitudes, the motions and relations of the heavenly bodies. I would desire, continues the same ingenious writer, such a person to consider the case of ECLIPSES, and with what exactness they are calculated. They are not only foretold, but the very instant of their beginning is determined. The precise time of their continuance is assigned; assigned almost to the nicety of a moment, and what is still more surprising, for the space of hundreds or thousands of years to come. As this is a matter of fact absolutely indisputable, it is also a very obvious yet solid demonstration, that the principles of science, on which those calculations proceed, are not merely conjecture, or precarious supposition, but have a real, a certain foundation in the nature and constitution of things."

No. 3. COMETS. Comets are defined to be solid compact bodies, like other planets, and regulated by the same laws of gravity. They move about the sun in very eccentric orbits, and are of a much greater density than our earth; for some of them are heated, in every period, to such a degree as would vitrify or dissipate any substance known to us. Comets are always attended with long transparent trains, or tails, issuing from that side of them which is turned away from the sun: that which appeared in 1680 drew after it a tail of fire that was computed to be 80,000,000 of miles in length. There are supposed to be 450 comets belonging to the solar system; but the periods of three of them only are known with any certainty. These return at intervals of 75, 129, and 575 years. Dr. Halley, at first, supposed the comets of 1532 and 1661, to be one and the same; and though he afterwards seemed to retract this opinion, it has been generally adopted by

by astronomers. They accordingly expected its return, making an allowance for its retardation, in 1789. Agreeably to this conjecture Dr. Maskelyne had calculated that it might be certainly expected before the 27th of April in that year. In this instance, however, the expectation of astronomers has been disappointed; and it remains for future observation to ascertain the periodical return of this eccentric planet.

The comet which appeared in 1680, travelled, when nearest to the sun, with the amazing velocity of 880,000,000 of miles in an hour. Its greatest distance from the sun is computed at 11,200,000,000 of miles, and its least distance at 490,000, at which time it is said to be 2000 times hotter than red hot iron. This comet approaches, in one part of its orbit, very nearly to the orbit of our earth; so that, according to some eminent philosophers, it may, in some future revolutions, approach near enough to have very considerable, if not fatal effects upon it.

No. 4. FIXED STARS. These are so called, because they always maintain the same position, or relative distance from each other; their apparent diurnal motion being caused solely by the earth's turning on its axis.

Mathematicians assert, that Sirius, or the Dog Star, is the nearest to us of all the fixed ones; and they compute its distance from our earth at 2,200,000,000,000 of miles. They maintain that a sound would not reach our earth from Sirius in 50,000 years; and that a cannon-ball, flying with its usual velocity of 480 miles an hour, would consume 523,211 years in its passage thence to our globe. The fixed stars are supposed to be made for the same purposes as the sun; that they may bestow light, heat, and vegetation, on a certain number of inhabited planets.

World beyond world, in infinite extent,
Profusely scatter'd o'er the blue immense.

THOMSON.

No. 5. OF THE INVENTION OF ALPHABETICAL LETTERS, AND THE ART OF WRITING. Writing is the art of conveying our ideas to others by letters, or characters visible to the eye. To whom we are indebted, for this admirable and useful discovery, does not appear. Many learned men have supposed, that the alphabet was of divine origin, and several writers have asserted, that letters were first communicated to Moses by God himself; whilst others have contended, that the decalogue was the first alphabetic writing. Again, many authors have decided in favour of the ancient inhabitants of Egypt.

" There first the marble learn'd to mimic life,
The pillar'd temple rose, and pyramids
Whose undecaying grandeur laughs at time;
Birth-place of letters; where the sun was shown
His radiant way, and heavens were taught to roll."

Others

Others have maintained the claim of the Phœnicians to the invention of letters.

Phœnicians first, if ancient fame be true,
The sacred mystery of letters knew :
They first, by notes in various lines design'd,
Express'd the meaning of the thinking mind;
The power of words by figures rude convey'd,
And useful science everlasting made.

ROWE'S *Lucan's Pharfalia*.

The Chaldeans have also had several learned advocates, who have attributed the invention of letters to the patriarch Abraham; and Sir Isaac Newton, in particular, admits that letters were known in the Abrahamic time for some centuries before Moses.

Mr. Gilbert Wakefield is one of those learned writers, who have maintained, that the art of alphabetical writing appears to be of divine origin; and in his ingenious Essay on this subject, he observes, that the Phœnicians, and their colonists the Carthaginians, spoke the *Hebrew* language, or a dialect scarcely varying from the original; and that all the languages in use among men, which have been conveyed in *alphabetical characters*, were the languages of people, connected ultimately, or, immediately, with those who have handed down the earliest specimens of writing to posterity, viz. the authors of the five first books of the Old Testament, which are acknowledged by all to be, not only the most ancient compositions, but also the most early specimens of alphabetical writing, at present existing in the world.

Mr. More, in his Essay upon the Invention of Writing, informs us, that the various combinations of the 24 letters, and none of them repeated twice, will amount to 620,448,401,733,239,439,360,000. But Clavius, the Jesuit, who also computed these combinations, makes the numbers to be but 5,852,616,738,497,664,000.

No. 6. DIFFICULTY OF APPREHENDING HIGH NUMBERS.
As very high numbers are somewhat difficult to apprehend, we naturally fall on contrivances to fix them in our minds, and render them familiar: but notwithstanding all the expedients we can contrive, our ideas of high numbers are still imperfect, and generally far short of the reality; and though we can perform any computation with exactness, the answer we obtain is often incompletely apprehended.

It may not be amiss to illustrate, by a few examples, the extent of numbers which are frequently named without being attended to. If a person employed in telling money reckon an hundred pieces in a minute, and continue at work ten hours each day, he will take seventeen days to reckon 1,000,000; a thousand men would take 45 years to reckon 1,000,000,000,000. If we suppose the whole earth to be as well peopled as Great-Britain, and to have been so from the creation, and that the whole race of mankind had constantly spent their time in telling a heap consisting of 1,000,000,000,000,000,000,000,000 of pieces, they would hardly have yet reckoned a thousandth part of that quantity.

Ency. Brit. Art. Arithmetic.

ADDITION

A D D I T I O N

TEACHES to add several sums together into one whole or total.

E X A M P L E S.

No. 7. CREATION OF THE WORLD. Man, as the pious Hervey remarks, being greatly beloved by his Creator, is constituted master of this globe. The fields are his exhaustless granary. The ocean his vast reservoir. The animals spend their strength to dispatch his business; resign their clothing, to replenish his wardrobe; and surrender their very lives to provide for his table.

Man, more divine, is master of all these,
Lord of the wide world, and wide wat'ry seas,
Indued with intellectual sense and soul,
Of more pre-eminence than fish and fowl.

SHAKESPEARE.

For him kind nature wakes her genial pow'r,
Suckles each herb, and spreads out ev'ry flow'r;
Annual for him, the grape, the rose renew
The juice nectareous, and the balmy dew;
For him the mine a thousand treasures brings;
For him, health gushes from a thousand springs.

POPE.

Being thus distinguished by the goodness of the Almighty, let us distinguish ourselves by our gratitude. Let it be our undivided aim, to glorify him, who has been at so much expence to gratify us: and, in particular, let ingenuous youth hence learn "to remember their Creator in the days of their youth."

According to most chronologers the world was created 4004 years B. C.; how old is it this present year 1795? *Ans.* 5799 years.

No. 8. DELUGE. The inhabitants of our earth, excepting Noah and his family, were destroyed for their wickedness by a flood. This direful event is described in the 6th, 7th, and 8th chapters of Genesis; Noah being, as the sacred historian relates, "a just man and perfect in his generation, found grace in the eyes of the Lord," and was preserved in the ark, as were also his family, and a certain number of beasts and birds to replenish the earth.

Of ev'ry beast, and bird, and insect small
Came sev'ns, and pairs, and enter'd in, as taught
Their order: last the fire, and his three sons
With their four wives.

Mean time down rush'd the rain
Impetuous, and continu'd 'till th' earth
No more was seen; the floating vessel swum

Uplifted,

Uplifted, and secure with beaked prow
Rode tilting o'er the waves ; all dwellings else
Flood overwhelm'd, and them with all their pomp
Deep under water roll'd.

MILTON.

Upon the assuaging of the waters, the ark "fast on the top of some high mountain fixed ;" and Noah went forth and built an altar to Jehovah, receiving from the Lord, at the same time,

A covenant never to destroy
The earth again by flood, nor let the sea
Surpass his bounds, nor rain to drown the world.

MILTON.

The token of this covenant was the "triple colour'd bow," which, it is supposed, did not appear before the deluge, the earth prior to that æra being watered daily by a thick *mist*, and consequently there could be naturally no *rainbow*, which is made by the refraction of the sun's rays in the drops of falling *rain* ; a discovery we owe to the immortal Newton.

Mean time refracted from yon' eastern cloud,
Besriding earth, the grand ethereal bow
Shoots up immense, and every hue unfolds,
In fair proportion running from the red,
To where the violet fades into the sky.
Here awful NEWTON! the dissolving clouds
Form, fronting on the sun, the show'ry prism,
And to the sage-instructed eye unfold
The various twine of light, by thee disclosed
From the white-mingling maze.

THOMSON.

As the antediluvian world perished by the flood, so shall the present world, which we inhabit, be destroyed by fire ; and some eminent astronomers have imagined, that a comet will be the instrument of this direful conflagration, when, as Shakespeare emphatically expresses it,

The cloud-capt towers, the gorgeous palaces,
The solemn temples, the great globe itself,
Yea, all which it inherit, shall dissolve ;
And, like the baseless fabric of a vision,
Leave not a wreck behind.

Or, agreeably to language still more awful, *The heavens being on fire shall be dissolved, and the elements shall melt with fervent heat.*
2 Peter iii. 12.

The deluge happened 2356 years B. C. ; how long is that ago this present year 1795 ? *Ans.* 4151 years.

No. 9. THE CALLING OF ABRAHAM*. Abraham, the father and stock whence the faithful sprung, was the son of Terah. He was

* Abraham denotes a father of a great multitude : his former name, Abram, an high father.

descended from Noah by Shem, and was born in the city of Ur, in Chaldea. He died at the age of 175 years, and was interred in the cave of Machpelah, near the body of Sarah his first wife. Machpelah was near Hebron, which was about twenty miles southward of the spot where the city of Jerusalem was afterwards built.

Abraham is said to have been well skilled in many sciences, and to have written several books. Josephus informs us, that he taught the Egyptians arithmetic and geometry; and, according to other writers, he instructed the Phœnicians, as well as the Egyptians, in astronomy. This illustrious patriarch, who, for his faith, piety, and obedience, was honoured with the high titles of the "father of the faithful, and the friend of God," was called to be the father of a chosen people 1921 years B. C.

Him God the most High vouchsafed
To call by vision from his father's house
His kindred and false gods, into a land
Which he did show him, and from him did raise
A mighty nation, and upon him shower
His benediction, so that in his seed
All nations of the earth were blest'd.

MILTON.

Many of the inhabitants of the East-Indies, not only Christians and Mahometans, but even the Indians and Infidels, have a traditionary knowledge of the patriarch Abraham, and speak highly in commendation of him.

How long has the calling of Abraham preceded the present year 1795? *Ans.* 3716 years.

No. 10. SKETCH OF THE HISTORY OF MOSES*. Moses, the great Jewish legislator, was the son of Amram and Jochebed, of the tribe of Levi. He was born in Egypt, in the N. E. part of Africa. In consequence of a murderous edict issued by the tyrant and persecutor Pharaoh†, king of that country, he was, shortly after his nativity, exposed upon the river Nile, in an ark of bulrushes‡. From this perilous situation he was rescued by the humane daughter of the merciless despot, who "took him up, and nourished him for her own son, and he became learned in all the wisdom of the Egyptians, and was mighty in words and in deeds." See Exodus ii. and Acts vii. 21, 22.

About the 80th year of his age, Moses, after performing a number of miracles in Egypt, quitted that kingdom with 600,000 Israelites, besides children, who all miraculously passed through the RED SEA,

* The name Moses imports being drawn up, or taken out of the water. Ex. ii. 10.

† As justice should be done even to a tyrant, we shall quote a remark of the celebrated Dr. Jortin's respecting Pharaoh. "This despot, says that learned writer, tyrant and persecutor as he was, never compelled the Hebrews to forsake the religion of their fathers, and to adopt that of the Egyptians. Such improvements in persecution, adds that great man, were reserved for *Christians!!!*"

‡ By bulrushes is supposed to be meant the papyrus, a reed which grew in the river Nile, with which they made ships or floops. See Isaiah xviii. 2.

Whose

Whose waves o'erthrew
 Bufiris* and his Memphian† chivalry
 While with perfidious hatred they pursued
 The sojourners of Goshen‡, who beheld
 From the safe shore their floating carcases
 And broken chariot-wheels§.

MILTON.

Having thus experienced the divine interposition, the Israelites traversed “the wild desert” and arrived at Mount SINAI, where

GOD himself
 In thunder, lightning, and loud trumpets sound,
 Ordained them laws; part such as appertain
 To civil justice, part religious rites
 Of sacrifice, informing them, by types
 And shadows, of that destin'd seed to bruise
 The serpent, by what means he should achieve
 Mankind's deliverance.

MILTON.

In Moses, says Dr. Hunter (Sacred Biography) we have a bright example of genuine patriotism. That most respectable quality appeared in him early, and shone most conspicuously at last. When he was come to years, he refused to be called the son of Pharaoh's daughter; choosing rather to suffer affliction with the people of God, than to enjoy the pleasures of sin for a season. For Israel's sake, he was willing to encounter a thousand dangers, to endure a thousand hardships. For them he braved the wrath of a king; for them he laboured, fasted, prayed; in their service was his life spent, and his dying breath was poured out in pronouncing blessings upon them.

The compositions of Moses appear to be the oldest writings in the world.

He first taught the chosen seed,
 In the beginning how the heav'ns and earth
 Rose out of chaos.

MILTON.

Moses received the decalogue 1491 years B. C. How long is that ago this present year 1795? *Ans.* 3286 years.

NO. 11. SIEGE OF TROY. Troy was situated on a small eminence near mount Ida in Asia, at the distance of about four miles from the N. E. part of the Archipelago. The siege of this place, which is

* Bufiris is a name which was borne by many Egyptian princes.

† Memphis was a celebrated town of Egypt on the Western banks of the Nile; in its neighbourhood the famous pyramids were built.

‡ Goshen was the best and most fertile portion in the district of Ramesis, which bordered upon the banks of the Nile near Heliopolis. It was given by Joseph to his father and brethren. Gen. xlv. 11.

§ In commemoration of this signal deliverance, Moses composed a song (see Exodus ch. xv.) which has been said to be the most ancient piece of poetry in the world; and is justly admired for its sublimity.

the most famous of any among the ancients, was undertaken by the Greeks, to recover Helen, whom Paris, the son of Priam king of Troy, had carried away from the house of Menelaus her husband, king of Sparta. All Greece combined to revenge the cause of this prince, and Agamemnon, brother of the injured Menelaus, was chosen general of the confederated forces. After the siege of Troy had been carried on for ten years*, it was taken by the Greeks, who immediately destroyed it by conflagration, and put such of the inhabitants, as could not escape by flight, to the sword, or carried them away captive. It is not certain whether Troy was subdued by force, stratagem, or treachery. All agree that it was taken by night, and the poets maintain that the Greeks made themselves masters of it by artifice. They are said to have made a wooden horse capable of containing a considerable number of armed men; this they filled with the choicest of their army, and then pretended to raise the siege; upon which the credulous Trojans, at the instigation of one SINON, a crafty, perjured Greek, brought this fatal animal, which the author of Hudibras humorously styles,

The Trojan mare in foal with Greeks,

into the city; and in the night the enclosed heroes rushed out, and opened the gates to their companions, who had returned from the place of their confinement. The wooden horse was fabricated by EPEUS.

The sacking of Troy happened 1184 years B. C. How long is that ago this present 1795? *Ans.* 2979 years.

N. B. The misfortunes of Troy have furnished the subject of the two most perfect epic poems in the world, namely, the ILIAD and the ODYSSEY, written by HOMER, a celebrated Greek, who flourished about 340 years after the siege, and is commonly accounted a native of Smyrna.

The subject of the Iliad is the wrath of Achilles, which proved so fatal to the Greeks, when besieging Troy. The Odyssey recounts the voyages and adventures of Ulysses, after the sacking of that city. The same interesting story has likewise supplied some of the most splendid materials for Virgil's admirable poem of the ÆNEID, written in honour of Æneas.

Alexander of Macedon, commonly styled the Great, was so fond of Homer, that he generally placed his compositions under his pillow, with his sword; and he carefully deposited the Iliad in one of the richest caskets of Darius, king of Persia, whom he had conquered, observing, that the most perfect work of human genius ought to be preserved in a box the most valuable and precious in the world.

HOMER, VIRGIL, and MILTON, are considered as the three greatest poets that ever lived.

* The siege of Tyre, by Nebuchadnezzar, lasted 13 years; and that of Azoth, by Psammetichus, 29 years.

Three poets in three distant ages born,
 Greece, Italy, and England did adorn.
 The first in majesty of thought surpass'd,
 The next in gracefulness: in both the last.
 The force of nature could no farther go,
 To make a third, she join'd the other two.

DRYDEN.

The late Dr. Johnson, though he was strongly prejudiced against Milton on account of his political opinions, yet thought so highly of his talents, and of his *Paradise Lost*, that he says of him, "He was born for whatever is arduous; and his work is not the greatest of heroic poems, only because it is not the first;" evidently ranking him above Virgil.

No. 12. JERUSALEM TAKEN BY NEBUCHADNEZZAR. NEBUCHADNEZZAR, king of Babylon, took the city of Jerusalem* by storm, and made a terrible slaughter of the inhabitants. Zedekiah's two sons were, by Nebuchadnezzar's orders, killed before their father's face, with all the nobles and principal men of Judah. Zedekiah himself had both his eyes put out, was loaded with fetters, and carried to Babylon, where he died in prison. The city and temple were pillaged and burnt, and all the fortifications demolished 588 years B. C. How long is that ago this present year 1795? *Ans.* 2383 years.

N. B. It was in the reign of Nebuchadnezzar that the three young Hebrews SHADRACH, MESHACH, and ABEDNEGO, who with an invincible courage refused to comply with the king's impious commands respecting the worship of the golden image, were miraculously preserved in the midst of the burning fiery furnace†. Great numbers of the Jews had been carried captive to Babylon some years before the destruction of Jerusalem‡. Among the captives were DANIEL and EZEKIEL.

No. 13. BABYLON TAKEN BY CYRUS. The taking of Babylon is one of the greatest events in ancient history, and the principal circumstances with which it was attended, were long before minutely foretold in the Holy Scriptures. The pious Rollin, in his history of Cyrus§, has remarked on this occasion, "that nothing can be more proper to raise a profound reverence in us for religion, and to give us a great idea of the DEITY, than to observe with what exactness he reveals to his prophets the principal circumstances of the besieging and taking of this famous city, not only many years, but several ages before it happened."

Prophecy, as Dr. Rutherford observes, is a permanent miracle on earth; a voice which speaks from heaven, and proclaims its author to all nations and ages.

* 2 Kings xxv. 1, &c. Jer. xxix and lli. † Dan. iii. ‡ 2 Kings xxiv. 10, &c.
 § Ancient Hist. vol. ii.

The predictions respecting the total ruin and destruction of this proud and triumphant capital, which had so long oppressed the earth, and shed the blood of its inhabitants, may be read in the writings of Jeremiah, Daniel, and particularly Isaiah, who has composed an ode on the occasion, which, as the ingenious writer just quoted remarks, for elegance of disposition, sublimity of sentiment, boldness of colouring, beauty and force of expression, stands unrivalled among all the monuments of genius which antiquity has transmitted to modern times.

The prophetic denunciations were executed upon Babylon (which was the capital of the Assyrian empire, and situated upon the river Euphrates) by Cyrus, 538 years B. C. just 50 years after Nebuchadnezzar had destroyed the city of Jerusalem and her temple. How long is that ago this present year 1795? *Ans.* 2333 years.

No. 14. DESTRUCTION OF DIANA'S TEMPLE. The celebrated temple of Diana, at Ephesus, in Asia, on the confines of the Archipelago, was reckoned one of the wonders of the world. This famous building was erected at the common charge of all the Asiatic states, and Ctesiphon was the chief architect. Pliny says that 220, but others assert that 400 years were employed in completing it. The riches which were in the temple were immense, and the goddess to whom it was dedicated was worshipped with the most awful solemnity. This stupendous structure was consumed by conflagration the night of Alexander's nativity, by an obscure individual named Erostratus, who confessed on the rack, that the sole motive which had prompted him to destroy so magnificent an edifice, was the desire of transmitting his name to future ages.

Erostratus set fire to the temple of Diana 356 years B. C. How long did the conflagration of this temple precede the current year 1795? *Ans.* 2151 years.

N. B. The wonders of the world, popularly so called, were the Egyptian pyramids; the mausoleum erected by Artemisia for her husband Mausolus; the temple of Diana; the colossus at Rhodes; the walls and hanging gardens of Babylon; the statue of Jupiter Olympus; and the pharos of Ptolemy Philadelphus. Instead of two of these some reckon the palace of Cyrus, and the labyrinth of Crete.

No. 15. SIEGE OF SAGUNTUM. The unfortunate Saguntum was situated on the spot where Morviedro in Valencia, Spain, now stands. This brave city is famous in history for the dreadful siege it sustained 219 years B. C. when the heroic citizens, after exerting incredible acts of valour, chose to be buried in the ruins of their city rather than surrender to HANNIBAL, the famous Carthaginian general. How long has that tragical event preceded the present year 1795? *Ans.* 2014 years.

No. 16. SIEGE OF NUMANTIA. Numantia was situated near Soria in Old Castile, Spain, and is celebrated for the long war which it maintained against the Romans. Scipio Africanus besieged this famous

mous city 133 years B. C. when the magnanimous inhabitants, after a long conflict against the extremity of famine and the despair of succour, signalized their love of LIBERTY by setting fire to their houses, and perishing in the flames.

“ A patriot-people, who death’s terrors scorn’d :
 “ The willing victims to a virtuous name,
 “ All perish greatly, not to live with shame.
 “ Well is their famine paid, and well their flame,
 “ Which blazes still the distant theme of fame.”

How long has that heroic event preceded the current year 1795?
Ans. 1928 years.

No. 17. BATTLE OF MARATHON. Marathon was a village of Attica, about 10 miles from Athens. In the adjacent plains the Athenians, with only 10,000 men*, commanded by the heroic MILTIADES, defeated Datis at the head of 100,000 Persian infantry, and 10,000 horse. Five Athenian generals, and about 200 citizens, perished in the engagement. The Persians lost 6000 of their bravest troops.

The battle of Marathon, says Dr. Rutherford, has often deservedly filled the page of the historian. Never had so small a body of forces overcome so great an host. Their splendid achievements and extraordinary success, inspired the Greeks with an enthusiasm of valour, and are considered by Plato as the source and original cause of their future conquests and victories. The terror of the Persian power, hitherto so formidable, was dissipated. The Greeks were taught, from success, to know their own strength, and to tremble no more at the name of an enemy whom they had conquered. On all following occasions of importance, the orators recalled the field of MARATHON to the remembrance of their countrymen, and held up MILTIADES and his victorious troops to view, in order to inspire them with a passion for glory, and the emulation of their ancestors.

The battle of Marathon was fought 490 years B. C. How long is that ago this present year 1795? *Ans.* 2285 years.

No. 18. BATTLE OF LEUCTRA. Leuctra was a village of Bœotia, a country of Greece, now forming a part of Livadia, in European Turkey. Here the brave EPAMINONDAS, the Theban general, in conjunction with his illustrious friend PELOPIDAS, obtained a famous victory over the superior force of Cleombrutus, king of Sparta, who was slain in the engagement, together with 4000 of his subjects and allies, while the loss on the part of the Thebans was only 300 men. Never had the Spartans received such a blow.

* This is the usual number assigned the Athenians, but Mr. Mitford, in his History of Greece, supposes it probable, that the Athenian army amounted to 20,000 free men, and an equal number of armed slaves.

Some authors also state the Persian army at 300,000; others at 600,000, and raise their loss in the expedition, and in the battle, to 200,000 men.

The defeat was disgrace, and the loss of this battle was the loss of all they held dear, of a character for pre-eminent bravery, which they had acquired, and hitherto supported.

From this period the Spartans lost the dominion of Greece, which they had enjoyed for nearly 500 years. The battle of Leuctra was fought 371 years B. C. How many years have intervened between that period and the present year 1795? *Ans.* 2166 years.

No. 19. BATTLE OF MANTINEA. "Fair Mantinea's ever-pleasing site" was in Arcadia, Peloponnesus, now the Morea, a peninsula of European Turkey. This place is rendered memorable by the death of the

Theban sage
EPAMINONDAS, first and best of men!

who was slain in an engagement with the combined forces of several Grecian states.

The last moments of the Theban general, as an elegant writer observes, did not obscure the splendor of a life, which had been spent in the acquisition of knowledge, in acts of beneficence, and in the aggrandisement of his country. Amidst the agonies of dissolution, his only solicitude was for his own military glory, and the prosperity of Thebes. "Is my shield safe? Are the Thebans victorious?" were questions he repeated with the utmost anxiety. Viewing his shield, which was brought to him, and being informed that the Spartans were defeated, a gleam of joy prevailed for a moment over the languor of death: "Mine," said he, "is a glorious departure; I die in the arms of victory; tell me not that I am childless*, for LEUCTRA and MANTINEA are immortal children." He then commanded the javelin to be extracted, which he knew was to occasion his immediate death, and expired in the arms, and amidst the groans of his surrounding friends. His body was deposited in the field of battle, where a monument to his memory remained to the time of Pausanias.

Dr. Rutherford's Anc. Hist. Vol. ii. p. 525.

With Epaminondas expired the splendor of the Theban name. For to him, and to his friend Pelopidas†, the famous "Theban Pair," that obscure republic owed the pre-eminence it had acquired in Greece.

* In the midst of the general affliction one of his most intimate friends exclaimed, "Oh! Epaminondas, you are dying, and we shall lose you entirely without a hope remaining of seeing you revive in your offspring; you leave us no children behind you." "You are mistaken," replied Epaminondas coolly, "I shall leave behind me two immortal daughters; the victory of *Leuctra* and that of *Mantineia*." *Folard's Life of Epam. by Parry.*

† Pelopidas was a famous general of Thebes. He shared with Epaminondas the glory of the victory at Leuctra. He was re-elected thirteen times successively to fill the honourable office of governor of Ætolia. Pelopidas was killed in a battle with the troops of Alexander, tyrant of Phere (a town of Thessaly) after he had gained the victory; 364 years B. C.

The battle of Mantinea was fought about 363 years B. C. How long is that ago this present year 1795? *Ans.* 2158 years.

No. 20. BATTLE OF THERMOPYLÆ. Thermopylæ was a narrow defile leading from Thessaly into Locris and Phocis, districts of Greece, and now part of European Turkey. It had a large ridge of high mountains on the West, and the Euripus, a strait which separates the island of Negropont from the continent, on the East, with deep and dangerous marshes, being in the most confined part only 25 feet in breadth. This pass obtained its name from the adjacent hot springs, and was considered as the gate or opening into Greece. Here it was that a small band of heroic Spartans, commanded by their illustrious king LEONIDAS, gloriously repulsed the invading army of Xerxes, king of Persia, consisting of more than 3,000,000 of men. While the *Great King*, as this infamous maulrauder was called, anxious and perplexed at the ineffectual endeavours of his myriads of slaves to force their way through the defile, knew not what resolution to adopt, a detestable miscreant named *Epialtes*, an inhabitant of the country, induced by the hopes of reward, brought information of another pass over the mountains of Oeta. The Spartans being by this treacherous manoeuvre attacked by a detachment of 20,000 Persians in the rear, while the main body assailed them in the front, it was no longer possible to resist the weapons of surrounding multitudes, and this undaunted band perished to the last man, overwhelmed rather than conquered by the Persian arms.

Twenty thousand Persians fell in this engagement, and among the rest the two brothers of the "*Great King*," who was thus taught that with all the millions of the East, it might be possible to exterminate the Greeks, but it was impossible to subdue them.

To the memory of those brave defenders of Greece, a magnificent monument was afterwards erected on the spot where they fell, bearing two inscriptions; one in honour of all those who had fallen on that occasion: the other, to the memory of LEONIDAS and his 300 Spartans.

His fair renown shall never fade away,
Nor shall the mention of his name decay,
Who glorious falls beneath the conqueror's hand,
For his dear children, and his native land,
Though to the dust his mortal part we give,
His fame in triumph o'er the grave shall live.

TYRTÆUS.

The fleet which accompanied the immense land force above mentioned is said to have consisted of 2000 sail. The only successful operation of this unwieldy armament was the capture and conflagration of the city of ATHENS, which its inhabitants had previously deserted. Disgrace and disaster attended every other movement of its short existence. THEMISTOCLES, with no more than 380 sail, dispersed, and, in a great measure, destroyed the fleet near the island of SALAMIN, now called Coluri, near Athens. Xerxes shortly after escaped from Greece, leaving the remains of his deserted army to encounter future calamities

calamities in the best manner it could*. On his arrival at the place where a bridge of boats had been constructed across the Hellespont, now called the Dardanelles, over which his vast mass of slaves had passed from Asia into Europe, he found it demolished by a tempest, and the Persian monarch was constrained to commit his person to the conveyance of a *cock-boat*. This sudden and signal reverse of fortune, while it conveys a forcible image of the mutability of sublunary things, and the instability of human greatness, affords a memorable example of the heroic ardor with which LIBERTY has been defended by its votaries; as well as the disappointment and dishonour which await the most formidable preparations to extend dominion over FREE MEN, whose necks, venality, dissipation, and luxury, have not previously *polished* for the reception of the yoke of slavery.

Unless corruption first deject the pride
And guardian vigour of the FREE-BORN soul,
All crude attempts of violence are vain:
For firm within, and while at heart untouch'd,
Ne'er yet by force was freedom overcome.
But soon as independence stoops the head,
To vice enslav'd, and vice-created wants,
Then to some foul corrupting hand, whose waste
These height'ned wants with fatal bounty feeds,
From man to man the slack'ning ruin runs,
Till the whole state, unnerv'd, in slav'ry sinks.

THOMSON.

The invasion of Greece by Xerxes took place about 481 years B. C. How long is that ago this current year 1795? *Ans.* 2276 years.

NO. 21. BATTLE OF CHÆRONEA. Chæronea, the birth place of Plutarch, was a city of Bœotia, a district of Greece, now forming a part of Livadia in European Turkey. It was situated on the celebrated river Cephissus, of which the GRACES were particularly fond, whence they are sometimes called the goddesses of Cephissus.

Chæronea is famous for the victory obtained there by PHILIP, king of Macedon†, and father of Alexander the Great, over the confederated army of the Thebans and the Athenians. ALEXANDER, who was then but sixteen or seventeen years of age, commanded the left wing of the Macedonian forces. DEMOSTHENES, one of the first orators of antiquity, who it appears was a greater statesman than a warrior, and more capable of giving sage counsels in his harangues, than of supporting them by an intrepid courage, was in the Athenian army, and saved himself by flight. ISOCRATES, one of the

* Three hundred thousand men were left in Greece under the command of Mardonius, whose operations were rendered useless by the courage and vigilance of the Greeks; and, in a battle at Platea, he was defeated and slain.

† The Macedonian empire under Philip and Alexander became one of the four great monarchies. The other three celebrated ancient monarchies were the Assyrian, the Persian, and the Roman.

most celebrated rhetoricians of that age, not being able to survive the ignominy which overwhelmed his country by the loss of this battle, embraced death by a voluntary abstinence.

Philip, a sagacious and intriguing monarch, in the first years of his reign repulsed, divided, and disarmed his enemies: in the succeeding ones, he subjected, by artifice or force, the most powerful states of Greece, and made himself her arbiter; and by gaining the victory of Chæronea he may be said to have finally enslaved her. Thus Macedon (chiefly through dissensions in the other Grecian states) with only 30,000 soldiers gained a point, which Persia with millions of men, had attempted unsuccessfully at Platea, at Salamis, and at Marathon.

Philip's success at Chæronea obtained him the great object of his ambition, the nomination of Generalissimo to the Greeks against the Persians; but, in the midst of warlike preparations for the invasion of Persia, he was stabbed by Pausanias, at the instigation, as some have supposed, of Olympias, the mother of Alexander, whom Philip had just repudiated.

The battle of Chæronea was fought 338 years B. C. How long is that ago this present year 1795? *Ans.* 2133 years.

NO. 22. BATTLE OF THE GRANICUS. The Granicus was one of the principal rivers of Myfia Minor, a district of Asia Minor, bordering on the Propontis or sea of Marmora. It had its rise in the famous mount Ida, whose waters became the source of many other celebrated rivers, particularly the Simois and Scamander, so often mentioned by Homer. The Granicus discharged itself into the Propontis between Cyzicus and Lampascus, somewhat north of the Hellespont.

Alexander, son of Philip, and king of Macedonia, a portion of the present Turkey in Europe, crossed the Granicus at the head of only 30,000 soldiers, in the face of the Persian army, 600,000 strong; and, on his gaining the shore, the latter were immediately routed with great slaughter. Historians remark, that the river was deep, and its banks craggy and steep; so that the forces of Darius had a considerable advantage, had they known how to have used it.

Alexander himself commanded the right wing of his army, and PARMENIO, his confidential general, the left. It was in this engagement that the gallant CLITUS saved the life of Alexander, who, in one of his fits of inebriation, afterwards slew him with a javelin; and Parmenio and his son were also put to death by "Macedonia's madman," upon a slight accusation of treason against his person.

The battle of the Granicus was fought 334 years B. C. How many years have succeeded that event this present year 1795? *Ans.* 2129 years.

N. B. The succeeding year, Alexander defeated Darius at Issus situated in Cilicia, on the spot where Ajazzo now stands, on the coast of the Mediterranean sea, north of Antioch, and west of Aleppo. In this important battle 110,000 Persians were slain, and the tent of

D

Darius

Darius taken, in which were his mother, wife, two daughters, and young son.

The famous battle of Arbela, a town placed by some geographers in Persia, by others with more probability in Assyria, and supposed to have been situated about 140 miles N. of Bagdat, or 60 S. E. of Mouful, was fought between Alexander and Darius some time after the one just mentioned; and it determined the fate of the Persian empire, which was then extinguished, just 228 years after it had been first founded by CYRUS the Great.

Darius, after this total defeat, fled towards Media, a country south of the Caspian sea; and Bessus, governor of Bactriana (part of the present Ubec Tartary) a traitor whom the fallen monarch had loaded with favours, took away his life, in hopes of succeeding him on the throne.

The three last-mentioned battles, together with that which the same monarch had with the gallant PORUS on the banks of the river Hydaspes, a branch of the present Indus, in Asia, are denominated the *four* battles of Alexander, and have repeatedly afforded subjects to the painter and the engraver.

No. 23. THE DESTRUCTION OF CARTHAGE. The year 146 B. C. is memorable for the overthrow of Carthage, which was situated about 30 miles N. W. of Tunis in Africa. This celebrated city for a long time disputed the empire of the world with Rome, but was at length destroyed by Scipio, the second Africanus, in the third Punic war. The conduct of the wife of Asdrubal, the Carthaginian commander, on this occasion is worthy of narration. After upbraiding the perfidious wretch, her husband, with delivering himself up to the Romans, she seized her children, slew them, cast them into the flames of Esculapius's temple, which the Roman deserters, despairing of pardon, had set on fire, and immediately rushed into the same conflagration, where she perished. How many years did that city's catastrophe precede the present year 1795? *Ans.* 1941.

N. B. The wars between the Romans and Carthaginians were called *Punic*; a word said by some to be derived from *pæni*, an antiquated Latin term signifying false, faithless persons; the latter people being, at all times, noted for breach of faith. Be this etymology, however, well or ill founded, *Punica fides*, or Carthaginian integrity, became, *after the middle age of the Roman state*, a proverbial irony to denote fraud and perfidy.

Thou art able to instruct grey hairs,
And teach the wily African deceit.

ADDISON'S Cato.

Long has your Carthage been renown'd for fraud,
The specious seeming, and the deep-hid guile;
Sincerity is not the growth of Afric.

HAVARD'S Regulus.

No. 24. DEATH OF CÆSAR. Julius Cæsar, the famous Roman general and historian, invaded this country 54 years B. C. Having

at length subdued POMPEY, the great rival of his growing power, and still pursuing his favourite maxim, "That he had rather be the first man in a village, than the second in Rome," he aimed at the imperial dignity; in consequence of which the friends of the civil liberty of the republic assassinated him in the senate-house.

In the Spada palace at Rome is kept the very statue at whose feet Cæsar fell, and those who shew it never fail to relate his care to die gracefully; which was likewise the last desire that occupied the mind of Lucretia.

The "matchless BRUTUS—the last of Romans," as Thomson styles him, was one of the principal conspirators. His character, uniting severity of principle with gentleness and humanity of disposition, added to firmness in virtuous action, is finely drawn by Shakespeare.

This was the noblest Roman of them all;
All the conspirators, save only he,
Did what they did in envy of great Cæsar;
He only, in a gen'rous, honest thought,
And common good to all, made one of them.
His life was gentle; and the elements
So mix'd in him, that nature might stand up,
And say to all the world, THIS WAS A MAN!

Cæsar is said to have fought 50 pitched battles, in which 1,920,000 human beings were butchered. The assassination of this "best of cut-throats" took place 42 years B. C. How long is that ago this present year 1795? *Ans.* 1837.

N. B. The defeat and death of Brutus and Cassius at PHILIPPI, in Macedonia, where these brave and strenuous republicans engaged the Cæsarean party, commanded by Octavius Cæsar and Mark Anthony, put a final period to the popular government at Rome, soon after the death of Julius Cæsar.

The wife of Brutus was PORTIA, "a woman well reputed, Cato's daughter." She had formerly wounded herself severely, to extort from her husband the cause of his apparent uneasiness; and now, scorning to survive Brutus, and perceiving that every weapon of destruction was removed from her reach, she embraced death by swallowing burning coals. Thus has Portia left behind her an everlasting argument, how far a generous treatment can make the tender sex go even beyond the resolution of man, when we allow that they are by nature formed to pity, love, and fear; and we with an impulse to ambition, danger, and adventure.

History has moreover recorded other similar instances of conjugal affection and fortitude in the fair sex. We shall content ourselves with selecting the two following.

The affectionate Panthea plunged a poignard into her heart, and expired upon the dead body of her husband Abradates, who had been slain in battle. They were both buried upon the spot in one common grave, and a monument was erected for them by Cyrus, which was standing in the time of Xenophon.

When

When Pætus was condemned to death for having been concerned in a conspiracy against Claudius, his consort Arria, having in vain solicited his life, persuaded him to destroy himself, rather than suffer the ignominy of falling by the hand of the executioner; and in order to encourage him to an act, to which it seems he was not much inclined, she set him the example. Drawing a dagger she plunged it in her breast, and then presented it to her husband with that memorable, I had almost said, says Pliny, that divine expression, *Pætus, it is not painful.*

Martial has celebrated this heroic action in the following famous epigram:

“ When from her breast chaste Arria snatch'd the sword,
And gave the deathful weapon to her lord;
My wound, she said, believe me does not smart;
'Tis thine alone, my Pætus, pains my heart.”

No. 25. BATTLE OF ACTIUM. Actium was a small city on the Ambracian gulf, north of the island of Cephalonia, Turkey in Europe. It is rendered memorable by the decisive victory which the navy of Octavius, afterwards Augustus Cæsar, obtained over the conjoined fleets of Anthony and Cleopatra. This event happened 31 years B. C. How many years have intervened between that period and the present year 1795? *Ans.* 1826 years.

N. B. Octavius was nephew to Julius Cæsar, mentioned in the preceding question. Mark Anthony was another celebrated Roman general and triumvir; that is, one of *three* persons who govern absolutely, and with equal authority, in a state.

There were two famous triumvirates at Rome; POMPEY, CÆSAR, and CRASSUS, established the first; and AUGUSTUS, ANTHONY, and LEPIDUS, the second. This latter triumvirate gave the last blow to the already expiring liberty of the republic. Augustus having vanquished Lepidus and Anthony, the triumvirate sunk into a monarchy. In the reign of this Augustus JESUS CHRIST was born.

CLEOPATRA was the celebrated queen of Egypt whose extraordinary beauty subdued Julius Cæsar and Mark Anthony; the latter of whom, it is generally thought, lost the empire of Rome by his attachment to this fascinating but vicious woman.

When Octavius took Alexandria, in Egypt, the year after the battle of ACTIUM, Anthony and Cleopatra put an end to their own lives, and Egypt became a Roman province.

No. 26. DESTRUCTION OF XANTHUS. Xanthus was the metropolis of Lycia, a district of Asia Minor, somewhat N. E. of the island of Rhodes. The inhabitants of this once famous city have acquired great celebrity in ancient history, like those of SAGUNTUM and NUMANTIA, spoken of in the 15th and 16th questions, and on a similar account; a renown which time shall not obscure, while the love of FREEDOM is esteemed an elevated and virtuous affection.

“ In liberty's defence, fight constant, single
“ Die with her—'tis no life if you survive her.”

These

These brave people, when the Romans became masters of their city, 42 years B. C. being determined not to survive the loss of liberty, destroyed their wives and children, set their city on fire, and perished in the conflagration, as their ancestors had before done, rather than submit to Harpagus, Cyrus's lieutenant, or to Alexander, the conqueror of Asia. How long did the destruction of Xanthus precede the year 1795? *Ans.* 1837 years.

No. 27. **BATTLE OF PHARSALIA.** Pharsalia was a town of Thessaly, now Janna, which gives name to a province of European Turkey; and in the neighbourhood is a large plain, long famous for the great and decisive battle between POMPEY and CÆSAR. The issue proved fatal to the former commander, who, after a total defeat, fled to Egypt, where he was treacherously slain, by order of Ptolemy the younger, then a minor.

See Rollin, v. vii. p. 250, &c. and also Plutarch's Life of Pompey.

A mercenary wretch, named Theodotus, one of the counsellors who was consulted how this brave commander should be treated, observed, "That dead men bite not;" a sagacious sentiment which probably enabled Gray to remark to Queen Elizabeth, concerning the unfortunate Mary, queen of Scots, "That dead women bite not."

See Tindal's Rap. v. vii. p. 491.

A poem of LUCAN, in which he gives an account of the civil wars of Cæsar and Pompey, bears the name of PHARSALIA. Lucan was put to death for being concerned in a conspiracy against the "imperial monster" NERO.

The engagement at Pharsalia took place 48 years B. C. How long is that ago this current year 1795? *Ans.* 1843 years.

N. B. After this battle CÆRO retired to Utica, near Tunis, in Africa; where, not choosing to survive the liberties of his country, he killed himself.

No. 28. A person owes to A £100, to B £240 10s. to C £784 12s. 6d. to D £500, to E £25 4s. 7d. and to F £19 19s. 6d. what do his debts amount to? *Ans.* £1670 6s. 7d.

No. 29. A man borrowed a certain sum of money, and paid in part £648 18s. 4d. the sum left unpaid was £769 17s. 8d. what was the original debt? *Ans.* £1418 16s.

No. 30. Laid out in beef 14s. 10d. $\frac{1}{2}$. in mutton 7s. 4d. $\frac{3}{4}$. in veal 8s. 10d. $\frac{1}{4}$. in lamb 5s. 4d. $\frac{1}{2}$. in vegetables 1s. 9d. $\frac{3}{4}$. in butter 1s. 4d. $\frac{1}{2}$. what was expended in all? *Ans.* £1 19s. 8d. $\frac{1}{4}$.

No. 31. Paid a baker's bill of £2 12s. 6d. a butcher's of £8 7s. 6d. a cheesemonger's of 18s. 9d. a milliner's of £5 18s. a mantua-maker's of £2 14s. 8d. and a hair-dresser's of £5 10s. what is the amount of the several sums? *Ans.* £26 1s. 5d.

No. 32. Expended in gloves 14s. 8d. in gauze £1 3s. 7d. in ribbands 2s. 6d. in stockings 16s. in lace £4 10s. in cambric £2 12s. 6d. in muslin £3 4s. and in silk £5 12s. what was the whole sum spent?
Ans. £18 15s. 3d.

No. 33. Bought 6 yards of mode, at 6s. 4d. per yard; 6 yards of lining, at 3s. 2d. per yard; 9 yards of lace, at 4s. 10d. per yard, and paid for making the cloak 2s. 6d. what is the amount of the whole? *Ans.* £5 3s.

No. 34. St. Paul's cathedral cost £800,000; the Royal-Exchange £80,000; the Mansion-House £40,000; Black-Friars-Bridge £152,840; Westminster-Bridge £389,000; and the Monument £13,000; what is the amount of these sums? *Ans.* £1,474,840.

No. 35. **MONEY AND COIN.** Coin differs from money as the species from the genus. Money is any matter, whether metal, wood, leather, glass, horn, paper, fruits, shells, or kernels, which have currency as a medium in commerce. Coin is a particular species, always made of metal, and struck according to a certain process called coining.

The precise epocha of the invention of money is unknown; but, from the necessity and obviousness of the thing, it is supposed to have taken place at a very early period of the world. Coins are evidently not of equal antiquity. In effect, the very commodities themselves were the first moneys, i. e. were current for one another by way of exchange. That purchases were thus made in the time of the Trojan war, we learn from Homer.

Each, in exchange, proportion'd treasure gave;
 Some brags, or iron, some an ox, or slave.
 For Diomed's brags arms, of mean device,
 For which nine oxen paid (a vulgar price)
 He gave his own, of gold divinely wrought,
 A hundred beeves the shining purchase bought.

POPE'S Homer.

Hence it may be inferred, that at the period alluded to, namely, about 1184 years B. C. the trade of countries was carried on by exchange in goods; brags, oxen, slaves, &c.

Coin is a piece of metal converted into money by the impression of certain marks or figures thereon.

Money was first made of gold and silver at Argos in Greece, 894 B. C. The first coining of silver took place at Rome 269, and of gold 206 years B. C.

Many silver coins of the ancient Anglo-Saxon kings have been found in England; and regular series of English coins have been collected even from the reign of Egbert to the present time. Shillings were first coined in England by Henry VII. in 1503. Fleetwood, in his *Chronicon Preciosum*, states the first coining of silver crowns and half crowns to have been in the reign of Edward VI. There were
 English

English crowns long before that period, but they were always of gold. Some pieces of gold were coined by Henry III. about the year 1257; but it is from the reign of Edward III. that the regular series of gold coinage commences. In 1344, that prince first struck *florens*, supposed to be so called from the best gold then coined at Florence, a state where the fine arts then began faintly to dawn. The floren was then worth six shillings, but it is now intrinsically worth nineteen, from the increased value of gold, and diminution of the value of silver coins. Gold coins, under various denominations, were afterwards struck by our different English princes. Charles II. issued half guineas, double guineas, and five guinea pieces. The first money coined in ancient Britain seems to have been copper; but, after the arrival of the Saxons in England, scarcely any copper money appeared here for many centuries; nor was there a general currency of English authorized copper money till the year 1672. Copper money was first used in Scotland and Ireland A. D. 1340. A considerable coinage of guineas took place in the reigns of Charles II. and James II.

Before the Revolution English money was in a most wretched condition, having been filed and clipped by natives as well as foreigners, inasmuch that it was scarcely left of half the value: the retrieving of this distressed state of our coin is justly regarded as one of the glories of king William's reign.

The British coinage is now wholly performed in the Tower of London, where there is a corporation for it, under the title of the *Mint*.

Political writers consider the increase of sums coined, as a certain proof of the increase of our national commerce. By George I. £8,725,921 sterling were coined. In the long reign of George II. £11,966,576; and in the first 24 years of his present majesty's reign, the sums coined amounted to £33,089,274 sterling; what is the amount of these sums? *Ans.* £53,781,771.

S U B T R A C T I O N

TEACHES to take a less number from a greater, and shews the difference or remainder.

E X A M P L E S.

No. 36. DESTRUCTION OF JERUSALEM. The destruction of Jerusalem by Nebuchadnezzar has been noticed in the 12th question. In the year 536 B. C. Cyrus king of Persia published the famous edict

edict* which permitted the return of the Jews to Jerusalem. This edict is supposed to have been obtained by the earnest solicitations of Daniel, who enjoyed great credit and authority at court. Cyrus had been mentioned by Isaiah† 200 years before his birth, as the person appointed by God for the deliverer of the captive Jews, by ordering the rebuilding of their temple, and their own restoration to Jerusalem and Judea. Shortly after the emission of this edict, the Jews departed, and began to rebuild their temple and city. After having completed these important undertakings, and sustained various disasters from the Egyptians, Syrians, and Romans, Jerusalem was at length finally destroyed by the latter people under TITUS, the son of Vespasian, who not only levelled the buildings to the ground, but even entirely razed the city with the plough; so that, in conformity to our Saviour's prediction‡, not one stone remained upon another. The numbers who perished in this siege, amounted, according to Josephus the Jewish historian, to above 1,000,000, and the captives to almost 100,000. The temporal state of the Jews ended with their city; immediately after whose subversion, the wretched survivors were banished, sold, and dispersed into all parts of the world, where they continue to this day a "standing miracle" in favour of the truth of our holy religion. This event occurred A. D. 70; how long is that ago, this present year 1795? *Ans.* 1725 years.

N. B. TITUS, says Josephus, seeing Jerusalem lie in ruinous heaps and rubbish, and reflecting on its former beauty, riches, and glory, could not forbear weeping, and cursing the obstinacy of the seditious Jews, who had forced him, against his inclination, to destroy so magnificent a city, and such a glorious temple, as was not to be paralleled in all the world.

It has been said of Titus, that he was truly the father of his people; for though Rome suffered various calamities during his reign, yet such was his equitable and mild administration, that he constantly preserved his popularity, and continued to his death (which happened A. D. 81)

The delight of men!

Very different were his predecessors, TIBERIUS, CALIGULA, CLAUDIUS, NERO, VITELLIUS—

Imperial monsters all. A race on earth
Vindictive sent, the scourge of human-kind!

No. 37. BATTLE OF HASTINGS. William, duke of Normandy, invaded England A. D. 1066, and defeated Harold, the reigning prince, at the battle of Hastings in Suffex. In this famous engagement, which lasted from morning till sun-set, there fell 15,000 Normans, and the loss on the side of the vanquished was yet more considerable, besides that of the king and his two brothers. William

* Ezra, chap. i.

† Isaiah xlv. 28. xlv. 1 and 13.

‡ Matt. xxiv. 2. Luke xix. 41—44. chap. xxi. 6 and 24.

had three horses slain under him. This victory put an end to the Saxon monarchy in England, which had continued for more than 600 years. Thus

The haughty Norman seiz'd at once an isle,
For which thro' many a century, in vain,
The Roman, Saxon, Dane, had toil'd and bled.

THOMSON.

The conquering despot became a most cruel tyrant to his English subjects. The nobility and gentry were despoiled of their lands and honours, which were given to the Normans; and, as Hume observes, the English name became a term of reproach.

The furious victor's partial will prevail'd.
All prostrate lay; and, in the secret shade,
Deep stung but fearful indignation gnash'd
His teeth. Of freedom, property, despoil'd,
And of their bulwark, arms; with castles crush'd,
With ruffians quarter'd o'er the bridled land,
The shivering wretches, at the curfeu* found,
Dejected shrunk into their fordid beds,
And thro' the mournful gloom of ancient times
Mus'd sad, or dream'd of better. Even to feed
A tyrant's idle sport the peasant starv'd†:
To the wild herd, the pasture of the tame,
The chearful hamlet, spiry town‡ was given,
And the brown forest roughen'd wide around.

THOMSON.

William, commonly called the conqueror, was the illegitimate son of Robert, the 5th duke of Normandy, by Arlotte, a furrier's daughter of Falaise; and so little was he ashamed of his birth, that he assumed the appellation of Bastard in some of his letters and charters.

Hume, v. I. p. 263.

William's mother was so infamous a character, that our obnoxious term harlot is supposed to be derived from her name.

The subjugation of England, of which we have now been speaking, took place in 1066. How many years have elapsed since that event to the present year 1795? *Ans.* 729 years.

No. 38. CROISADE. Croisade, crusade, or *holy war*, imports an expedition of "*banditti saints*," or *pretended* Christians, against

* The curfeu bell, from the French *courre feu*, which was rung every night at eight o'clock, to warn the *English* to extinguish their fires and candles, under the penalty of a severe fine.

† Many populous towns and villages, and indeed the whole country, for above thirty miles in compass, were laid waste to make the New Forest in Hampshire, for the king's deer and other game.

‡ No less than thirty-six churches were destroyed on this occasion. Hence Pope well remarks of this despot, that he

Stretch'd o'er the poor and church his iron rod,
And treated alike his vassals and his God.

infidels or heretics; particularly against the Turks for the recovery of Palestine or the Holy Land.

The first croisade was projected in 1094 by a visionary named Peter, commonly called the *hermit*, a native of Amiens in the department of Somme, late province of Picardy, France. This sanguinary enthusiast was patronized by his *holiness* pope Urban II. who convened a council of 310 *bishops* at Clermont in France, at which ambassadors of the chief *Christian* and *most Christian* potentates assisted.

At this time Europe was sunk into the most profound ignorance and superstition. The ecclesiastics had the greatest ascendancy over the human mind; and the "mole-eyed million," who at that period committed the most horrid crimes and disorders, knew of no other expiation than the observances imposed on them by the priests, who were the prime instigators of this frantic undertaking. All orders of men were therefore taught to consider the croisades as the only road to heaven; and the greatest criminals were forward in a service, which they imagined would be an expiation of all crimes; and the most enormous disorders were, during the course of these expeditions, committed by monsters inured to wickedness, encouraged by example, and impelled by necessity. And when Jerusalem was taken, these ruffians not only put the numerous garrison to the sword, but massacred the inhabitants themselves, without mercy, and without distinction. No age nor sex was spared, not even sucking children.

Twelve thousand wretches,
Receiv'd no mercy, void of all defence,
Trusting to plighted faith, to purchas'd safety,
Behold these naked victims in cold blood,
Men, women, children, murder'd, basely murder'd!
The streets ran dismal torrents. Drown'd in blood,
The very foldier sickens at his carnage.

THOMSON.

After this terrible slaughter, and while their hands were yet polluted with the blood of so many innocent persons, did these impious miscreants march to the holy sepulchre, where they sang anthems to the common Saviour of mankind. To that Saviour who is styled the *prince of peace*; who himself expressly declared to his disciples, that *he came not to destroy men's lives, but to save them*; at whose coming *peace* was sung, and at whose departure, *peace* was bequeathed! Such are the horrid effects of bigotry and superstition!

The croisaders distinguished themselves by crosses of different colours, worn on their clothes; ordered it is said by the council of Clermont; and were thence called *croises*, or cross-bearers, of whom contemporary authors tell us, there were 6,000,000. The English wore them white; the French, red; the Flemish, green; the Germans, black; and the Italians, yellow.

This motley group of profligate adventurers gained, at first, considerable advantages; but before the expiration of the 13th century they were entirely driven from their Asiatic possessions; and the enterprize remains a singular monument of human folly and wickedness. It must, however, be admitted, that to these flagitious expeditions we

owe

owe the extension of commerce, and a considerable melioration of the European governments.

See Robertson's Hist. of Charles V. and Mosheim's Ecc. Hist.

There were in all nine croisades, in which, according to Voltaire, upwards of 2,000,000 of human beings perished.

The first croisade took place in 1096; how long is that ago this present year 1795? *Ans.* 699 years.

No. 39. IRELAND SUBDUED. Ireland was formerly divided among a number of petty sovereigns; a circumstance which facilitated Henry the Second's conquest of that valuable island, in 1172, when it became an appendage to the English crown, and has ever since been governed by a lord-deputy, or lord-lieutenant, who acts by the authority and in the name of the king of England. The British parliament had formerly a considerable share in making laws for Ireland; but, during the American war, the Irish obtained an emancipation from all dependance upon that assembly.

The chief places in Ireland are Dublin, Cork, Kinsale, Waterford, Limerick, Belfast, Downpatrick, Carrickfergus, and Londonderry. Linen cloth, and salted provisions, are the first objects of Irish commerce.

How long has Ireland been annexed to the British dominions this present year 1795? *Ans.* 623 years.

N. B. Ireland was not erected into a kingdom till the year 1542, in the reign of Henry the VIIIth, when the English parliament confirmed an act passed in Ireland for that purpose. From this period the kings of England have inserted among their titles, that of *king of Ireland*, whereas before they were stiled only *lords*.

No. 40. UNION OF SCOTLAND AND ENGLAND. Caledonia was the ancient name of Scotland, whose king, James VI. succeeded to the throne of England, on the demise of Queen Elizabeth, which accession produced the union of the two crowns in 1603. In 1707, during Queen Anne's reign, both kingdoms were also united, under the denomination of Great-Britain.

This union was not, however, accomplished without much trouble, and some art and intrigue; and upwards of £20,000 were, it is said, distributed among the leading men in Scotland.

See Tindal's Rapin, v. xvi. p. 343.

Some of the principal places in Scotland are Edinburgh, Glasgow, Aberdeen, and Paisley. Herrings and other fish, with linens, gauzes, and stockings, are the chief articles of commerce.

How long have Scotland and England been united this present year 1795? *Ans.* 88 years.

No. 41. MAGNA CHARTA. Runnymede, a place between Staines and Windsor, is revered by every son of liberty, as the spot where the liberties of Englishmen received a solemn confirmation. There the tyrannical monster King John, "pressed by a band of noble

noble patriots," was *compelled* to sign the famous charter, which is now, by way of pre-eminence, called *MAGNA CHARTA*, and has generally been considered as the bulwark of English *LIBERTY*.

"To make assurance double sure," the ratification of this charter has been reiterated no less than thirty several times; but all this has not prevented it from being repeatedly violated.

The following elegant inscription for a column at Runnymede was written by Dr. Akenfide :

"THOU who the verdant plain dost traverse here
While Thames among his willows from thy view
Retires, O stranger ! stay thee, and the scene
Around contemplate well. This is the place
Where England's ancient BARONS, clad in arms,
And stern with conquest, from their *tyrant king*
(Then render'd tame) did challenge and secure
The CHARTER of thy FREEDOM. Pass not on
Till thou hast blest'd their memory, and paid
Those thanks which GOD appointed the reward
Of public virtue. And if chance thy home
Salute thee with a father's honour'd name,
Go call thy sons, instruct them what a debt
They owe their ancestors, and make them swear
To pay it, by transmitting down entire
Those sacred rights to which themselves were born."

The celebrated charter in question was wrested from John in 1215. How long has that happy event preceded 1795? *Ans.* 580 years.

No. 42. *DIEU ET MON DROIT*. Richard I. of England defeated the French at Gisors in the department of Eure, and late province of Normandy, France, A. D. 1198. That monarch's parole for the day was "*Dieu et mon droit, God and my right*," which has almost ever since continued the motto of the royal arms of England. How many years have intervened between that victory and the present year 1795? *Ans.* 597 years.

N. B. King William III. used the motto *Je maintiendray, I will maintain*; though he commanded the former to be retained on the great seal. The late Queen Anne used the motto, *Semper eadem, always the same*; which had been before adopted by Queen Elizabeth.

No. 43. BIRTH OF THE FIRST PRINCE OF WALES. When the Saxons made themselves masters of South-Britain, most of the ancient Britons retired to WALES, where they defended themselves with the utmost bravery against the invaders; and they afterwards made many vigorous attempts to maintain their liberties against the encroachments of the kings of England. Edward I. however, subdued the whole country, and annexed it to the crown of England. Perceiving that the Welsh were not entirely reconciled to this revolution, he sent his queen to be delivered in CAERNARVON castle. There she was brought to bed of a son, whom Edward very politically styled *Prince of Wales*; which title the heir to the crown of Great-Britain

Britain has borne almost ever since. The unfortunate Edward II. the first prince of Wales, was born in 1284. How long is that ago this present year 1795? *Ans.* 511 years.

N. B. Edward II. was cruelly butchered in Berkeley-Castle, Gloucestershire, at the instigation of his adulterous queen, the "she-wolf of France."

The shrieks of death, thro' Berkeley's roofs did ring,
Shrieks of an agonizing king.

GRAY's Bard.

Before Henry VIII. had any male issue, he created his daughter Mary, princess of Wales.

The revenue accruing to the prince of Wales, from his principality, is computed at about £8000 a year.

No. 44. ICH DIEN, and BATTLE OF CRESSY. The three ostrich feathers with the motto "*Ich Dien*," which in the German language, signifies "*I serve*," were added to the arms of the prince of Wales in 1346, after the famous battle of CRESSY in the department of the Streights of Calais, and late province of Picardy. In that battle, John, king of Bohemia, though blind, served as a volunteer in the French army, and was killed in the action. His crest was three ostrich feathers, with the above motto; which was assumed by Edward the black prince, son to King Edward III. in memorial of this great victory; and it has been ever since adopted by the heirs to the crown of England. How long have the several princes of Wales worn that badge of honour, this present year 1795? *Ans.* 449 years.

N. B. The ostrich is an African bird; wild, and of the shape of a goose, but much larger. The feathers of its wings are of great esteem, and used as an ornament for hats, beds, canopies, &c. When hunted, the ostrich, aided by its wings, runs with great velocity and strength, but never flies. It swallows bits of iron or brass, in the same manner as other birds will swallow small stones or gravel to assist in digesting or comminuting its food. The ostrich lays her eggs upon the ground, hides them under the sand, and leaves them for the sun to hatch.

The ostrich, silliest of the feather'd kind,
And form'd of God without a parent's mind,
Commits her eggs, incautious, to the dust,
Forgetful that the foot may crush the trust.

COWPER.

No. 45. BATTLE OF POITIERS. This place is situated in the department of Vienne, and late province of Poitou, in France. There Edward the black prince, son of Edward III. obtained a decisive victory over the French in 1356, and made John, king of France, and his son Philip, prisoners, whom he brought to England, where David Bruce, king of Scotland, was a captive at the same time. This last monarch had been defeated at the battle of Nevils-Cross, near Durham, by an army raised by Philippa, consort to King Edward, and commanded

commanded by Lord Piercy. How many years has the victory at Poitiers preceded the year 1795? *Ans.* 439 years.

N. B. It was the just-mentioned John, king of France, who to the utter confusion of some of his royal brethren, delivered that excellent sentiment, that *truth, outraged and expelled by the rest of mankind, should find an honourable and cordial reception in the breast of sovereigns.* In perfect unison with this noble avowal, is the declaration ascribed by our great bard even to a professed heathen.

Every drop of blood,
That every Roman bears, and nobly bears,
Is guilty of a several bastardy,
If he do break the *smallest particle*
Of any *promise* that hath pass'd him.

SHAKESPEARE.

No. 46. BATTLE OF AGINCOURT. Agincourt, a village in the French Netherlands, now included in the department of the Straights of Calais, is celebrated in our annals as the place where Henry V. defeated the French in 1415. The enemy, headed by the dauphin and all the princes of the blood, were four times more numerous than the English. The different situation of the two armies, on the eve of the engagement, is admirably described by Shakespeare.

Proud of their numbers and secure in soul,
The confident and over-lusty *French*
Do the low-rated *English* play at dice;
And chide the cripple tardy-gaited night,
Who, like a foul and ugly witch, does limp
So tediously away. The poor condemned *English*,
Like sacrifices, by their watchful fires
Sit patiently, and inly ruminate
The morning's danger: and their gesture sad,
Invest in lank-lean cheeks, and war-worn coats,
Presented them unto the gazing moon
So many horrid ghosts.

The poet's delineation is corroborated by the testimony of our best historians, who assure us, that the English army languished with sickness and fatigue, and were in great want of food; while the French were in perfect health, and plentifully supplied with provisions of every kind. But Henry's valour was such, as no danger could startle, and no difficulties oppose; nor was his policy inferior to his courage. His conduct in this perilous juncture bespoke him consummate in the art of commanding.

Forth he goes, and visits all his host,
Bids them good morrow with a modest smile,
And calls them brothers, friends, and countrymen.
Upon his royal face there is no note,
How dread an army hath enrouned him;
Nor doth he dedicate one jot of colour
Unto the weary and all-watched night,
But freshly looks and over-bears attaint,
With cheerful semblance and sweet majesty;

That

That every wretch, pining and pale before,
Beholding him, plucks comfort from his looks.
A largess universal, like the sun,
His liberal eye doth give to ev'ry one,
Thawing cold fear.

SHAKESPEARE.

The event of the battle was such as might be expected from the opposite conduct of its chiefs. Presence of mind, dexterity, courage, firmness, and precaution, were manifested on the part of the English: precipitation, confusion, and vain confidence, on the part of the French, who lost 10,000 men in the engagement, and had besides 14,000 taken prisoners. All the English who were slain did not, according to some historians, exceed 40; though other writers, with greater probability, make the number more considerable.

The victory of Agincourt was obtained by Henry V. on St. Crispin's day, Oct. 25, 1415. How long is that ago this present year 1795? *Ans.* 380 years.

No. 47. BATTLE OF TOWTON. Towton, a place situated S. E. of Tadcaster, in Yorkshire, is noted for an engagement between the deluded adherents of the houses of York and Lancaster. This famous battle is generally supposed to be one of the most fierce and bloody that ever happened in any domestic war. Both armies consisted of 100,000 men; above 36,000, some historians say 40,000, of whom were "made a prey for carrion kites and crows" in this fatal conflict, which terminated in a total victory on the side of the Yorkists. This event took place in 1461. How long is that ago this present year 1795? *Ans.* 334 years.

N. B. Persons at this period took different symbols. The partisans of the house of Lancaster chose the *red* rose as their mark of distinction; those of York were denominated from the *white*.

Then will I raise aloft the *milk-white* rose,
With whose sweet smell the air shall be perfum'd;
And in my standard bear the arms of *York*,
To grapple with the house of Lancaster.

SHAKESPEARE.

These intestine wars were therefore known over Europe, by the name of the quarrel between the *roses*. They originated with the descendants of Edward III. That monarch was succeeded by his grandson Richard II. who being deposed, the duke of Lancaster was proclaimed king by the title of Henry IV. in prejudice to the duke of York, the right heir to the crown; he being descended from Lionel, the *second* son of Edward III. whereas the duke of Lancaster was the son of John of Gaunt, the *third* son of King Edward. The accession of Henry to the throne occasioned several conspiracies, and the battle of SHREWSBURY, during his reign; and the animosities which subsisted between his descendants and those of the duke of York, afterwards filled the kingdom with civil commotions, and
deluged

deluged its plains with blood, particularly in the reigns of Henry VI. and Edward IV.

But little now avail'd
The ties of friendship: ev'ry man, as led
By inclination or vain hope, repair'd
To either camp, and breath'd immortal hate
And dire revenge. Now horrid slaughter reigns;
Sons against fathers tilt the fatal lance,
Careless of duty, and their native grounds
Disdain with kindred blood.

Here might you see
Barons and peasants on th' embattled field
Slain or half-dead in one huge ghastly heap
Promiscuously amass'd. With dismal groans
And ejulation in the pangs of death
Some call for aid neglected; some o'erturn'd
In the fierce shock lie gasping and expire,
Trampled by fiery couriers. Horror thus
And wild uproar and desolation reign'd
Unrespite.

PHILIPS.

No. 48. BATTLE OF BOSWORTH. Bosworth-Field, Leicestershire, is famous in our annals for the defeat and death of Richard III. in the year 1485, when his antagonist, Henry, earl of Richmond, was immediately proclaimed king by the style of Henry VII. Great crimes have been imputed to Richard, particularly the murder of Edward prince of Wales, son of Henry VI. the murder of Henry VI. the murder of his brother, George, duke of Clarence; the execution of Rivers, Gray, and Vaughan; the execution of Lord Hastings; the murder of Edward V. and his brother; and the murder of his queen.

But Horace Walpole, now earl of Orford, has examined the circumstances of each crime, and the evidence of each of the charges against him; and has endeavoured to prove, that some of the crimes imputed to him were contrary to Richard's interest, and almost all inconsistent with probability or with dates, and some of them involved in material contradictions. It is certain, that the partizans of the house of Tudor took much pains to blacken Richard's memory; and that sufficient evidence has not been produced of the crimes charged against him; nor does it appear, that his person was so deformed as it has been represented.

The engagement in Bosworth-Field was the *thirteenth* and *last* battle between the houses of York and Lancaster. In these sanguinary and unnatural contests, which, as an eminent writer observes, arose from the *folly* of an attachment to certain persons and families as possessed of some *inherent right* to kingly power, many of the most ancient families of the kingdom were entirely extinguished, and no less than 100,000 human beings lost their lives!!

Men

Men of one nature, of one substance bred,
 Who met in these intestine shocks
 And furious close of civil butcheries;
 Making war upon themselves, blood against blood,
 Self against self. O most preposterous
 And frantic outrage.

SHAKESPEARE.

How long has the battle of Bosworth preceded the year 1795?
Ans. 310 years.

N. B. The interests of the houses of York and Lancaster were blended by the marriage of Henry VII. and the princess Elizabeth, daughter of Edward IV.

Richmond Henry, by nuptial rites
 Did close the gates of Janus*, and remove
 Destructive discord. Now no more the drum
 Provokes to arms, or trumpet's clangour shrill
 Affrights the wife's, or chills the virgin's blood.

PHILIPS.

No. 49. PRINTING. The art of printing, at least in Europe, is a modern discovery; and who were the first inventors of European printing, in what city, and what year, it was at first set on foot; has been long disputed among the learned. In effect, as the Grecian cities contended for the birth of HOMER, so do the German cities for that of printing. MENTZ, HAERLEM, and STRASBURGH, are the warmest on this point of honour: the first has always had the majority of voices; but the question, in reality, is not yet justly decided. MENTEL of Straßburgh, GUTTENBERG and FAUST of Mentz, and COSTER of Haerlem, are the persons to whom this honour is severally ascribed by their respective countrymen; and they have all had their advocates among the learned. The introduction of this invaluable art into this kingdom is justly ascribed to WILLIAM CAXTON, a merchant of London, who had acquired a knowledge of it in his travels abroad. The bare mention of printing should fill every modern with gratitude to Divine Providence for the communication of so invaluable an art. For, if man's intellect be the faculty which bears the principal and most marked traits of the CREATOR's image, how inestimable every aid for facilitating the operations, and forwarding the perfection of that power! This assistance the invention of printing has administered in a most signal manner, by diffusing among every class of men a degree of knowledge, which, previously to the discovery in question, is known to have been confined to very few. Before the invention of printing, it was hardly

* Janus is said to have been the most ancient king who reigned in Italy. After death he was ranked among the gods, and worshipped by the Romans, on account of the civilization which he had introduced among the wild inhabitants of Italy. His temple, which was always open in times of war, was shut only three times during above 700 years. One of these periods was in the time of Augustus, in whose reign, as we have before observed, Jesus Christ was born.

possible, from the great expence of manuscripts, for the lower classes to obtain even an imperfect knowledge of the sacred writings.

This single consideration places the importance and benefits of printing in a very distinguished point of view, and with a pre-eminence so decisive, that it precludes the necessity of dilating on the other advantages, however numerous and extensive, which not only derive their origin from the same source, but are indebted to it for stability and duration. In a word, the art of PRINTING confers immortality on heroes, patriots, legislators, and philosophers; on the best, and greatest, and wisest of the human species! For, as an elegant poet remarks,

Sepulchral columns wrestle but in vain
With all-subduing time; his cank'ring hand,
With calm deliberate malice, wafteth them:
Worn on the edge of days, the brass consumes,
The busto moulders, and the deep cut marble,
Unsteady to the tool, gives up its charge.

BLAIR.

Rightly then does our immortal Shakespeare exhort mankind

To let their fame
Live register'd upon our *printed* books.

CAXTON introduced the knowledge of printing into England in 1471. How long is that ago this present year 1795? *Ans.* 324 years.

No 50. PARISIAN MASSACRE. The Parisian massacre was carried on with such perfidy, and executed with such cruelty, as would surpass all belief, were it not attested with the most undeniable evidence. In the year 1572, in the reign of Charles IX. many of the principal Protestants were invited to Paris, under a SOLEMN OATH of safety, upon occasion of the marriage of the king of Navarre, the head of the protestant party, with the French king's sister. Though doomed to destruction, they were received with caresses, loaded with honours, and treated, for seven months, with every possible mark of familiarity and confidence. In the midst of their security, the warrant for their destruction was issued by their sovereign, on whose word they had relied; and in obedience to it, their countrymen, their fellow-citizens, and companions, imbrued their hands in their blood. This horrid butchery began on the 24th of August, being Bartholomew's day, on which, and the two succeeding days, above 10,000 Protestants, without distinction of age, or sex, or condition, were murdered in Paris alone. A butcher boasted to the king, that he had hewn down 150 in one night; and De Thou, a celebrated French historian, affirms, that he had often, with the utmost horror, seen a goldsmith, named Crucé, who boasted of having killed 400 with his own hands. A like carnage ensued in the provinces, where upwards of 25,000 more were destroyed by those blood-thirsty miscreants. This horrid deed was, however, applauded in *Spain*; at *Rome*, solemn

lemn thanksgivings were offered to God for its success; and medals were struck at *Paris* in honour of it.

'The horrid massacre of Paris happened in 1572; how long is that ago this present year 1795? *Ans.* 223 years.

No. 51. IRISH MASSACRE. This tragical event took place in the year 1641. By the instigation of the Romish priests, the persons, houses, cattle, and goods, of the English in Ireland were seized; an universal massacre ensued; and neither age, nor sex, nor infancy, were spared; all conditions were involved in one general ruin. "After rapacity had fully exerted itself," says Mr. Hume, "cruelty, and the most barbarous, that ever, in any nation, was known, or heard of, began its operations."—"Death was the lightest punishment inflicted by these more than barbarous savages. All the tortures which wanton cruelty could devise, all the lingering pains of body, the anguish of mind, the agonies of despair, could not satiate" their revenge. By some accounts the number who were slaughtered in this massacre are stated to amount to one hundred and fifty, or two hundred thousand; but by other accounts they are computed at only forty thousand.

How long has the Irish massacre preceded the present year 1795? *Ans.* 154 years.

No. 52. SPANISH ARMADA.

There was a time
When all the pride of Spain, in one dread fleet,
Swell'd o'er the lab'ring surge, like a whole heaven
Of clouds, wide roll'd before the boundless breeze.
Gaily the splendid armament along
Exultant plough'd, reflecting a red gleam,
As sunk the sun o'er all the flaming vast;
Tall, gorgeous, and elate, drunk with the dream
Of easy conquest*; while with bloated war,
Stretch'd out from sky to sky, the gather'd force
Of ages held in its capacious womb:
But soon, regardless of the cumbrous pomp,
The dauntless BRITONS came, a gloomy few!
With tempest black the goodly scene deform'd,
And laid their glory waste†. The bolts of fate
Resistless thunder'd thro' their yielding sides;
Fierce o'er their beauty blaz'd the lurid flame;
And seiz'd in horrid grasp, or shatter'd wide
Amid the mighty waters, deep they sunk‡.

* No doubts were entertained, but such vast preparations, conducted by officers of consummate skill, must finally be successful. And the Spaniards, ostentatious of their power, and elated with vain hopes, denominated their navy the *Invincible Armada*.

† Lord Howard of Effingham had the command of the English navy: Drake, Hawkins, and Frobisher, the most renowned seamen in Europe, served under him.

‡ The English, in an engagement in the Channel, took or destroyed about twelve of the enemy's ships, besides doing great damage to many others.

Then,

Then, too, from every promontory chill,
 Rank fen, and cavern, where the wild wave works,
 There came confederate winds, and swell'd a storm*.
 Round the glad isle, snatch'd by the vengeful blast,
 The scatter'd remnants drove; on the blind shelve
 And pointed rock, that marks the indented shore,
 Relentless dash'd, where loud the northern main
 Howls thro' the fractur'd CALEDONIAN isles†.

THOMSON.

How many years have elapsed between the glorious victory now under consideration, which was obtained in 1588, and the present year 1795? *Ans.* 207 years.

No. 53. GUNPOWDER TREASON. This conspiracy is one of the most memorable events that history has conveyed to posterity, containing at once, as Hume remarks, a singular proof both of the strength and weakness of the human mind; its widest departure from morals, and most steady attachment to religious prejudices. This detestable plot was formed by the Roman-Catholics to blow up the Parliament-House, and consign to inevitable destruction, the king (James I.) lords, and commons, there assembled; a fact as certain as it appears incredible. The principal conspirators were Winter, Catesby, Percy, and Fawkes. This last undertook to set fire to the train of gunpowder, but was apprehended the preceding evening.

Several of the conspirators were executed at the west end of St. Paul's, Jan. 30, 1606; others, among whom was Fawkes, the ensuing day, in the Old-Palace-Yard, Westminster; and many Jesuits, their accomplices, suffered death in the course of the year at Tyburn.

Guy Fawkes and his associates assembled, and concerted the Gunpowder-Plot, at the Old King's-Head-Tavern, Leadenhall-Street. Part of this house yet remains, and is said to be the oldest building in London, having escaped all the conflagrations that have happened. It has lately been new fronted, and is occupied by Mr. Barrow, biscuit-baker.

* Queen Elizabeth was so sensible of this signal interposition of Providence, in favour of our "sea-girt isle," that in the reverse of a medal which was struck to perpetuate the memory of the defeat of the Armada, she caused a fleet to be represented beaten by a tempest, and falling foul upon one another, with that religious inscription, "*Afflavit Deus, et dissipantur*, He blew with his wind, and they were scattered."

† The remaining part of the Armada, in attempting to return home by sailing northwards, was overtaken by a violent tempest near the Orkneys, and many of the ships were miserably wrecked either on the western isles of Scotland, or on the coast of Ireland. Not half of the navy returned to Spain.

They trust in navies, and their navies fail,
 God's curse can cast away ten thousand sail:
 His pow'r secur'd us when presumptuous Spain
 Baptiz'd her fleet invincible in vain.

COWPER.

The

The Gunpowder-Plot was to have been executed Nov. 5, 1605. How long is that ago this present year 1795? *Ans.* 190 years.

No. 54. **DECOLLATION OF CHARLES I.** Charles I. in consequence of his tyrannical administration, was at length publicly executed, at the front of his own palace at Whitehall. He had early imbibed very despotic principles, and as he found the parliaments which he called at the beginning of his reign not sufficiently tractable, he resolved to endeavour to govern without any parliament. Accordingly he assembled no parliament for upwards of eleven years; and, during that whole period, his government was little better than one continued violation of the rights of the people. He involved his subjects in all the horrors of civil war, merely to support his own unjust and tyrannical claims; and yet he has been frequently styled **THE BLESSED MARTYR**. But he was certainly a martyr to nothing, but to his obstinacy, and his despotic disposition. Voltaire, however, said, that every king in Europe got up with a crick in his neck on the 30th of January. When Quin, the celebrated actor, was once asked, by what law of the land Charles was beheaded, he replied, "By all the law that he had left in it." The day of Charles's decapitation has been long kept as a solemn fast, but some persons have been of opinion, that it ought rather to have been kept as a festival. A motion was made some years ago, in the House of Commons, for setting aside the observance of the 30th of January, when it was remarked by one of the members, "That the day ought ever to be remembered, that future kings might know, what a brave and a free people dare do."

King Charles I. was beheaded January 30, 1649; how long is that ago in 1795? *Ans.* 146 years.

No. 55. **ACT OF UNIFORMITY.** In the immoral and licentious reign of Charles II. an act was passed, enjoining an uniformity in matters of religion; and, among other injunctions, requiring all ministers, who would continue in the church, or be admitted to livings, to declare their assent and consent to a new edition of the Common-Prayer-Book, *before many of them could have an opportunity of seeing it.* This was called the **ACT OF UNIFORMITY**, and caused upwards of 2000 pious and conscientious ministers to quit the church of England, and take their lot among the Dissenters, who hereby received so large an addition, that they may be considered as the fathers of the dissenting interest. The glorious stand which these good men made in favour of Christian liberty, did great honour to the Protestant faith, and tended, more than a thousand other arguments, to convince a profligate age of the **REALITY OF RELIGION**, and the regard that is due to the rights of conscience.

The *Nonconformist's Memorial* contains a concise view of the lives and characters of these ejected worthies.

The great Mr. Locke, speaking of this arbitrary and impolitic act, observes, that " Bartholomew's day was fatal to our church and religion, in throwing out a very great number of *worthy, learned, pious,* and *orthodox* divines."

This event took place August 24, 1662, (just 90 years after the massacre of Paris) how long is that ago this present year 1795?
Ans. 133 years.

No. 56. **ABDICATION OF JAMES II.** The popish bigot and TYRANT James II. guided by the Jesuit Peters, his confessor, and the infamous chancellor Jefferies, after endeavouring to subvert the constitution of the kingdom, by breaking the original contract betwixt the king and people, and violating the fundamental laws of the realm, more especially those enacted for the security of the Protestant religion, being unable longer to face the just resentment of his much injured subjects, abdicated the government in 1688, and escaped to France.

The tyrant from our shore
Like a forbidden dæmon fled,
And to eternal exile bore
Pontific rage and vassal dread:
There sunk the mould'ring Gothic reign;
New years came forth, a lib'ral train!
Call'd by the PEOPLE'S great decree.

AKENSIDE.

James II. died at the palace of St. Germain, near Paris, in 1701; how long did he survive his abdication? *Ans.* 13 years.

No. 57. **GLORIOUS REVOLUTION.** The brave prince of Orange*, afterwards WILLIAM III. landed at TORBAY in Devonshire, in 1688. He was invited over to England, to protect the country from the tyrannical oppressions of James II. This interesting event has been styled in the British history, the GLORIOUS REVOLUTION, and king William is much celebrated for his share in the transaction.

To save Britannia, lo!
Than hero more! the patriot of mankind!
Immortal NASSAU came.

* Orange, an ancient and considerable town, is the capital of the principality of the same name, in the department of Drome and late province of Dauphiny, France. It devolved to the house of Nassau in 1531, but was seized by Lewis XIV. during the war with king William. On the demise of this last monarch in 1702, it was claimed by the king of Prussia, who in 1713 exchanged it for Guelders in the Netherlands.

Arriv'd; the pomp, and not the waste of arms,
 His progress mark'd.
 His was the bloodless conquest of the heart;
 Shouts without groans, and triumph without war.

THOMSON.

Among the principal promoters of the Revolution were the earls of Devonshire and Danby, with the Lord Delamer. They met privately at Whittington, a village on the edge of Scarfsdale, in Derbyshire; and the house in which they assembled has ever since been denominated the Revolution-House. A print of this distinguished cottage may be seen in the Gent. Mag. for Feb. 1789.

Where Scarfsdale's cliffs the swelling pastures bound,
 ————— There often let the farmer hail
 The sacred orchard which imbow'rs his gate,
 And shew to strangers passing down the vale
 Where CAV'NDISH, BOOTH, and OSBORNE sat,
 When bursting from their country's chain
 Ev'n in the midst of deadly harms,
 Of papal snares and lawless arms,
 They plann'd for FREEDOM this her noblest reign.

AKENSIDE.

By this exclusion of King James, and the subsequent transactions, particularly the ratification of the Bill of Rights, the rights of the inhabitants of Britain were more clearly ascertained, and better established, than at any preceding period. "By the Revolution future English monarchs were instructed, that government was not instituted for the benefit of the prince, but of the people; that he is accountable to them for the execution of the trust which they have reposed in him; that opposition to tyranny is not only defensible, but meritorious; and that the welfare and dignity of a nation depend upon their firm and intrepid adherence to the great principles of public freedom, of just and equal liberty."

The Revolution took place in 1688; how long is that ago this present year 1795? *Ans.* 107 years.

No. 58. **BANKRUPT.** A bankrupt is a person in debt beyond the power of payment; the term is supposed by some to be derived from the Italian *banco rotto*, *broken bench*; while others assert, that it comes from the French *banqueroute*, which signifies a breaking or failing in the world. The supporters of the former etymology assign the subsequent plausible relation in favour of their opinion. The bankers, or money-changers of Italy, had *benches* in the exchange, and other public places, on which they told their money, and wrote their bills of exchange; and when any one became insolvent, his *bench was broken*, to advertise the public, that he was no longer in a condition to continue his business.

Suppose the effects of a bankrupt amount to £500, and he owes to A £300 19s. 6d. to B £519 7s. 6d. to C £218 14s. 5d. and to D £25 10s. what is the deficiency? *Ans.* £564 11s. 5d.

No. 59.

No. 59. **MERCHANTS.** Merchants are persons who traffic to foreign countries; and there are not, as Mr. Addison justly remarks, more useful members in a commonwealth than merchants. They knit mankind together in a mutual intercourse of good offices, distribute the gifts of nature, find work for the poor, augment the wealth of a nation, and increase the comforts and conveniences of life. Our English merchant converts the tin of his own country into gold, and exchanges his wool for rubies. The Mahometans are clothed in our British manufacture, and the inhabitants of the frozen zone warmed with the fleeces of our sheep. "How superior, says an ingenious writer, is such a man, in the eye of reason and of heaven, to the NOBLE of a thousand years, who has received his hereditary possessions without a single effort of his own, and enjoys them, even in the most favourable description, under the influence of hereditary pride, elegant passion, or refined luxury!"

To censure trade,
Or hold her busy people in contempt,
Let none presume.
Trade to the good physician gives his balms;
Gives cheering cordials to th' afflicted heart;
Gives to the wealthy delicacies high;
Gives to the curious works of nature rare;
And when the priest displays, in just discourse,
HIM, the all-wise CREATOR, and declares
His presence, pow'r, and goodness, unconfin'd,
'Tis trade, attentive voyager, who fills
His lips with argument.

DYER.

Suppose a merchant commencing business with £10,000, gains £1,099 15s. 6d. in the course of a year, and at the expiration of that period distributes in "meek-eyed, heaven-descended charity" the sum of £114 16s. 4d. what is the balance remaining in hand? *Ans.* £10,984 19s. 2d.

No. 60. **POST-CHAISES.** Post-Chaises were invented by the French, and, according to Mr. Granger, introduced into England by Mr. William Tull, son of the well-known writer on husbandry. A sort of light, open chaise, chariot, or calash, was, however, in use among the Romans, and said to have been invented by the Emperor Augustus, or Trajan.

If a post-chaise and pair of horses cost £120 10s. and the latter be valued at £52 12s. what is the price of the chaise? *Ans.* £67 18s.

No. 61. **SEDAN-CHAIRS.** Sedan-Chairs were first introduced in London in 1634, when Sir Sanders Duncomb obtained the sole privilege to use, let, and hire a number of such covered chairs, for fourteen years. Dr. Johnson, in his Dictionary, conjectures, that they were originally made at Sedan, a strong city in the department of the Ardennes, and late province of Champagne, France. The first sedan-chair seen in England was in the reign of James I. and was used by
the

the duke of Buckingham; to the great indignation of the people, who exclaimed, *that he was employing his fellow-creatures to do the service of beasts.*

Suppose an American merchant should remit goods to his correspondent in London to the amount of £200, with orders for one sedan-chair at £25 10s. another at £18 18s. and a third at £42, to be sent in return, how much would remain due to the American? *Ans.* £113 12s.

M U L T I P L I C A T I O N

IS a compendious kind of addition, consisting of three terms called the **MULTIPPLICAND**, **MULTIPLIER**, and **PRODUCT**. The first is the number given to be multiplied; the second that by which the work is performed; and the third the result of the operation.

E X A M P L E S.

No. 62. **ANNUAL REVOLUTION OF THE EARTH.** The earth on which we live is nearly of a spherical form*. This is demonstrated by its shadow in eclipses of the moon being bounded by a circular line; by the manner of seeing objects at a distance, their summits being visible when their bases are intercepted by the horizon; and, lastly, by the several voyages which have been made round it.

A form orbicular how fit to weigh
The golden gift of light and heat to all
The scatter'd districts with impartial scale!
Hence too the waters, those meand'ring veins
O'er the earth's body interspers'd, with just
Partition flow salubrious. To the winds,

* I have said nearly of a spherical form, because it has been discovered that the earth, though nearly a sphere, or ball, is not perfectly so. This matter occasioned considerable disputes between the philosophers of the last century, among whom Sir Isaac Newton and Cassini, a French astronomer, were the heads of two different parties. Sir Isaac demonstrated from mechanical principles, that the earth was an oblate sphere, or that it was flatted at the poles, or north and south points, and jutted out towards the equator. The French philosopher asserted quite the contrary. But the matter was put to a trial by the king of France in 1736, who sent out a company of mathematicians and astronomers towards the north pole, and likewise towards the equator, in order to measure a degree, or the 360th part of a great circle in these different parts; and, from their report, the opinion of Sir Isaac Newton was confirmed beyond dispute.

Balmy refiners of the winnow'd air,
 This most commodious figure yields a pass
 Free, unobstructed. Had another shape
 Been giv'n, impending angles had oppos'd
 The breezy currents, and mankind had droop'd
 Sickly, and faint from th' intercepted gale.

BALLEY.

The earth has two motions; one round its own axis, which is performed in twenty-four hours: the other round the sun, which it accomplishes in a year. Astronomers assert, that, in the last-mentioned course, it moves with the velocity of 68,000 miles an hour. How many miles, according to this calculation, does it travel in its annual revolution, admitting the year to contain 8,766 hours? *Ans.* 596,088,000 miles!!

No. 63. COACHES. Coaches, as well as almost all other kinds of carriages which have been since made in imitation of them, were invented by the French, and the use of them is of modern date. Under Francis I. who was contemporary with our Henry VIII. there were only two coaches; that of the queen, and that of Diana, natural daughter of Henry II. The kings of France before they used these machines, travelled on horseback; the princesses were carried in litters, and ladies rode behind their squires. Till about the middle of the last century there were but few coaches in Paris; but prior to the late revolution in that capital, they were estimated at 15,000, exclusive of hackney-coaches, and those let out for hire.

The introduction of coaches into England is ascribed by Mr. Anderson, in his History of Commerce, to Fitz-Allen, earl of Arundel, in the year 1580; and about the year 1605, they were in general use among the nobility and gentry in London.

In the beginning of the year 1619, the earl of Northumberland, who had been imprisoned ever since the Gunpowder-Plot, obtained his liberation. Hearing that Buckingham was drawn about with six horses in his coach (being the first that was so) the earl put on eight to his, and in that manner passed from the Tower through the city.

Rapin, vol. viii. p. 156.

Hackney-coaches, which, according to Maitland, obtained this appellation from the village of HACKNEY, first began to ply in the streets of London, or rather to wait at inns, in 1625, and were then only twenty in number. So rapid, however, has been their increase since that period, that London and Westminster now contain 1000, each of which pays to government 10s. a week.

Supposing each coach to earn 14s. a day on an average, which is deemed a very moderate computation, the sum of £700 sterling is expended daily in the metropolis, in coach-hire, exclusive of what is spent in glass-coaches, or unnumbered ones. What is the weekly, monthly, and yearly expenditure in the use of these vehicles? *Ans.* £4,900 per week; £19,600 per month; and £255,500 per year; reckoning 13 months 1 day to the year.

MULTIPLICATION OF MONEY,

OR

COMPOUND MULTIPLICATION.

MULTIPLICATION of money, applied to business, teaches how to find the value of any proposed number of yards, pounds, &c. at any given price per yard, per pound, &c.

RULE. Multiply the price of one yard, pound, &c. by the number of yards, pounds, &c. the value of which is required in the question.

E X A M P L E S.

No. 64. ANCHOVIES. The anchovy is a small sea-fish, much used by way of sauce or seasoning. It is caught in the months of May, June, and July, in the Mediterranean, on the coasts of Catalonia in Spain, and the late province of Provence, now forming the departments of Var, the Lower Alps, and the mouths of the Rhone, in France; and particularly near the small island of Gorgona in the Tuscan sea, adjacent to Leghorn.

In years of plenty 20,000 quintals of anchovies have been exported in a year from Malaga.

Mr. Townsend's Journey through Spain, vol. iii. p. 30.

What is the value of two pounds of anchovies at 2s. 7d. $\frac{3}{4}$. per pound? *Ans.* 5s. 3d. $\frac{1}{2}$.

No. 65. CAPERS. Capers are pickled and brought to England annually from Italy, and the Mediterranean; particularly from about Toulon, in the south of France; from whence it is said the greatest part of the capers sold throughout Europe are brought; excepting some small salt ones from Majorca, and a few flat ones from about Lyons. The plant which produces them is a low shrub, which generally grows among rubbish, and out of the joints of old walls, and the fissures of rocks.

Capers from the rock, that prompt the taste
Of Luxury.

DYER.

Lady Craven, who styles the caper a pretty stinking creeper, says it grows wild where it is permitted to take root: and Dr. Smollett observes, that this plant requires no culture. In England broom-buds are frequently substituted for capers.

Capers

Capers are chiefly used in sauces, but sometimes in medicine, as being very aperitive, and employed in certain compositions for diseases of the spleen.

What is the value of 3 pots of capers at 3s. 4d. per pot?
Ans. 10s.

No. 66. CAT-GUT. This is a denomination given to small strings for fiddles and other instruments, made of the intestines of sheep or lambs dried and twisted, either singly, or several together. They are used also by watch-makers, cutlers, turners, and other artificers. Great quantities are made at Lyons in France, and in Italy.

What is the value of 4 rings of fiddle-strings at 6d. $\frac{3}{4}$. each?
Ans. 2s. 3d.

No. 67. CORK. Cork is the bark of a tree of the same name, a species of the oak. It grows in great abundance on the Pyrenean mountains and in other parts of Spain, in France, and in the north of New England. The Spaniards make what we call *Spanish black*, used by painters, of burnt cork. The Egyptians made coffins of cork, which being lined with a resinous composition, preserved dead bodies uncorrupted. But the chief employ of cork is to put in shoes, flippers, &c. and particularly to stop bottles.

Be sure, nay very sure, thy cork be good;
Then future ages shall of Peggy tell,
That nymph who brew'd and bottled ale so well.

KING.

What are five gross of corks worth, at 3s. 9d. $\frac{3}{4}$. per gross?
Ans. 19s. 0d. $\frac{3}{4}$.

No. 68. CAMBLET. Camblet is a stuff sometimes made of wool, sometimes of silk, and sometimes of hair, especially that of goats, with wool or silk. The true or oriental camblet is fabricated from the pure hair of a sort of goat, described by travellers as an extraordinary species, the most beautiful in the world; their hair being of a silvery whiteness, as fine as silk, and naturally curled in locks eight or nine inches in length.

Mr. Tournefort asserts, that these goats are peculiar to Angora, in Turkey in Asia, and the adjacent districts; a declaration sanctioned by the concurrence of Mr. Coxe.

Trav. vol. iii. p. 413.

We have no camblets made in Europe of the goats hair alone; it being found necessary to add a mixture of woollen thread. England, France, Holland, and Flanders, are the chief places of this manufacture. But Brussels exceeds them all in the beauty and quantity of its camblets; and those of England are reputed the second.

Some give the name of mohair to the camblets or stuffs made of the hair now under consideration.

What is the value of 6 yards of camblet at 2s. 11d. $\frac{1}{2}$. per yard?
Ans. 17s. 9d.

No. 69.

No. 69. **BRAWN.** Brawn, in the culinary art, signifies the fleshy, or musculous parts of a hog, boned, rolled up, or collared, boiled, and, lastly, pickled for winter use.

Canterbury and Shrewsbury have been long noted for the superior quality of their brawn; and of late brawn has been made at Oxford.

What are 7 collars of brawn worth, at 19s. 11d. $\frac{1}{4}$. per collar?
Ans. £6 19s. 10d. $\frac{1}{4}$.

No. 70. **COTTON.** Cotton is a plant or shrub of which there are several varieties, and not a few distinct species, propagated in the gardens of the curious among us.

The common sort is the herby or shrubby cotton, which is cultivated very plentifully in Candia, Lemnos, Cyprus, Malta, Sicily, Naples, and also between Jerusalem and Damascus, whence the cotton is brought annually into these northern parts of Europe. It is sown on ploughed lands in spring, and cut down as our corn in harvest time, being an annual plant.

The cotton is the wool which encloses or wraps up the seeds, and is contained in a kind of brown husk or seed-vessel, growing upon this shrub. It is from this sort that the vast quantities of cotton are taken that furnish our parts of the world. One very fine sort of cotton is a native of the East and West-Indies: and there are two sorts of cotton trees which grow in Egypt, and often arrive to a great size.

Cotton makes a very considerable article of commerce; being used for various purposes, and furnishing various cloths, muslins, calicoes, dimities, and hangings; besides that it is frequently joined with silk and flax, in the composition of other stuffs.

What are 8 pounds of cotton worth at 2s. 8d. $\frac{1}{2}$. per pound?
Ans. £1 1s. 8d.

No. 71. **FIGS.** Figs are a luscious soft fruit, the produce of the fig-tree. They are moderately nourishing, grateful to the stomach, and easier of digestion than any of the other sweet fruits; and accordingly are used in medicine, as ingredients in pectoral decoctions, and in lenitive electuaries. They are also applied externally, to soften, digest, and promote maturation.

The best figs are the produce of Turkey, Italy, Spain, the southern part of France, &c. The islands in the Archipelago yield figs in great abundance, but of an inferior quality.

The ancients made use of the juice or sap of a fig for rennet, to cause their milk to coagulate.

The fig's prest juice, infus'd in cream,
 To curds coagulates the liquid stream.

POPE'S Homer.

What is the value of nine pounds of figs at 7d. $\frac{1}{2}$. per pound?
Ans. 5s. 7d. $\frac{1}{2}$.

No. 72.

No. 72. **FULLERS-EARTH.** Fullers-earth is a marle of close texture, extremely soft and unctuous to the touch: when dry it is of a greyish brown colour, in all degrees, from very pale to almost black, and generally has a greenish cast in it. It is dug in great plenty in several parts of England; but the greatest quantity and the finest earth of this kind in the world is found near Wooburn in Bedfordshire. Our superiority in the goodness of this valuable article is assigned as one great reason why the English surpass all other nations in the woollen-manufacture: it being absolutely necessary for the well dressing of cloth.

The fleece prepar'd, which oil-imbibing earth
Of Wooburn blanches.

DYER.

On this account it is made a contraband commodity, and the exportation made equally criminal with that of exporting wool.

When mixed with vinegar, fullers-earth disperses pimples, checks inflammations, and cures burns.

What are 10 bushels of fullers-earth worth at 1*s.* 9*d.* $\frac{1}{2}$. per bushel?
Ans. 17*s.* 11*d.*

No. 73. **INDIGO.** Indigo is a plant chiefly cultivated in the English plantations in America, and by the French; though the Jamaica wild indigo, and the Carolina indigo, have been used with advantage. From this plant is extracted a dyer's drug, of a deep blue colour, brought to us from the West-Indies and America. It is also made in the East-Indies, particularly in the dominions of the Great Mogul, and this is said to be the best.

The indigo of the West-Indies probably derived its origin, as it doubtless does its name, from the elder India of the East, where it has long stamped its brilliant and beautiful dyes on the fine linens and calicoes manufactured in the looms of that most ancient empire. Native of a fiery clime, this plant will shoot vigorously amid the sands of those parched and barren savannahs in which other vegetables would inevitably perish; nor does it wholly expire when deprived, for long intervals, of those genial dews and refreshing rains which, at times descending in grateful abundance, flush with such transcendent verdure and beauty the luxuriant valleys and painted gardens of the gaudy tropic.

Indigo is used by dyers, calico-printers, and sometimes by painters, for paper hangings; and, finally, by laundresses to impart a bluish cast to their linen.

What are 11 pounds of indigo worth at 2*s.* 3*d.* $\frac{1}{2}$. per pound?
Ans. £1 5*s.* 2*d.* $\frac{1}{2}$.

No. 74. **IPECACUANHA.** This American root is the mildest and safest emetic that has yet been discovered. It is a little wrinkled root about the thickness of a moderate quill; rough, dense, and firm. One sort is of a dusky greyish colour, on the surface, and of a paler grey when broken, brought from Peru, by way of Porto-Bello: the other,

other, is a smaller root, resembling the former; but of a deep dusky brown on the outside, and white when broken, growing plentifully in the Brasils, especially about Carthagena. The grey is most esteemed in physic; though the brown is most used, as being most easily procured. There are several false species of this root, which are sometimes sold in its stead. The genuine ipecacuanha has scarcely any smell, unless during its pulverization or infusion in liquor, when it emits a faint nauseous one.

What is the value of 11 pounds of ipecacuanha at £1 9s. 11d. $\frac{1}{2}$. per pound? *Ans.* £16 9s. 6d. $\frac{1}{2}$.

N. B. This root is sometimes sold at 3s. 6d. or 4s. per pound.

No. 75. LIQUORICE. This plant is principally cultivated, in this country, about Pontefract in Yorkshire; Godalmin in Surrey; and in the gardens about London.

The native liquorice juice is very sweet upon the palate, even more so than sugar, or honey; and is yet accounted a great quencher of thirst. It is very balsamic and detergent; insomuch that there is scarcely any medicinal composition for diseases of the breast, in which it is not an ingredient.

Great quantities of liquorice are exported from Spain into England. In 1785 no less than 58 tons of this innocent and pleasant drug were sent out of that country to us; and the whole quantity imported into this kingdom from Flanders, Italy, and Spain, in 1788, was upwards of 183 tons; principally for the use of the brewers.

Townsend's Journey into Spain, vol. ii. p. 333.

What is the value of 12 pounds of liquorice at 1s. 1d. $\frac{1}{2}$. per pound? *Ans.* 13s. 6d.

RULE II. When the number of articles whose value is required exceeds 12, as in the subsequent questions, multiply successively by its component parts; i. e. by any two figures which, multiplied into each other, produce the given number.

No. 76. LOG-WOOD. Log-wood grows naturally in the bay of Campeachy, at Honduras, and other parts of the Spanish West-Indies. It is brought into Europe, and employed in dying purples, and the finest blacks. It is considered as a very valuable commodity; for, exclusively of its use among dyers, it is found to be an excellent astringent, and is administered in many disorders proceeding from the laxity of the solids.

What are 14 pounds of log-wood worth at 1s. 4d. $\frac{1}{2}$. per pound? *Ans.* 19s. 3d.

No. 77. MACE. This unctuous membrane envelops the shell of the fruit, whose kernel is the nutmeg. It is of an extremely fragrant, aromatic, and agreeable smell, and of a pleasant, but acrid and oleaginous taste. Mace is of an astringent and drying nature, and is used as a corrector in cardiac and cathartic compositions. Its
general

general qualities are nearly similar to those of the nutmeg, with the exception of its sitting easier on weak stomachs. It is brought into Europe from Amboyna, a small island in the East-Indies belonging to the Dutch.

What are 15 ounces of mace worth at 3s. 6d. per ounce? *Ans.* £2 12s. 6d.

No. 78. NUTMEG. This is a delicate kind of aromatic fruit which is enclosed in four different covers (one of which is called MACE); and is itself properly the kernel. The nutmeg is very much used in our foods, and is of excellent virtues as a medicine; it is a good stomachic, promotes digestion, stops vomiting; is an excellent remedy in flatulences; and is happily joined with rhubarb and other medicines, in the case of diarrhœas. It has also a soporific and astringent quality. The largest, heaviest nutmegs are to be chosen; such as are of the shape of an olive, well marbled without side, reddish within, unctuous in substance, and of a fragrant smell. By distillation they yield an oil of great use in medicine.

The whole commerce of nutmegs is in the hands of the Dutch East-India company. See *Amboyna*.

What are 20 ounces of nutmegs worth at 3s. 5d. $\frac{3}{4}$. per ounce? *Ans.* £3 9s. 7d.

No. 79. MANGO. This is the fruit of a large tree, growing in the isle of Java, and other parts of the East-Indies, and conveyed into Europe either candied or pickled. In the latter case it is opened with a knife, and the middle filled up with fresh ginger, garlick, mustard, and salt, with oil or vinegar.

This fruit, when ripe, is eaten by the natives, either without wine, or macerated in wine. The bark and gum of the tree are also used medicinally. The stalks calcined are said to take away warts.

What are 25 mangos worth at 1s. 3d. $\frac{1}{2}$. each? *Ans.* £1 12s. 3d. $\frac{1}{2}$.

No. 80. MANNA. Manna is a medicinal drug of great use in the modern practice, as a gentle purgative. It is a white, sweet juice, oozing from the branches and leaves of a kind of ash-tree, growing chiefly in Calabria, in the southern part of Italy. It is, however, far from being peculiar to this tree, being found on many different sorts, particularly at Briançon, in France. Manna is therefore ranked very properly among the number of gums.

The peasants of mount Libanus*, it is said, eat manna ordinarily, as others do honey; and at Mexico they have a manna which they eat as we do cheese.

The best sort, or Calabrian manna, is moderately dry, very light, of a whitish, or pale yellow colour, and in some degree transparent: the inferior kinds are moist, unctuous, and brown. It is sometimes

* Libanus is a mountain of Turkey, in Asia, formerly famous for cedar-trees; but now there are scarcely any remaining.

counterfeited by compositions of sugar, honey, and purgative materials.

What are 27 ounces of manna worth at $6d. \frac{3}{4}$. per ounce?
Ans. 15*s.* 2*d.* $\frac{1}{4}$.

No. 81. JESUS CHRIST BETRAYED. The preaching of our blessed Saviour, and the numberless miracles that he performed, made such an impression on the body of the Jewish nation, that the *chief priests*, and *leading men*, jealous of his authority, and provoked at his reproaching them with their hypocrisy and the wickedness of their lives, formed a conspiracy against him. For a considerable time their designs proved abortive; but at last Jesus, knowing that he had fulfilled every purpose for which he came into the world, suffered himself to be taken through the treachery of one of his own disciples, named *Judas Iscariot*. This "base Judean," as Shakespeare is supposed to have termed him, received 30 pieces of silver as the reward of his perfidy. These, some commentators apprehend to have been 30 shekels; others, that they were 30 denarii, or Roman pence. Estimating the former at 2*s.* 6*d.* each, and the latter at $7d. \frac{1}{2}$. which is the usual valuation, how much did the traitor receive according to each of these supputations? *Ans.* £3 15*s.* if shekels; 18*s.* 9*d.* if denarii.

N. B. Some value the shekel at 2*s.* 9*d.* $\frac{1}{2}$; others at 2*s.* 3*d.* $\frac{3}{8}$ sterling; and the Roman denarius is estimated from 6*d.* to 8*d.* $\frac{1}{2}$ sterling.

No. 82. CYPRUS. This is a thin transparent black stuff, supposed to have received its name from the island of Cyprus in the Mediterranean, where it was first made; or corruptly from *Cypress*, as being used in mourning*.

Lawn, as white as driven snow,
 Cyprus, black as e'er was crow.

SHAKESPEARE.

What are 36 yards of cyprus gauze worth at 3*s.* 9*d.* $\frac{1}{4}$. per yard?
Ans. £6 17*s.* 3*d.*

* The cypress tree being anciently used in funerals, was the emblem of mourning.

Poison be their drink,
 Their sweetest shade a grove of cypress trees.

SHAKESPEARE.

The cypress tree is an evergreen, and never either rots or is worm-eaten, any more than cedar or ebony. It is good for making musical instruments, chests, &c.

In ivory coffers I have stuff'd my crowns;
 In cypress chests my arras counterpanes.

SHAKESPEARE.

Some are of opinion, that the wood, gophir, of which Noah's ark was made, was cypress; and the Athenians buried their heroes in coffins made of this wood; of which many of the Egyptian mummy chests were also fabricated.

No. 83. SATIN. Satin is a soft, close, and shining silk.

The ladies dress'd in rich fymars* were seen,
Of Florence satin, flower'd with white and green.

DRYDEN.

What is the value of 42 yards of satin at 8s. 4d. $\frac{1}{4}$. per yard?
Ans. £17 10s. 10d. $\frac{1}{2}$.

No. 84. MELONS. Melons are a species of the cucumber. There is a great variety of this fruit cultivated in different parts of the world; but that sort called the Cantaleupe melon, so denominated from a place near Rome, whither it was brought from Armenia, a country west of the Caspian sea in Asia, is in the greatest esteem among the curious.

What are 49 melons worth at 2s. 6d. each? *Ans.* £6 2s. 6d.

RULE III. When the number of articles, whose price is required, cannot be obtained by the multiplication of any two figures into each other, as in the following questions, find the nearest to it, which can be so produced, and multiply the given price by the component parts, as before; then multiply the top line of the sum (which is the value of one yard, &c.) by the deficiency, which, added to the preceding part of the operation, will give the value of the whole. The $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$, must be taken as so many parts of the top line, or price of one yard, pound, &c. and added to the last line of the sum.

No. 85. MILLET. An esculent grain, chiefly used among us in puddings; but the Italians make loaves and cakes of it, which, when eaten hot, are much esteemed for their sweetness. It grows naturally in India, whence we are furnished with it annually; but it is cultivated in many parts of Europe. Millet is refrigerating and drying, difficult of digestion, and generates flatulencies. It has, however, some good qualities. A decoction of this grain, with figs and raisins, is said to be a noble sudorific and diuretic; and millet seeds are of extraordinary service in diseases of the lungs.

What are 58 pounds and $\frac{1}{4}$ of millet worth at 6d. $\frac{3}{4}$. per pound?
Ans. £1 12s. 9d.

No. 86. VIRTUE ALONE IS TRUE NOBILITY. It was well observed by the emperor Maximilian, to a man who requested to be ennobled, "that though he could give riches and a title, he could not make him noble." The genuine idea of nobility contains in it, says Dr. Knox, generosity, courage, spirit, and benevolence, the qualities of a warm and open heart, totally unconnected with the accidental advantages of riches and honour; and according to this definition, there is many a nobleman even at the loom, at the plough,

* Simarre, sorte d'habit de femme qui étoit en usage parmi les Persans.

RICHELET.

and in the shop; and many more in the middle ranks of mixed society.

“ The pride of family is all a cheat,
“ The virtuous only are the truly great.”

Whoe'er amidst the sons,
Of reason, valour, liberty, and virtue,
Displays distinguish'd merit; he's a noble
Of Nature's own creating.

THOMSON.

Of all the effects of man's capricious admiration, continues our ingenious author, there are few less rational, than the preference of illustrious descent to personal merit, of diseased and degenerate nobility to health, to courage, to learning, and to virtue. It may, therefore, be rationally concluded, that in proportion as the world becomes more enlightened, the exorbitant value, which has been placed on things not really valuable, will decrease, and that mankind will at length bear their willing testimony to the truth of Pope's well-known lines, that

Worth makes the man, and want of it, the fellow;
The rest is all but leather or prunello.

Prunello is a kind of stuff, of which the gowns of clergymen are made.

What is the value of $65\frac{1}{2}$ yards of prunello at $5s. 3d. \frac{1}{4}$. per yard? *Ans.* £17 5s. 2d. $\frac{3}{4}$.

No. 87. MITHRIDATE. This is an antidote, in form of an electuary; serving either as a remedy, or a preservative against poisons. It is one of the capital medicines of the shops, consisting of a vast number of ingredients, and is accounted a cordial, opiate, sudorific, and alexipharmic. It takes its name from its inventor, Mithridates, king of Pontus, who is reported to have so fortified his body against poisons, with antidotes and preservatives, that when he had a mind to dispatch himself, he could not find any poison that would take effect. The recipe for making it was found in his cabinet, written with his own hand, and was carried to Rome by Pompey.

What are $74\frac{3}{4}$ ounces of mithridate at $4d. \frac{1}{4}$. per ounce? *Ans.* £1 6s. 5d. $\frac{1}{2}$.

No. 88. MOHAIR. Mohair, in commerce, is thread or stuff made of the hair of the Angora goat. See question 68. Camblet.

What is the value of $89\frac{1}{4}$ dozen of mohair buttons at $1s. 1d. \frac{1}{2}$. per dozen? *Ans.* £5 0s. 4d. $\frac{3}{4}$.

No. 89. MUSK. A dry, light, and friable substance, of a dark blackish colour, feeling somewhat smooth, or unctuous. Its smell is highly perfumed, and too strong to be agreeable in any large quantity; on which account it is moderated by the mixture of some other perfume. It is brought from the East-Indies, chiefly from the kingdom

dom of Bantam in the island of Java, some from Tonquin and China; but that in most esteem comes from the kingdom of Tibet. The animal which produces it is of a very singular kind, not agreeing with any established genus: it is of the size of a common goat but taller. The bag which contains the musk is situated under the creature's belly, and about the bigness of a hen's egg. These animals inhabit the woods and forests, where the natives hunt them down.

Musk is of considerable use among the perfumers and confectioners; and is also employed medicinally in spasmodic disorders, fevers, &c. and particularly in convulsive complaints. The effects of musk are, ease from pain, quiet sleep, and a copious diaphoresis. It does not, like opium, leave behind it any stupor or languidness.

What are $95\frac{1}{2}$ ounces of musk worth at £2 2s. 3d. per ounce?
Ans. £201 14s. 10d. $\frac{1}{2}$.

No. 90. MYRRH. A kind of gum resin, issuing, by incision, and sometimes spontaneously, from a tree growing in Arabia, Egypt, and especially in Abyssinia. It is sent to us in loose granules from the size of a pepper-corn to that of a walnut, of a reddish brown colour, with more or less of an admixture of yellow: its taste is bitter and acrid, with a peculiar aromatic flavour, but very nauseous: its smell is strong but not disagreeable. Our myrrh is the very drug known by the ancients under the same name. It enters into a great number of medicinal compositions: it is a warm corroborant, deobstruent, and antiseptic, and is often employed externally as a vulnerary. The bitterness of myrrh renders it good for the stomach and against worms; and it is chewed to prevent infection from contagious diseases. It makes the principal ingredient in embalming.

What are $105\frac{3}{4}$ ounces of myrrh worth at 1s. 0d. $\frac{1}{2}$. per ounce?
Ans. £5 10s. 1d. $\frac{3}{4}$.

No. 91. OLIVES. Olives are the fruit of a tree which is the emblem of peace.

To thee, heaven, in thy nativity,
 Adjung'd an olive branch and laurel * crown,
 As likely to be blest'd in peace and war.

SHAKESPEARE.

Pickled olives are grateful to the stomach, and are supposed to promote appetite and digestion: the ripe ones are more eaten among the Greeks, forming a considerable part of their food, especially in Lent. There are three kinds of olives frequently sold, different in size and goodness; viz. those of Verona, in the northern part of Italy, those of Spain, and those of the southern part of France. The olives, while on the tree, are intolerably bitter; that grateful taste, which

* The laurel, meed of mighty conquerors,
 And poets sage.

procures them admittance at the richest tables, is given to them in pickling.

What are 112 pints of olives worth at 1s. 7d. $\frac{1}{2}$. per pint? *Ans.* £9 2s. 0d.

No. 92. OIL OF OLIVES. Olives yield an oil which is the most popular, and most universal of all others; being that chiefly used in medicine, in foods, salads, and in various manufactures. It is drawn from the fruit by presses, or mills made for the purpose. The consumption of this oil is incredible; and it is reputed one of the most useful things in the whole world. The sweetest, and what we esteem most, comes from the southern part of France; but vast quantities are imported from Florence and Lucca. At this last place Mrs. Piozzi mentions having eaten some salad-oil of a green colour, like Irish usquebaugh, than which she observes nothing was ever more excellent.

Journey, vol. i. p. 341.

It was the custom of the Jews to anoint with oil persons appointed to high offices, as the priests and kings. See Psalms cxxxiii. 2. 1 Sam. x. 1. xvi. 13. The anointing with this liquid seems also to have been reckoned a necessary ingredient in a festival dress. See Ruth iii. 3.

The Jews moreover seem to have regarded oil as a more efficacious and sovereign remedy than any other discovery, for mitigating or extirpating the various disorders of the human frame. See Mark vi. 13. James v. 14. and Dr. Harwood's *Introd.* vol. ii. p. 126.

Oil, among its other good qualities, has the singular property of stilling the surface of the water, when it is agitated with waves. This extraordinary effect is mentioned by Pliny, and confirmed by experiments made by the celebrated Dr. Franklin.

Oil on the ocean's troubled waters spread,
Smooths the rough billow to a level bed.

HAYLEY.

What are 118 flasks of Florence oil worth at 2s. 9d. $\frac{3}{4}$. per flask? *Ans.* £16 11s. 10d. $\frac{1}{2}$.

No. 93. SPERMACETI OIL. This is the oil of a particular kind of whale; distinguished from the common whale by its having teeth in lieu of whale-bone; and by a bunch on its back. The oil is found in a large trunk, four or five feet deep, and ten or twelve long, filling almost the whole cavity of the head, and seeming to supply the office of brain and cerebellum. The oil drawn from the other parts of the fish now under consideration, is of nearly three times the value of the common black whale oil. It is employed in lighting chamber lamps, &c. The common whale oil, as well as that of some other fish, is used for street lamps, &c.

What is the value of 125 $\frac{1}{4}$ quarts of spermaceti oil at 1s. 4d. per quart? *Ans.* £8 7s. 0d.

No. 94. SPERMACETI. This is a whitish, flaky, unctuous substance, prepared from spermaceti oil. It is of great use in medicine, being

being employed in inward hurts, bruises, &c. and is also applied externally; but its greatest property, and that which makes it so much in vogue in many places, is its softening the skin. Hence it is a component part of most pastes, cosmetics, &c. Spermaceti candles are of modern manufacture: they are made smooth, with a fine gloss, free from rings and scars, superior to the finest wax candles in colour and lustre; and, when genuine, leave no spot or stain on the finest silk, cloth, or linen.

What are $129\frac{1}{2}$ pounds of spermaceti candles worth at $3s. 4d. \frac{3}{4}$. per pound? *Ans.* £21 19s. 9d.

No. 95. OPIUM. A narcotic, gummy-resinous juice, drawn from the head of the white poppy, and afterwards inspissated. It is of a dark reddish-brown colour in the mass, and when reduced into powder, yellow: its smell is of a dead faint kind, and its taste very bitter and very acrid.

Opium is brought from Natolia in Turkey in Asia, Egypt, and the East-Indies, in flat cakes or irregular masses, from four to about sixteen ounces in weight, covered with leaves, and generally impure.

Externally applied opium is emollient, relaxing, and discutient, and greatly promotes suppuration. A moderate dose of it taken internally, is generally under a grain, yet custom will make people bear a dram; and instances are mentioned of persons who have taken several drams a day. Its first effect is that of making the patient cheerful; it removes melancholy, and dissipates the dread of danger; the Turks always take it when they are going to battle: it afterwards quiets the spirits, eases pain, and disposes to sleep. After the effect is over, it has been said, that the pain frequently returns in a more violent manner; the spirits become lower than before, and the pulse languid. An immoderate dose of opium brings on cheerfulness, loud laughter, and inebriation at first, and, after many terrible symptoms, even death itself. Those who have accustomed themselves to an immoderate use of opium, are apt to be faint, idle, and thoughtless; they lose their appetite, and grow old before their time. The action of opium is, in many respects, very analogous to that of wine or vinous spirits; the good and ill effects are said to differ but little.

It has, however, been observed, by an intelligent medical writer, that though opium, "taken in too large quantity, renders the nervous system so totally insensible, and produces such general relaxations, that lethargy, convulsions, and death, are the consequences; yet, in a variety of cases, given judiciously, it is one of our most noble remedies. It not only alleviates pain, procures sleep, and takes off spasmodic affections, when administered internally; but when applied externally, as in fomentations, cataplasms, lotions, liniments, or injections, it produces the same consequences."

What are $136\frac{3}{4}$ ounces of opium worth at $1s. 11d. \frac{1}{2}$. per ounce? *Ans.* £13 7s. 9d. $\frac{1}{2}$.

No. 96. ORANGE. The fruit of a tree of the same name. Those in common use with us are the Seville and China oranges. The flowers

flowers of the Seville orange are highly odoriferous, and very justly esteemed one of the finest perfumes.

The punic granate op'd its rose-like flow'rs;
The orange breath'd its aromatic pow'rs.

HARTE.

The juice of these oranges is a grateful acid, of great use in inflammatory and putrid disorders, both acute and chronical; and the juice of the China, or sweet orange, is an useful refrigerant in inflammatory dispositions, and an excellent antiseptic in scorbutic and other putrid disorders. When Commodore Anson sailed round the world, his men were surprisingly recovered from the scurvy, by the oranges which they found at the island of Tinian, one of the Ladrone islands in Asia.

Oranges are ordinarily brought from Nice and Genoa in Italy, the isles of the Hieres, and the adjacent parts of the south of France, Portugal, the American islands, and even China, and the coasts of India. The sweet, or China orange, was first brought into Europe from that country by the Portuguese; and it is asserted, that the identical tree, whence all the European orange trees of this sort were produced, is still preserved at Lisbon, in the house of the Count S. Laurent. Those most esteemed, and which are made presents of as rarities in India, are no bigger than a billiard-ball. The Maltese oranges are, by some, said to be the finest in the world.

What are 140 chests of oranges worth at £3 15s. 6d. per chest?
Ans. £528 10s.

No. 97. LEMON. A fruit brought from Spain and Portugal in great plenty. They are cooling and grateful to the stomach, quenching thirst, and increasing appetite; useful in fevers, as well common as malignant and pestilential. The yellow rind is a grateful aromatic, and commonly used in stomachic tinctures and infusions, and for rendering other medicines acceptable to the palate and stomach.

Bear me, Pomona! to thy citron groves!
To where the lemon and the piercing lime,
With the deep orange, glowing through the green,
Their lighter glories blend.

THOMSON.

The citron is distinguished from the lemon, in that it is bigger, and its pulp firmer. The distillers, confectioners, perfumers, &c. apply citrons to various purposes, and obtain from them essences, oils, confections, waters, &c.

Genoa is the great nursery which supplies the several parts of Europe with this, as well as with the orange and lemon trees. One sort, with a pointed fruit, is in so great esteem, says Miller, that a single citron is sold at Florence for 2s. sterling.

The lime is by some deemed a species of lemon, by others not. It is a much smaller fruit, and in the West-Indies is greatly preferred to the lemon; the juice being reckoned wholesomer, and the acid
more

more agreeable to the palate. It is not often brought to England, nor is this fruit much cultivated in Europe.

What are $146\frac{1}{2}$ dozen of lemons worth at $11d. \frac{3}{4}$. per dozen?
Ans. £7 3s. 5d. $\frac{1}{4}$.

No. 98. PAPER. Paper is a thin flexible leaf, usually white, artificially prepared, and chiefly used to write or print upon with ink. Various are the materials, on which mankind in different ages and countries have contrived to write their sentiments; as on stones, bricks, the leaves of herbs and trees, and their rinds or barks; also on tables of wood, wax, and ivory; to which may be added plates of lead, linen rolls, &c. At length the Egyptian papyrus was invented; then parchment, then cotton paper, and lastly, the common, or linen paper. Paper is chiefly made among us of linen, or hempen rags, beaten to a pulp in water, and moulded into square sheets of the thickness required. But it may also be made of nettles, hay, turnips, parsnips, colewort-leaves, asbestos, or any thing that is fibrous; nay, it may be made of white woollen rags; though this would not serve for writing, because of the hairiness. The Egyptian paper, which was principally used among the ancients, was made of a rush called Papyrus, whence the word paper is derived. It grew principally about the banks of the Nile in Egypt; and in a basket made of this species of rushes, Moses, when a child, was exposed on the borders of that celebrated river. Besides paper, they made sails, ropes, and other naval rigging, as also mats, blankets, cloths, and even boats, of the stalk of the papyrus. The manufacture of paper made of linen rags has got footing in most countries; though France, Holland, and Genoa, are the places where, at least till lately, it has succeeded best. In general, it depends much on the quality of the linen worn in the country where it is made: where that is coarse and brown, the rags, and consequently the paper made of them, must be so likewise. Hence the whiteness of the Dutch and Flemish papers beyond the Italian and French, and much more the German papers. The English manufacture was a long while in no great reputation; but it is every day improving; insomuch that we now import little of the ordinary sorts, which were formerly all brought from abroad. The first paper-mill in England was erected at Dartford in the year 1588, by a High-German, called Mr. Spilman, jeweller to the queen. Nothing, however, but the brown coarse sort of paper was made in this country till about the year 1690, when the French Protestant refugees settled in England, and our own paper-makers began to make white writing and printing paper; and the perfection, to which it is since brought, is said to produce a saving to England of much more than £100,000, which was paid annually to France for this article. When and by whom linen paper was invented, has been long and warmly contested among the learned; but seemingly with little success, as nothing conclusive has yet been advanced on the subject. Some say it was discovered by the Germans; others affirm that the invention was owing to the Italians; others ascribe it to some refugee Greeks at Basil; others think the Arabs brought it among us; others imagine
the

the Saracens of Spain first conveyed it out of the East into that country; from whence it was propagated through the rest of Europe; and lastly, others say, that the Chinese have the best title to the invention; who for many ages have made paper much after the same manner; and even in some provinces, of the same materials, viz. hemp, &c. Linen paper appears to have been first introduced among us towards the beginning of the fourteenth century.

What are 151 reams of letter paper worth at 12s. 6d. $\frac{1}{2}$. per ream?
Ans. £94 13s. 9d. $\frac{1}{2}$.

No. 99. PARCHMENT and VELLUM. Parchment, sheep or goats skin prepared after a peculiar manner, which renders it proper for several uses; particularly for writing on, and for the covering of books, &c. The word is derived from the Latin Pergamena, the ancient name of this manufacture; which it is said to have taken from the city Pergamos; and to Eumenes, king of that city, its invention is usually ascribed; though, in reality, that prince appears rather to have been the improver than the inventor of parchment: for the Persians, and others, are said to have written all their records on skins long before Eumenes's time. That called virgin parchment is a thinner and finer sort than the rest; and is used for fans, &c. and made of the skin of an abortive lamb or kid. What we call Vellum is only parchment made of the skins of abortive calves, or, at least, of sucking calves; it is finer, whiter, and smoother than the common parchment. These articles constitute a considerable part of the French commerce, being made in most of their cities; and, besides the consumption at home, they send vast quantities abroad, particularly to England, Flanders, Holland, Spain, and Portugal.

What are 156 skins of parchment worth at 13s. 8d. $\frac{1}{2}$. per skin?
Ans. £106 18s. 6d.

RULE IV. When the proposed number of yards, pounds, &c. exceeds 156, multiply the given price by 10, and the result of that operation by 10, which will give the value of 100; then multiply the second line, or product of 10, by the figure in the ten's place, and put the result under the value of 100; lastly, multiply the given price by the figure in the units' place, and set the result under the two preceding products. These several sums, added together, will be the answer to the question.

No. 100. PEPPER. Pepper is the product of a shrub, growing in several parts of the East-Indies, chiefly Java, Sumatra, Malacca, and the coasts of Malabar. Black pepper is an aromatic fruit of a hot dry quality, chiefly used in the seasoning of meats. White pepper is the fruit of the same plant with the black, and prepared from it by taking off the outer bark. Pepper, which is sold ground, is very apt to be sophisticated, the black with burnt crust of bread, &c. the white with beaten rice.

Of these pungent spices the black sort is the hottest and strongest, and most commonly used for medicinal, as well as culinary purposes. Long pepper is thus denominated from its form, which is cylindrical, and about an inch and a half in length, and of the thickness of a large goose quill. It is of the same genus as the black pepper, but is hotter and more pungent. It is gathered while unripe and dried: its chief use is in medicine, where it enters several Galenical* compositions; and among the rest Venice treacle.

Guinea pepper is much esteemed by the Americans, from among whom it is brought: it is a native of the East and West-Indies, and raised in some of our gardens. It is now also cultivated pretty commonly in France, especially in the southern parts, where it is used in making vinegar. It is of a red colour, and of an extremely pungent and acrimonious taste. It is sometimes given, in small quantities, as one of the highest stimulants; but its principal use is at table. A species of this pepper is the basis of the powder brought from the West-Indies under the name of Cayenne pepper.

Jamaica pepper is the fruit of a tree growing plentifully in Jamaica, and other American islands. It is a real aromatic, and may supply the defect of cloves, nutmeg, and cinnamon; whence it is called by the English, all-spice, and sometimes pimento. The French call it round clove, from its round shape, and from its taste resembling that spice. This pepper is accounted the best and most temperate, mild, and innocent, of common spices. It surpasses most of the East-India aromatics in promoting the digestion of meat, attenuating tough humours, moderately heating, strengthening the stomach, expelling wind, and doing those friendly offices to the bowels we generally expect from spices.

What are 164 pounds of pepper worth at 2s. 3d. $\frac{1}{4}$. per pound?
Ans. £18 19s. 3d.

No. 101. POTATOES. Potatoes are the most common esculent root now in use among us; though little more than a century ago they were confined to the gardens of the curious, and presented as a rarity. They form the principal food of the common people in some parts of Ireland.

Leeks to the Welch, to Dutchmen butter's dear;
 Of Irish swains potatoes are the cheer.

GAY:

Potatoes were originally brought from America, and, as has been asserted, by Sir Francis Drake, in the year 1586. Others mention

* Galen was a celebrated physician, born at Pergamus, where he died A. D. 193, in the 90th year of his age.

Hippocrates was another physician of so great celebrity, that he is sometimes styled the Father of Physic, and the Prince of Physicians. He was born in Cos, one of the Cyclades; a cluster of islands in the Archipelago. He died 361 years B. C. aged 99.

the introduction of them into our country about 1623; whilst others affirm they were first cultivated in Ireland, about Youghall, in the county of Cork, by Sir Walter Raleigh*, in 1610, and that they were not introduced into England till the year 1650.

There are two varieties in general use; one with a white, and the other with a red root. And besides these there is a new kind, first brought from America, which that "patriot of every clime," the late Mr. Howard, cultivated in 1765 at Cardington, near Bedford. They were also propagated in some of the adjacent counties. Many of these potatoes weigh four or five pounds each; and hogs and cattle are found to prefer them to the common sort. They are moreover deemed more nutritive than others; being more solid and sweet, and containing more farina or flour. As an esculent plant, they appear also worthy of cultivation; being, it is said, when well boiled, equal, and, when roasted, preferable to the common sort.

Immense quantities of potatoes are raised in Lancashire for exportation. Mr. Pennant says, that 30 or 40,000 bushels are annually exported to the Mediterranean sea from the environs of Warrington; at the medium of 1*s.* 2*d.* per bushel. A single acre of land sometimes produces 450 bushels.

What are 179 bushels of potatoes worth at 1*s.* 2*d.* per bushel?
Ans. £10 8*s.* 10*d.*

No. 102. RAISINS. Raisins are grapes prepared by drying them in the sun, or in the air; to fit them for keeping, and for some medicinal purposes. Of these there are various kinds: as raisins of Damascus, thus called from the capital city of Syria, in the neighbourhood of which they are cultivated. Travellers tell us of bunches weighing 25 pounds.

Raisins of the sun are a kind of raisins brought from Spain, of a reddish or bluish colour, seeded, and very agreeable to eat. There are various other sorts, denominated either from the place where they grow, or the kind of grape, &c. The finest and best raisins are those called in some places Damascus raisins. These are distinguishable from the others by their largeness and figure; they are flat, and wrinkled on the surface; soft and juicy within, near an inch long, and semipellucid, when held against a good light; they have a sweet, agreeable, and vinous taste.

The common raisins are the fruit of several species of grapes, which are better or worse, according as they have been more or less carefully cured. The raisins of the sun, or jar-raisins, so called, because they are imported in jars, are all dried by the heat of the sun; and these are the sorts used in medicine. All kinds of raisins have much the same virtues; they are nutritive and balsamic, but they are subject to fermentation with juices of any kind, and hence when

* Sir Walter Raleigh, one of the greatest ornaments of his country, was accused of being concerned in a conspiracy, and after having been confined twelve years in the Tower, where he wrote several valuable performances, which are still in high esteem, was beheaded October 29, 1618, in the reign of James I.

eaten immoderately, they often bring on colics. They are not at present much regarded in medicine, though they are used in some compositions, particularly in pectoral decoctions, and other medicines of that intention.

What are 189 pounds of raisins worth at 10*d.* $\frac{3}{4}$. per pound?
Ans. £8 9*s.* 3*d.* $\frac{3}{4}$.

No. 103. RHUBARB. Rhubarb is a native plant of China and Siberia, but now propagated in many of our gardens, and may probably succeed so well here in time, as that a sufficient quantity of this valuable drug may be raised, to supply our consumption. Mr. Bell informs us, in his travels, that the best rhubarb grows in that part of Eastern Tartary which is situated between Asiatic Russia and China. Two sorts of rhubarb roots are met with in the shops. The first is imported from Turkey and Russia, in roundish pieces, freed from the bark, with a hole through the middle of each, externally of a yellow colour, internally variegated with lively reddish streaks. The other, which is less esteemed, comes immediately from the East-Indies, in longish pieces, harder, heavier, and more compact than the foregoing. The taste of rhubarb is subacid, bitterish, and somewhat styptic; the smell is highly aromatic. Rhubarb is a mild cathartic, and commonly considered as one of the safest and most innocent substances of this class. It has also a mild astringent virtue, and is found to strengthen the tone of the stomach, and is frequently given with a view to this corroborating virtue.

What are 195 $\frac{3}{4}$ ounces of rhubarb worth at 1*s.* 3*d.* $\frac{3}{4}$. per ounce?
Ans. £12 16*s.* 10*d.* $\frac{3}{4}$.

No. 104. SHAULS. Shaul is an article of female dress, much prized in the East, and now well known in England. As the shauls all come from Cassemire, or Cachemir, it was generally concluded, that the materials from which they were fabricated were of the growth of that country. It was said, that they were made of the hair of a particular goat, and the fine under-hair from a camel's breast; but it is now certainly known to be the produce of a Thibet sheep. Bernier relates, that, in his time, shauls made for the great omrahs of the Thibetian wool, cost a hundred and fifty rupees; whereas those made of the wool of the country never cost more than fifty.

Shauls have been lately made in our own country, particularly at Norwich.

What are 197 Norwich shauls worth at £1 18*s.* each? *Ans.* £374 6*s.*

No. 105. SPECTACLES. Spectacles, an optic machine, consisting of two lenses set in a frame, and applied on the nose, to assist in defects of the organs of sight. Our great dramatic bard, in his enumeration of the different ages of man, observes, that

The sixth age shifts
 Into the lean and slipper'd pantaloon,
 With spectacles on nose, and pouch on side.

In Spain, and at Venice especially, spectacles were formerly used with a different view: all the people of note and fashion there had them continually on their noses; a folly, that had its source in the natural pride of those people, who valued themselves upon a profound wisdom; and affected to stare very near at every thing; as if their eyes were weakened, and worn out with excess of study and attention.

Spectacles were certainly unknown to the ancients. They are generally supposed to have been invented in the thirteenth century, by Alexander de Spina, a monk of Pisa, in Italy. Some, however, imagine, that the first hint of their construction and use was derived from the writings of our own countryman, the famous Roger Bacon*, who was born in 1214, and died in 1292 or 1294.

What are 199 pairs of spectacles worth at 9s. 11d. per pair?
Ans. £98 13s. 5d.

RULE V. When the proposed number of yards, pounds, &c. exceeds 199, multiply the value of one hundred by the figure standing in the place of hundreds in the question; and for the tens, units, and fractions, proceed as directed in the preceding sections.

No. 106. SPONGE. Sponge, improperly written sponge, is a kind of marine substance, found adhering to rocks, shells, &c. under cover of the sea-water, or on the sides of rocks about the shore.

Naturalists have been much embarrassed to determine, whether to range sponge in the animal, mineral, or vegetable family. Some have imagined it to be a concretion of sea-mud; others have commonly supposed it to be a vegetable production; but it is now allowed to be, like the Coralines, of animal origin; being the fabric and habitation of some species of worm or polype.

The greatest part of our sponges are brought from the Mediterranean, especially from Nicaria, an island near the coast of Asia, and west of Samos. Mr. Savary, in his letters on Greece, mentions Syme, an island north of Rhodes, as famous for sponges. They grow in abundance round the island; and this fishery, he adds, is the only support of its inhabitants. Men, women, and children, all know how to dive, and plunge into the water, in search of the only patrimony bestowed on them by nature; for the island, which is only a

* Olaus Borrichius, a Danish philosopher, asserts, that Roger Bacon discovered all the kinds of glasses now in use, that he knew gunpowder, and had made many other important discoveries, which entitle him, as he observes, to immortal reputation. And Gerard John Vossius says, that "in the year 1270 flourished in every kind of learning among the English, Roger Bacon, a monk of the Franciscan order, and an Oxford divine, a man of such vast learning, that England, nay the whole world besides, had not in this respect his equal, or his second; yet either through the envy, or the ignorance, of the age in which he lived, he was stigmatized as a magician."

rock of small extent, extremely stony, produces neither grain nor fruit.

The fine or small sponges, however, are the most esteemed; and usually come to us from Constantinople. Their goodness consists in their being very white and light, and the holes small and close; the larger and coarser come from the coasts of Barbary, particularly about Tunis and Algiers. The sponge is very useful in the arts. In physic it serves to foment parts enflamed. Taken inwardly, it chokes; and is for that reason, cut small, and fried or dipped in honey, and given to quadrupeds to kill them, which it seldom fails to do, by swelling, and preventing the passage of the food into the intestines.

Sponge, burnt in a close earthen vessel, till it becomes black and friable, has been given in doses of a scruple, against scrophulous complaints. A sponge applied to bleeding-vessels has been found a very successful method of stopping the effusion of blood. For this purpose a very dry and solid piece, of a cubical or conical form, should be applied in close contact with the vessel, and retained by proper compression; and it will soon adhere with great force. Very large arteries have been prevented from bleeding by this application.

What are 200 pieces of sponge worth at $4d. \frac{3}{4}$. each? *Ans.* £3 19s. 2d.

No. 107. TAMARINDS. Tamarinds are the fruit of the tamarind-tree, which grows in the East and West-Indies. The oriental sort is drier and darker coloured than the occidental, and has more pulp; the former is sometimes preserved without addition, but the latter has always an admixture of sugar. We use tamarinds only in medicine; but the Africans, and the people of many of the oriental nations, where they are common, make them into a sort of confection with sugar, which they eat as a delicacy, and which cools them in the violent heats of their climates. The pulp of tamarinds is an agreeable laxative acid, of common use in inflammatory and putrid disorders, for abating thirst and heat, and correcting putrefaction. This property is noticed by one of our best poets.

Lay me reclin'd
Beneath the spreading tamarind, that shakes,
Fann'd by the breeze, its fever-cooling fruit.

THOMSON.

What are $273\frac{1}{4}$ pounds of tamarinds worth at $1s. 1d. \frac{1}{2}$. per pound? *Ans.* £15 7s. 4d. $\frac{3}{4}$.

No. 108. TARTAR. Tartar is an acid concrete salt which arises from wines, after complete fermentation; and sticking to the top and sides of the casks, forms a crust, which hardens to the consistence of a stone. The sweet wines afford always less tartar than the sharp ones, and it is also less valuable. The tartar of Rhenish wine is better than that of any other; and, in general, those wines which have the most acid in them, yield the greatest quantity of tartar, and that in the largest crystals. Tartar is white, or red, according to the colour

colour of the wine from which it is produced. That brought from Germany is the best, as being taken out of those enormous tuns, some of which hold a thousand pipes of wine; so that the salt has time to come to its consistence, which is one of the chief qualities to be regarded in tartar. That from Montpellier is next in order; then that of Lyons, and Paris.

The purification of tartar at Montpellier, whence our shops are generally supplied both with crystals and cream, consists in boiling tartar in pure water, in filtrating this water, and in allowing the saline matter to deposit by cold. The part which crystallizes by evaporation forms a saline crust, upon the surface of the liquor, called cream of tartar; and the part which crystallizes by cold forms small irregular crystals, called crystals of tartar: but both are comprehended under the general name of cream of tartar, which is also used at large to signify purified tartar.

The medicinal characters of pure tartar are its acidity and laxative power. In doses of half a dram, it is a mild, cooling aperient; and six or eight drams prove moderately cathartic. Cream of tartar is reputed a great sweetener of the blood; for which some take it in whey or water-gruel in the spring time, to the quantity of half an ounce every morning, for three or four weeks. Emetic tartar is formed of the acid of tartar, combined with the metallic part of antimony, and is the best and most used of all the emetic preparations of antimony.

Tartar is moreover of considerable use among dyers, as it serves to dispose the stuffs to take their colours the better.

What are $299\frac{1}{2}$ ounces of cream of tartar worth at $2d. \frac{1}{2}$. per ounce?
Ans. £3 2s. 4d. $\frac{3}{4}$.

No. 109. NEWS-PAPERS. News-Papers are printed papers, which give an account of the transactions of the present times, either relative to our own country, or to foreign nations. The first printed news-paper, which appeared in the world, was published in England. In the British Museum, there are several news-papers, which were printed while the Spanish Armada was in the English channel, during the year 1588. In that year a news-paper was published, by Christopher Barker, printer to Queen Elizabeth, entitled, "The English Mercurie." The news-papers were at first occasional, and afterwards weekly. In 1622, Nicholas Butter published in London a weekly news-paper, in 4to. the title of which was, "The certain News of this present Week." Another weekly paper was published in London, in 4to. in 1626, and said to be printed for Mercurius Britannicus. In a collection of pamphlets, which was accumulated by Mr. Charles Tooker, there were news-papers from 1621 to 1640. Before the execution of Charles I. there had been published more than an hundred news-papers with different titles; and, from that period to the restoration, there were upwards of eighty other news-papers. In the year 1792, there were printed in London twelve daily news-papers, nine evening papers, and nine weekly papers. In that year were also published in England sixty-nine different country papers. The whole
 number

number of news-papers printed in England, in the year 1792, was 15,005,760.

Dr. Knox observes, that the value of news-papers in a free country "is truly great, as they form one of the best securities of freedom." It may, however, be remarked, that news-papers become less beneficial to a nation, when corrupt ministers of state find means to employ the money of the people in deceiving them; when they, or their creatures, become proprietors of news-papers, and thereby poison the fountains of public intelligence. In that case, hireling writers are employed, who exert all the talents of which they may be possessed in propagating falsehoods among their countrymen, and in infusing into their minds servile sentiments, and fitting them for a despotic government. But, at all times since news-papers have become general, there have been some which have been conducted in an independent manner, and which have been eminently useful to the public. "Let it be impressed upon your minds, says Junius, let it be instilled into your children, that the LIBERTY OF THE PRESS is the palladium of all the civil, political, and religious rights of an Englishman." And it is observed by Mr. Hume, that "it is sufficiently known, that despotic power would steal in upon us, were we not extremely watchful to prevent its progress; and were there not an easy method of conveying the alarm from one end of the kingdom to the other. The spirit of the people must frequently be roused to curb the ambition of the court; and the dread of rousing this spirit must be employed to prevent that ambition. And nothing is so effectual to this purpose as the Liberty of the Press; by which all the learning, wit, and genius of the nation, may be employed on the side of liberty, and every one animated to its defence. We may conclude, that the liberty of Britain is gone for ever, whenever any attempts to wrest away the Liberty of the Press shall succeed."

Suppose a person should purchase a MORNING CHRONICLE daily, sundays excepted, for the space of a year, how much would he expend in that time at 4d. $\frac{1}{2}$. each paper? *Ans.* £5 17s. 4d. $\frac{1}{2}$.

No. 110. WAFERS. Wafers for sealing letters are made by mixing fine flour with the whites of eggs, isinglass, and a little yeast, and beating the mass into a paste; then spreading it, when thinned with gum-water, on even tin-plates, and drying it in a stove, and cutting it for use. The different colours may be given by tinging the paste with brazil or vermilion for red; indigo, &c. for blue; saffron, turmeric, or gamboge, &c. for yellow, &c.

What are 349 boxes of wafers worth at 8d. $\frac{3}{4}$. each? *Ans.* £12 14s. 5d. $\frac{3}{4}$.

No. 111. SEALING-WAX. Sealing, or Spanish wax, is a composition of gum lacca, melted and prepared with resins, and coloured with some suitable pigment.

The best hard red sealing-wax is made by mixing two parts of shell-lac, well powdered, and resin and vermilion, powdered, of each one part, and melting this combined powder over a gentle fire; and, when

when the ingredients seem thoroughly incorporated, working the wax into sticks.

What are 387 sticks of sealing-wax worth at $5d. \frac{3}{4}$. per stick?
Ans. £9 5s. 5d. $\frac{1}{4}$.

No. 112. YAMS. Yam is a kind of root, which is much cultivated by the inhabitants of the islands in America, and is of great use to them for feeding their negroes; and the white people make puddings of them, when ground to a sort of flour. These roots are as big as a man's leg, of an irregular form, and of a dirty brown colour on the outside, but white and mealy within. They are roasted or boiled for food, and sometimes made into bread. These plants grow wild in the woods in the island of Ceylon, and on the coast of Malabar; and they are supposed to have been brought from the East to the West-Indies.

What are 486 yams worth at $4d. \frac{3}{4}$. each? *Ans.* £9 12s. 4d. $\frac{1}{2}$.

No. 113. WATCHES. Watches were invented in the last century, and the glory of this excellent discovery lies between Dr. Hooke and M. Huygens, but to which of them it properly belongs has been much disputed; the English ascribing it to the former; and the Dutch, French, &c. to the latter. Dr. Derham, however, in his Artificial Clock-Maker, says expressly, that Dr. Hooke was the inventor; and he appears certainly to have been the inventor of what is called the pendulum watch. The time of this invention was about the year 1658, as appears, among other evidences, from an inscription on one of the double balance watches, presented to king Charles II. viz. Rob. Hooke inven. 1658. T. Tompion fecit, 1675. The invention presently got into reputation, both at home and abroad; and two of them were sent for by the dauphin of France. As it was in England that watches seem to have had their first rise, so they have there arrived at their greatest perfection. Witness the high value put on an English watch in all foreign countries, and the vast demand made for them.

What are 549 common silver watches worth at £4 18s. 6d. per watch? *Ans.* £2703 16s. 6d.

No. 114. CARDS. Playing cards are little pieces of fine thin pasteboard, whereon are printed different points and figures; a certain number of which serve for the performance of many games. A full pack consists of 52 cards.

It is generally supposed, that cards were invented in France about the year 1390, to amuse Charles VI. during the intervals of a melancholy disorder which at length brought him to the grave. But the honourable Daines Barrington, in his "Observations on the Antiquity of Card-Playing in England," contends for their being of Spanish origin*, while others refer them to the Romans†. It is, in-

* Archæologia, vol. viii.

† See English Rev. Jan. 1790. p. 24.

deed, of little importance to whom we are indebted for these pestilential time-wasters, which not only weary the mind without improving it, but strengthen the passions of envy and avarice, and often lead to fraud and to profusion, to corruption and to ruin; which deaden the feelings of humanity, absorb every idea of justice, and too frequently annihilate every virtuous principle. The odious fashion of card-playing, says Dr. Johnson, was produced by a conspiracy of the old, the ugly, and the ignorant, against the young and beautiful, the witty and the gay; as a contrivance to level all distinctions of nature and of art; to confound the world in a chaos of folly; to take from those who could outshine them all the advantages of mind and body, to withhold youth from its natural pleasures, to deprive wit of its influence, and beauty of its charms; to sink life into a tedious uniformity, and to allow it no other hopes or fears but those of robbing and being robbed.

Rambler, No. 15.

See where around the silent vot'ries sit,
To radiant beauty blind, and deaf to wit;
Each vacant eye appears with wisdom fraught,
Each solemn blockhead looks as if he thought.
Here coward insolence insults the bold,
And selfish av'rice boasts his lust of gold;
Ill-temper vents her spleen without offence,
And pompous dulness triumphs over sense.

PYE.

Now, in opposition to the foregoing strictures, let us place card-playing in the most favourable point of view; let us suppose, what, however, we fear is seldom the case, that it may be undertaken to recreate the body or to relax the mind; that it may be untainted with avarice, and unpolluted by passion; that, in short, it may be what is styled an innocent amusement; yet even in this instance, we cannot but again adopt the language of Dr. Johnson, that it is unworthy of a reasonable being to spend any of the little time allotted us, without some tendency, either direct or oblique, to the end of our existence. And though every moment cannot be laid out on the formal and regular improvement of our knowledge, or in the stated practice of a moral or religious duty, yet none should be so spent as to exclude wisdom or virtue, or pass without a possibility of qualifying us more or less for the better employment of those which are to come. It is scarcely possible to pass an hour in honest CONVERSATION*, without being able, when we rise from it, to please ourselves with having given or received some advantages; but a man may *shuffle cards from noon to midnight*, without tracing any new idea in his mind, or being

* Cards were superfluous *here*, with all the tricks
That idleness has ever yet contriv'd
To fill the void of an unfurnish'd brain,
To palliate dulness, and give time a shove.

COWPER.
able

able to recollect the day by any other token than his gain or loss, and a confused remembrance of agitated passions, and clamorous alterations.

Rambler, No. 80.

It is said by a late writer, "I cannot but regard it, both as the interest and the duty of persons of taste, and sentiment, and knowledge, to take every opportunity of discountenancing a species of fashionable amusement, that of card-playing, which is only adapted for the propagation and perpetuation of ignorance, which occasions a shameful waste of that time which might be much more beneficially, as well as agreeably employed, which is equally useless to the body and to the mind, and which is best calculated to please those persons of both sexes, who are the most devoid of genius, and the most insignificant and frivolous."

History of Philip Waldegrave, vol. i. p. 32, 33.

What are 684 packs of cards worth at 3s. 3d. per pack? *Ans.* £111 3s.

No. 115. **CHERRIES.** This well known fruit formerly grew spontaneously in the woods near Cerasus, a city of Pontus, on the southern coast of the Black Sea. From this city it was brought to Rome by Lucullus, after the Mithridatic victory, in the year of the city 680, and conveyed into Britain about 120 years afterwards, or A. D. 55. Hence, according to Servius, the cherry-tree is called *Cerasus*; hence also the Latins denominated its fruit *Cerasa*; and the French *Cerise*.

Miller enumerates only five species of cherries; and from these, modern botanists assure us, the great varieties cultivated in the English gardens are derived.

Mr. Coxe, in his travels, relates an instance of great elegance in a desert which he partook of at Moscow. On the upper and lower ends of the table were placed two superb China-vases containing cherry-trees in full leaf, and fruit hanging on the boughs, which was gathered by the company.

Dr. Oliver mentions having been shewn a cherry-stone in Holland with 124 heads upon it, and all so perfect, that the naked eye might distinguish those of kings, popes, &c. by their crowns, mitres, &c. This curiosity was purchased in Prussia, for the sum of £300, and is said to have been the workmanship of a poor wretch whilst in "du-rance vile" at Dantzick.

The mischiefs arising from the custom which many people have of swallowing the stones of plumbs and other fruit are very great. Cherry-stones, swallowed in great quantities, have occasioned the death of several persons.

See the Cyclop. and the Ency. Brit. Art. Fruit-Stones.

What are 743 pounds of cherries worth at 3d. $\frac{3}{4}$. per pound? *Ans.* £11 12s. 2d. $\frac{1}{4}$.

No. 116. **GINGER.** Ginger is a warm aromatic root, a native of the East and West-Indies, where it is found growing naturally without culture. It is, however, cultivated for sale in most of the islands in America, and furnishes a considerable export. The best is of a brownish colour, and of a hot, pungent taste, and agreeable smell. This root, when green, is frequently candied with sugar and honey. They also make a marmalade of it, and dry cakes. The northern people make great use of this confection, as holding it sovereign against the scurvy. The Indians eat the root, when green, by way of salad, first chopping it small, mixing it with other herbs, and seasoning it with oil and vinegar. Ginger is an ingredient in many medicinal compositions, and powders; being hot and penetrating; good to strengthen the stomach, promote appetite, and help digestion.

What are 888 ounces of ginger worth at 2d. $\frac{1}{2}$. per ounce? *Ans.* £9 5s.

No. 117. **CASTOR OIL.** Castor oil is the product of a shrub, called by some *Palma Christi*, which grows in the West-Indies. It is variously prepared; the preferable method is by expression, as oils of all kinds have their acrimony heightened by the action of fire. It seems particularly adapted for the common complaints of infant children, and the cure of bilious disorders; and is certainly by all accounts a very valuable medicine. It is strongly recommended also in all calculous and nephritic disorders. The dose for adults is from two to three or four spoonfuls, in two spoonfuls of peppermint-water. It may be given to children mixed with honey; and it acts so mildly, that new-born infants may take it in about a tea-spoonful for a dose.

What are 947 ounces of castor oil worth at 8d. $\frac{1}{4}$. per ounce? *Ans.* £32 11s. 0d. $\frac{3}{4}$.

No. 118. **BARK.** Cortex Peruvianus, popularly called Jesuit's bark, is the bark of a tree growing chiefly in Peru, denominated by the Spaniards Fever-Wood; by reason of its extraordinary virtue in removing all kinds of intermitting fevers and agues. The Indians commonly call it the *fuddling-tree*, from the property it has of intoxicating fishes, when either its wood or bark is beaten, and steeped in the water where they are. The use of this febrifuge seems to have been very long known to the natives of Peru, probably as early as the year 1500, and their manner of taking it was by pounding the bark, infusing it in water, and drinking the infusion. Their hatred to the Spaniards, their conquerors, induced them to keep it a long time a secret from them; and when it became known among the inhabitants of Loxa, it still remained a secret to the rest of the world, and its great value was never generally known till the year 1633; when the lady of the viceroy of Peru, the countess de Cinchon, being long ill of an intermittent fever, which would give way to none of the known remedies, the corregidor of Loxa sent to the viceroy a quantity of this bark, which he assured him would cure the lady, though all other means had failed. Upon this the corregidor was sent for to Lima, and after having given the medicine to many other persons

sons with safety and success, the lady at length took it, and was cured. She immediately on this sent for a large quantity of the bark, had it powdered, and herself dispersed it to those who had occasion for it; whence it obtained the name of the *countess's powder*, and it was also called *cinchona*. But this lady being soon tired of the office, gave it in charge to the Jesuits; and they continuing to give it to the sick with the same success, it then was denominated the *Jesuit's powder*. These fathers soon found means to send a quantity of it to Cardinal Lugo, who dispersed it with the same success at Rome; and after him the apothecary to the College of Cardinals gave it gratis to the poor with the same good effects, and under the name of the Jesuits, or the Cardinal's powder. Afterwards the better sort were made to pay its weight in silver for it, to defray the expences of importation, while the poor still had it gratis. Lewis XIV. at that time dauphin of France, was cured by it of a fever, which had not given way to other medicines.

In the year 1640, the count and countess de Cinchon being returned to Spain, their physician, Juan de Vega, who brought a great quantity of it over with him, sold it at a considerable price; and soon after this, large quantities were sent over by the galleons; but the great demands from Europe causing the inhabitants of Loxa to adulterate it with other barks, it had like to have lost part of the credit to which it had an unquestionable claim. When first introduced, it is said to have been sold for about 8s. sterl. a dose; which great price, with the little effects found from it, by reason of their ignorance of the manner of preparing and prescribing it, occasioned its being disused, till about the year 1679, when Mr. Talbor, an English practitioner in physic, brought it into vogue again, by the great number of cures wrought about the court and city of Paris with this powder, prepared after his manner: the secret of which was soon after made public by the munificence of Lewis XIV. who rewarded Talbor for the communication with 5000 crowns.

Peruvian bark has been found very effectual in preventing colds. The method in which it has been used for this purpose was, after due preparation, by bleeding or purging, to take two ounces of it every spring and fall. By this means an habitual taking of cold, and a consequent sore throat, has been cured.

What are 999 ounces of bark worth at 8d. $\frac{1}{2}$. per ounce? *Ans.* £35 7s. 7d. $\frac{1}{2}$.

RULE VI. To find the value of one or more thousands, seek the amount of a hundred, which multiply by ten; the result of that product multiply by the number of thousands in the question, if more than one, and proceed for the hundreds, tens, units, and fractions, as directed in the preceding rules.

No. 119. COFFEE. The coffee-tree is cultivated in Arabia, Persia, the East-Indies, and several parts of America. It is also raised

raised in botanic gardens in several parts of Europe. Prince Eugene's garden at Vienna produced more coffee than was sufficient for his own consumption. This tree, being an evergreen, makes a fine appearance at all seasons of the year, but especially when in flower, and when the berries are red, which is generally in the winter, so that they continue a long time in that state.

The coffee produced in Arabia is found so greatly to excel that raised in the West-Indies and elsewhere, that the cultivation of the tree is not much practised in the British colonies. Coffee-berries are very apt to imbibe moisture, or the flavour of any thing placed near them. They have been rendered very disagreeable, or utterly spoiled, by being placed in a closet near rum, spirits of wine, or pepper.

The beverage prepared from those berries has been familiar in Europe for more than a century, and among the Turks for 170, some say 250 years. Its original is not well known. Some ascribe it to the prior of a monastery, who being informed by a goat-herd, that his cattle sometimes browsing on the tree would wake and caper all night, became curious to prove its virtues. Accordingly, he first tried it on his monks, to prevent their sleeping at matins. Others refer the invention of coffee to the Persians. It seems, however, to have been first brought into vogue at Aden, a city near the mouth of the Red Sea. Hence it passed to Mecca. From Arabia Felix it was conveyed to Grand Cairo. From Egypt it passed to Syria and Constantinople. Thevenot, the traveller, was the first who brought it into France; and a Greek servant, called Pasqua, brought into England by Mr. Edwards, a Turkey merchant, in 1652, to make his coffee, first set up the trade of a coffee-man, and introduced drinking it into this island.

From several experiments and observations made by Dr. Percival, to ascertain the effects of coffee on the human body, he infers, that it is slightly astringent, and antiseptic; that it moderates alimentary fermentation, and is powerfully sedative. It assists digestion, relieves the head-ach, and has been prescribed with great success in the asthma. In delicate habits the too liberal use of coffee has, however, been suspected of producing palsies.

What are 1000 pounds of coffee worth at 4s. 6d. per pound?
Ans. £225.

No. 120. CACAO. The cacao, or chocolate-nut-tree, is a native of America; and is found in great plenty in the northern provinces of South America, where it grows spontaneously; but it is cultivated in many of the West-India islands. It resembles a cherry-tree. The fruit is enclosed in a kind of pod, of the size and figure of a cucumber. Of this fruit, which consists of seeds, usually about 30 in number, with the addition of vanilla, and some other ingredients, the Spaniards, and, after their example, the rest of Europe, prepare a kind of conserve, or cake; which, diluted in hot water, makes that delicious, wholesome drink, called CHOCOLATE.

It is likewise made into a sweetmeat; and there is an oil extracted from it, which is an extraordinary remedy for the cure of burns and scalds.

scalds. The cacao-nuts are esteemed by the Mexicans as anodyne; and used, eaten raw, to assuage pains of the bowels. It has been moreover remarked, that the cacao-nut-tree supplies the Indians with almost whatever they stand in need of. The bark of the nut is made into cordage, sails, and cloths; and the shell into drinking bowls, cups, &c. the kernel affords a wholesome food; and the milk contained in the shell a cooling liquor; the leaves are used for thatching houses, and wrought into baskets; and the body of the tree is converted into masts for ships, and employed for various other purposes. Indeed, it is asserted in Lobo's voyage, and by other authors*, that a ship may be built, fitted out with masts, sails, and cordage, and victualled with bread, water, wine, sugar, vinegar, and oil, from the cacao-tree.

It is, probably, to this tree that Thomson alludes in the subsequent lines.

Wide o'er his isles the branching Oronoque †
Rolls a brown deluge, and the native drives
To dwell aloft on life-sufficing trees,
At once his dome, his robe, his food, and arms.

What are 2876 cacao nuts worth at 1s. 6d. $\frac{3}{4}$. each? *Ans.*
£224 13s. 9d.

BILLS OF PARCELS.

No. 121. *A MERCER'S BILL.*

Mrs. JONES,

Bought of WILLIAM BROOK, March 4, 1795.

		s.	d.		£	s.	d.
9	Yards of silk.....	at 13	6	 per yard			
14 $\frac{1}{2}$	Yards of flowered do. at 15	11	 per yard				
23	Yards of farsenet....	at 6	4	 per yard			
30 $\frac{1}{2}$	Yards of brocade....	at 9	11 $\frac{1}{2}$	 per yard			
15 $\frac{1}{4}$	Yards of Genoa velvet at 19	10	 per yard				
18	Yards of lustring....	at 5	8	 per yard			

£60 6 1 $\frac{3}{4}$

* See Ray's Wisdom of God in the Creation, p. 207.

† A noble river of Terra Firma in South America.

72 ARITHMETICAL QUESTIONS.

No. 122. *A LINEN-DRAPER'S BILL.*

Mr. SALMON,

Bought of JOHN WILLIAMS, Jan. 4, 1795.

		s.	d.		£	s.	d.
34	Ells of dowlas	at	1 10	per ell			
28 $\frac{1}{4}$	Ells of holland	at	5 6	per ell			
13 $\frac{1}{2}$	Ells of diaper	at	1 4 $\frac{1}{2}$	per ell			
58	Damask napkins	at	2 3	each			
5 $\frac{1}{2}$	Yards of cambric	at	13 7	per yard			
74 $\frac{3}{4}$	Yards of muslin	at	8 11	per yard			

£55 8 0

No. 123. *A MILLINER'S BILL.*

Mrs. PHILLIPS,

Bought of KATE WATSON, June 4, 1795.

		s.	d.		£	s.	d.
18 $\frac{1}{2}$	Yards of fine lace	at	15 7	per yard			
12	Pair of kid gloves	at	2 2	per pair			
18	French mounted fans	at	3 9	each			
4	Fine lace tippets	at	7 10	each			
4	Doz. linen gloves	at	1 4	per pair			
8	Sets of knots	at	2 6	per set			

£24 17 1 $\frac{1}{2}$

D I V I S I O N

IS a short way of performing many subtractions, and consists of three terms called the *DIVIDEND*, *DIVISOR*, and *QUOTIENT*.

The first is the number given to be divided; the second, that by which the work is performed; and the third, the result of the operation.

E X A M P L E S.

No. 124. *VELOCITY OF LIGHT.*

Let there be light, said GOD, and forthwith light
 Ethereal, first of things, quintessence pure
 Sprung from the deep.

Hail

Hail holy light, offspring of heav'n first-born,
 Whose fountain who shall tell *? Before the fun,
 Before the heav'ns thou wert; and at the voice
 Of GOD, as with a mantle didst invest
 The rising world of waters dark and deep,
 Won from the void and formless infinit.

MILTON.

The sacred writings inform us, that the Divine Architect of the universe, after he had created the light formed the sun, which, according to philosophers and astronomers, then became "the great palace of light; the regent of day; the delegated source of light and life; the best image here below of his Creator."

Mathematicians have demonstrated, that light moves with such amazing rapidity, as to pass from the sun to our planet in about the space of eight minutes†. Now admitting the distance, as usually computed, to be 95,000,000 of English miles, at what rate per minute does it travel? *Ans.* 11,875,000 miles.

If the following observation of a learned foreigner be just, it cannot but be allowed to be a most mortifying conclusion of the subject now under consideration.

"There is no country in Europe, says Dr. Wendeborn, more heavily burdened with taxes than England. The very light which falls through the windows, and which in London, during the winter, is mixed with no small portion of darkness, *must be paid for!*" Thus are we not only subject to a wide range of taxation, which embraces every form of tangible property, but this 'efflux divine,' etherial as it is, has not been able to elude the rapacious gripe of English financiers.

No. 125. A MANUFACTURER. A manufacture is something made by the hand of man. It is derived from two Latin words, *manus*, the hand, and *facere*, to make. Manufactures are therefore opposed to *productions*, which latter are what the bounty of nature spontaneously affords us; as fruits, corn, marble, &c.

"If we try the different characters of men, says an able writer, by the test of utility, and found this test on the actual state of our nation, the knight of chivalry and his various offspring, compared to the modern manufacturer, seem weak and useless things. Even the country-gentleman, the most respectable character of all those *lilies of the valley who neither toil nor spin*, sinks in this comparison. The proprietor of landed property, who lives on the income of his estates, can in general be considered only as the conduit that conveys the wealth of one generation to another. He is a necessary link in society indeed, but his place can at all times be easily supplied: in this point of view, the poor peasant who cultivates his estate is of more importance than he. How then shall we estimate him when compared with a respectable manufacturer?—with the original genius, for instance, who has found

* See Job xxxviii. 19.

† See Gen. i. 2, 3.

‡ See the Cyclop. art. *Light*, or the Ency. Brit. art. *Astronomy*, vol. ii. p. 577.

means to convert our clay into porcelain, and lays all Europe under contribution to England by his genius, taste, and skill?"

The respectable manufacturer here alluded to, is undoubtedly the late Mr. Wedgwood, who extended and applied pottery to a variety of curious compositions, subservient not only to the ordinary purposes of life, but to ornament the arts, antiquity, history, &c. and thereby rendered it a very important object of commerce, both foreign and domestic. This valuable manufacture is carried on in Staffordshire.

If 9 table sets of Mr. Wedgwood's porcelain cost £351; how much is that per set? *Ans.* £39.

No. 126. **TRADESMAN.** A tradesman is a shopkeeper. A merchant is called a *trader*, but not a tradesman; and it seems distinguished in Shakespeare from a man that labours with his hands.

"I live by the awl, I meddle with no tradesman's matters."

Suppose a tradesman saves £1490 in 10 years; how much is that per annum? *Ans.* £149.

No. 127. **A MECHANIC.** This word sometimes signifies a man skilled in mechanics; a mathematical science which demonstrates the laws of motion. But it generally denotes a low workman; a person of mean occupation; in which sense Shakespeare uses it; and no author has, we think, treated these valuable members of the community with more aristocratic insolence than that inimitable bard. "Mechanic slaves; mechanical, salt-butter-roguers; worsted-stocking-knaves; rank-scented many, apron-men, garlick-eaters," are a few of the many contemptuous epithets which are applied to them in his dramatic pieces. Hence it may be inferred, that it was the *ton* in his time, as it has been since, to consider the lower classes of God's creatures as "things base and vile, holding no quantity." Let, however, the proudest natural philosopher, or the profoundest mathematician, consider, that although he may be justly delighted with the extent of his own views, yet, without mechanical performances, all his refined speculations would prove but an empty dream. And, indeed, in justice to Shakespeare, he may be considered in these passages not as expressing his own sentiments, but as exhibiting the insolent language often employed by the wealthy, and by those who are sometimes styled the great, when speaking of the lower orders of society.

Suppose an excellent mechanic earns £17 6s. 6d. in 11 weeks; how much is that per week? *Ans.* £1 11s. 6d.

No. 128. **PEASANT.** A peasant is one whose business is rural labour. Peasantry denotes country people.

Ill fares the land, to hast'ning ill a prey,
Where wealth accumulates, and men decay;
Princes and lords may flourish, or may fade;
A breath can make them, as a breath has made:
But a bold PEASANTRY, their country's pride,
When once destroy'd, can never be supply'd.

GOLDSMITH.

It

It has been justly remarked, that farmers, manufacturers, mechanics, and labourers, are the strength and boast of an empire.

Without labour man could not exist : and where lies the great burden and weight of industry but upon these ? It is by prodigious labour that the earth is forced to produce the necessaries of life ; it is by an equally painful application, that all kinds of manufactures are produced ; the conveniencies, the luxuries of life, all come from them.

Hence corn, and wine, and oil, and all in life
Delectable. What simple nature yields
(And nature does her part) are only rude
Materials, cumbrous on the thorny ground ;
'Tis toil that makes them wealth.

DYER.

It is, therefore, the labour of the artisan and the peasant that supports monarchy ; it is their labour that supports aristocracy ; it is their labour that supports the priesthood ; and it is their labour that supports themselves. Have then, it has been asked, such men no RIGHTS in a state ; are they to be stigmatized by aristocratic pride and insolence as the "*swinish multitude*," and to be treated with contempt ?

Suppose a peasant earns £5 14s. in 12 weeks, how much is that per week ? *Ans.* 9s. 6d.

No. 129. LONGITUDE. Longitude is the distance of a place from some first meridian, east or west, measured in degrees and minutes (60 of which make a degree) on the equator, half the circumference of the globe, or 180 degrees. Longitude may also be reckoned by time : for the circumference of the earth being 360 degrees, and its diurnal revolution performed in 24 hours, it follows, that 1 hour of time is equal to 15 degrees of longitude ; and so in proportion for any greater or less quantity : consequently, a place which has the sun 1, 2, or 3 hours before or after another place, must be situated 15, 30, or 45 degrees east or west of the meridian of such a place. Hence, dividing the longitude of any place by 15, will give the number of hours which that place has the sun before or after persons who live under the first meridian.

When the place in the subsequent questions lies in eastern longitude, the quotient of the operation now recommended will give the hour required, which will either be in the afternoon, evening, or night ; but when it is situated in western longitude, the time in the quotient must be subtracted from 12, and the remainder will be the hour sought, viz. some portion of the morning. A similar procedure will afford an answer to all questions of this nature, whatever hour may be proposed.

PETERSBURGH, the capital of the Russian empire, built by Peter the Great ; and CONSTANTINOPLE, the chief city of the Ottoman empire, rebuilt by Constantine the Great, are situated in *about* thirty degrees of eastern longitude from the meridian of LONDON : What is the hour at those places when it is *noon* with us ? *Ans.* 2 o'clock in the afternoon.

No. 130.

No. 130. BOTANY-BAY. This place is situated in New-Holland, the largest island in the world, and was fixed upon to receive convicts when the cessation of transferring them to America took place. The squadron which conveyed Governor Philips thither sailed in May 1787; and, after touching at Santa Cruz, in the isle of Teneriffe, Rio de Janerio, on the coast of Brazil, South America, and the Cape of Good Hope, arrived in sight of the coast of Botany-Bay the beginning of January 1788. The water in this bay being found shallow, and the anchorage bad, Port Jackson, a bay three leagues north of it was examined, which being found uncommonly good, a cove denominated from Lord Sydney, *Sydney-Cove*, was fixed on for suiting the purpose of debarkation. Thus seated at the head of this cove, Governor Philips on the 7th of February 1788, assumed, in a solemn manner, the powers of government delegated to him, by publishing the royal commission, which constituted him captain-general and governor of New South Wales, and the islands adjacent in the pacific ocean.

Botany-Bay is situated in about 34 degrees of south latitude, and 150 degrees of east longitude from London; what is the hour at that place when it is noon with us? *Ans.* 10 o'clock at night.

No. 131. AMBOYNA. This is one of the Moluccas, or clove islands in the East-Indies. Here the English and Dutch had formerly their respective factories and settlements, and had by treaty agreed to divide the traffic between them; but the latter, under pretence that the English were concerned in a plot, seized all their factors and merchants, with their merchandize, writings, and books. These acts of violence were followed by a scene of horror scarcely to be equalled by the punishment of the most atrocious offenders. Their savage tormentors tortured these miserable victims by every cruel method they could invent, in order to make them confess this imaginary treachery: and those who did not expire under the agonies of torture, were consigned to the hands of the executioner.

This event took place in 1622, in the reign of James I. and neither he nor his successor Charles I. had the spirit to procure any satisfaction for this infamous infraction of the law of nations, and shameful violation of every principle of humanity. But Cromwell, when peace was signed with the Dutch in 1654, compelled them to pay £300,000, on this account.

See Rapin, vol. xi. p. 76.

It may, however, justly be reckoned singular in the fortune of this commercial republic, that they are still permitted to enjoy this invaluable island in peace, since it was obtained by means that will stain the Dutch annals, to the latest ages, with indelible infamy.

Amboyna is situated in 4 degrees of south latitude; and 127 degrees of east longitude; what is the hour there, when it is noon with us? *Ans.* 8 hours 28 minutes, in the evening.

No. 132. CALCUTTA. This large and populous city, the capital of Bengal, and of all the British possessions in the East-Indies, is situated on a branch of the Ganges, about 100 miles from the sea. It was taken by the Nabob Surajah Dowla, in 1756, when the English prisoners, in number 146, were driven in the evening, into a place called the Black-Hole prison, a cube of about 18 feet, where, through the want of room, the exclusion of fresh air, and the heat of the climate, 123 of these hapless victims expired in extreme agonies the same night: an affecting scene, which is pathetically described in Smollett's History of England.

Calcutta being retaken by Admiral Watson and Colonel Clive, early in 1757, the Nabob was afterwards defeated, deposed, and put to death.

The eastern longitude of Calcutta is about $88\frac{1}{2}$; what o'clock is it with the inhabitants when it is mid-day with us? *Ans.* 54 minutes past 5 in the afternoon.

No. 133. BALDIVIA. Baldivia or Valdivia, a sea-port town of Chili, South America, was built in 1551, by the Spanish general Baldivia. This brutal officer tyrannizing over the Chileans occasioned a general revolt, and CAPAULICAN, a renowned hero, was chosen their leader. By his skill and intrepidity, the Spanish army which opposed them was surrounded and cut to pieces; and Baldivia himself, being captured, was put to death by having melted gold poured down his throat. The Indians afterwards made flutes and other instruments of his bones, and preserved his skull as a monument of their victory, which they celebrated by an annual festivity.

Baldivia is situated in about 40 degrees of south latitude, and 81 degrees of west longitude; what is their hour when it is mid-day with us? *Ans.* 36 minutes past 6 o'clock in the morning.

No. 134. JUAN FERNANDEZ. This is a small island west of Chili, South America. It has plenty of excellent water, and abounds in a variety of esculent vegetables, highly antiscorbutic. Here Commodore Anson's languishing and distressed crew, after having been buffeted with tempests, and debilitated by an inveterate scurvy, were restored to perfect health in 1741. But what has chiefly contributed to render this spot remarkable, is its having been the solitary residence of one Alexander Selkirk, a Scotchman, who was left here about the year 1705, and continued alone upwards of four years, when he was taken on board an English ship, and brought back to Europe. When he was first discovered he had forgotten his native language, and could scarcely be understood, seeming to speak his words by halves. He was dressed in goats skins, would drink nothing but water, and it was some time before he could relish the ship's victuals. During his abode in this island, he had killed 500 goats, which he caught by running them down; and he marked as many more on the ear, which he let go. Some of these were caught by Anson's people; their venerable aspect and majestic beards discovered strong symptoms of antiquity.

It

It has been pretended, that Selkirk, after his return to England, was advised to publish an account of his adventures; and that he put his papers into the hands of Daniel De Foe, to prepare them for publication; and that the latter surreptitiously appropriated these papers to his own use, and that this was the origin of Robinson Crusoe. But this charge against De Foe, though it has been repeatedly published, appears to have been totally groundless; and though he had many enemies, and was often attacked in print, the charge was never brought against him in his own life-time. De Foe probably, indeed, derived some general hints for his own work from the story of Selkirk; but this he, or any other man, had a right to do, as the story of Selkirk had been published by Captain Woodes Rogers, who brought him to England, in his account of his voyage round the world, which was printed in 1712, seven years before the publication of Robinson Crusoe. Daniel De Foe was a man of very uncommon ingenuity, and author of a great number of popular productions. His character has been sometimes very injuriously treated, but he appears to have been a man of great integrity, and of an high degree of public spirit; an ardent and enlightened friend to the interests of liberty. Besides his other works, his political and commercial writings have been much and deservedly applauded.

Juan Fernandez is situated in about 33 degrees of south latitude; and 83 degrees of west longitude; what o'clock is it there, when it is noon with us? *Ans.* 28 minutes past 6 in the morning.

No. 135. VELOCITY OF THE EARTH AT THE EQUATOR. The circumference of our earth under the equator is 21,600 geographical, or 25,020 English miles; now this body turning on its axis in about 24 hours, at what rate an hour, English measure, are the inhabitants, situated under the equator, carried from west to east by the rotation? *Ans.* $1042\frac{1}{2}$ miles.

N. B. The persons thus situated are those living in the islands of Celebes, Borneo, and Sumatra, in the East-Indies; in the south part of Africa; and in Terra Firma and Guiana, in South America.

No. 136. VELOCITY OF THE EARTH AT LONDON. The velocity of the parts of the earth near the equator greatly exceeds the rapidity of motion of the parts in latitudes approaching the poles, as will be evident by the bare inspection of a terrestrial globe. In the parallel of latitude in which London is situated, a degree of longitude is only about 37 geographical, or 42 English miles; consequently, the circumference of the globe in this parallel is but about 15,120 English miles. At what rate per hour are we carried by the earth's diurnal rotation? *Ans.* 630 miles.

No. 137. EQUESTRIAN EXPEDITION. Mr. Cooper Thornhill, an innkeeper at Stilton, in Huntingdonshire, rode from that place to London, and back again, and also a second time to London, in one day; which made in all 213 miles. He undertook to ride this journey with

with several horses in 15 hours, but performed it in 12 hours and a quarter.

Some years ago, Lord James Cavendish rode from Hyde-Park-Corner to Windsor-Lodge, which is upwards of 20 miles, in less than an hour.

Sir Robert Cary rode near 300 miles in less than 3 days, when he went from London to Edinburgh, to inform King James of the death of Queen Elizabeth. He had several falls and fore bruises on the road, which occasioned his going battered and bloody into the royal presence.

The celebrated Marquis de la Fayette, now so iniquitously imprisoned by a despot on the Continent, rode in August 1778, from Rhode-Island to Boston, near 70 miles distant, in seven hours; and returned in six and a half.

Dr. Gordon's Hist. Amer. War, vol. iii. p. 168.

Mr. Fofard, of Park-Lane, London, for a wager of £150 against £100, undertook to ride 40 miles in two hours, over Epsom course. He rode 2 miles more than had been agreed on, and performed it in 5 minutes under time, in October 1789.

Mr. Wilde, an Irish gentleman, lately rode 127 miles on the course of Kildare in Ireland, in 6 hours and 20 minutes, for a wager of 1000 guineas.

These equestrian performances seem to countenance Shakespeare's hyperbolical language on this subject:

I've heard of riding wagers,
Where horses have been nimbler than the sands
That run i' th' clock's behalf.

CYMBELINE.

The inimitable humour with which Shakespeare portrays "Hal's" frolics, and "the fat knight's" prowess at Gad's-Hill, a few miles from Rochester, Kent, has immortalized that otherwise obscure spot. But the following incident, the most singular, perhaps, on record, superadded, in 1676, no small degree of temporary notice to its long established celebrity.

One Nicks having committed a robbery there about 4 in the morning, and suspecting himself recognized by the party robbed, made for Gravesend, where he ferried over the Thames, and rode to York with such speed, that, as was attested by the chief magistrate at his trial, he appeared on a bowling-green in that city, at 8 o'clock the same evening; which circumstance so credibly and solemnly vouched, occasioned his acquittal; the jury judging it morally impossible for *the same horse* to bear the same man so long a journey in 16 hours.

The distance is computed at 214 miles: supposing his horse to have rested on the road for the space of 2 hours, what was the average expedition of every other hour? *Ans.* 15 miles $\frac{1}{4}$ $\frac{2}{14}$.

N. B. One of the fleetest race-horses ever known was CHILDERS, who ran 7420 yards, the space of one of the Newmarket horse-courses, in $7\frac{1}{2}$ minutes; which is at the amazing rate of more than $33\frac{1}{2}$ miles an hour.

No. 138. PEDESTRIAN EXPEDITION. Euchidas, a citizen of Plataea, went from thence to Delphos, to bring the sacred fire. This he obtained, and returned with it the same day before sun-set, having travelled 125 English miles. No sooner had he saluted his fellow-citizens, and delivered the fire, than he fell at their feet, and expired.

Rollin's Anc. Hist. vol. ii. p. 509.

After the battle of Marathon, a soldier was sent from the field to announce the victory at Athens. Exhausted with fatigue, and bleeding from his wounds, he had only time to cry out, "Rejoice, we are conquerors!" and immediately expired.

Dr. Rutherford's Anc. Hist. vol. i. p. 446.

Powell, the celebrated English pedestrian, performed many astonishing journeys on foot. Among these, was his expedition from London to York and back again in 1788, which he completed in 140 hours.

Supposing Powell to have rested 40 hours in his journey, at what rate per hour did he travel, York being 198 miles from London? *Ans.* 3 miles and $\frac{3}{4} \frac{8}{100}$.

No. 139. JOSEPH SOLD. The history of Joseph has such a majestic simplicity in the relation, and exhibits so affecting a portrait of human nature, that it overwhelms us alternately with vicissitudes of joy and sorrow. His conduct, in many respects, is highly deserving of imitation; and his behaviour, under a most ensnaring temptation, bespeaks a mind whose passions were in entire subjection to the ruling principles of reason and conscience; it manifests the most delicate sentiments of honour, and the most lively impressions of religion; and, finally, it displays, in a strong light, one of the most amiable virtues that can adorn the human character, GRATITUDE*.

From the pathetic and interesting story now under consideration, youth may learn a most important lesson. They may see the natural but fatal progress of vice and wickedness; how easily and almost necessarily men proceed from bad actions to worse. The seeds of envy and jealousy, in Joseph's brethren, grew by degrees into actual hatred; and hatred, by an easy transition, degenerated into intentional murder—the murder of a brother! "When a turn is once made from the straight path, who shall prescribe limits to deviation?"

Joseph was sold for 20 pieces of silver; supposed by commentators to have been shekels, whose total value was £2 7s. 6d. what is one worth according to this supputation? *Ans.* 2s. 4d. $\frac{1}{2}$.

No. 140. AN ENGLISHMAN'S HOUSE IS HIS CASTLE. A house is defined to be an habitation; a place built with conveniences to live in; or a building wherein to shelter a man's person and goods from the inclemencies of the weather and the injuries of ill-disposed persons. Accordingly many salutary laws have been enacted not only

* See Gen. xxxix. 9.

to preserve this particular species of property, but for the personal security of its inmates. If a man's house be attacked with intent to murder, and the owner, or his servants, kill the ruffians in defending him and his house, it is not felony, and incurs no forfeiture. The doors of a house may not be broken open for arrests, except in cases of treason or felony, &c. In fine, the ancient laws of England made a house alike sacred from the intrusion of the ruffian and the magistrate—even *the first magistrate*. Agreeably to this constitutional doctrine the *late* earl of Chatham observed, that “The winds and the elements might enter the cottage of the peasant, but not the KING, without the peasant's permission.”

It must, however, be acknowledged, that, by some late enormous extensions of the excise laws, and other circumstances, the houses of Englishmen are not now so sacred, nor so well protected, as in the times of their ancestors. If a man were impartially to review all the new acts passed in some late parliaments, he might be tempted to suspect, that the business of parliament was not to enlarge, to secure, or to establish the rights of the people; but to increase the royal prerogative, and to lessen, and render insecure, the public liberty.

But to endear our dwellings to us, let it be considered, that a man's house is his *home*; and that “a well-ordered home,” especially among the enlightened, and the virtuous, if they have a sufficiency of the necessaries of life,

Is the resort
Of love, of joy, of peace and plenty, where
Supporting and supported, polish'd friends
And dear relations mingle into bliss.

THOMSON.

Nor, according to another poet, are domestic comforts altogether denied even the laborious peasant: he has, at least in times of national prosperity,

His little smiling cottage, where at eve
He meets his rosy children at the door,
Prattling their welcomes, and his honest wife,
With good brown cake and bacon slice, intent
To cheer his hunger after labour hard.

DYER.

Suppose the expences of a house to amount to £300 per annum, how much is expended quarterly, monthly, and weekly? *Ans.* £75 per quarter; £25 per month; £5 15s. 4d. $\frac{1}{2}$. per week.

No. 141. LOTTERIES. Lottery is a kind of public game at hazard, frequent in England, France, and Holland, in order to raise money for the service of the state, and appointed with us by act of parliament. But in the reign of Queen Anne, it was thought necessary to suppress lotteries, as nuisances to the public; and the “pernicious effects of this mode of raising money for the use of the state have, as Dr. Towers justly remarks, been since repeatedly pointed

M

out,

out, and are so generally acknowledged, that scarcely any man entertains the least doubt upon the subject. Yet lotteries continue to be supported by those in administration; which could not be the case, if the welfare of the people were really the object of those to whom the powers of government are intrusted."

Thoughts on the Commencement of a New Parliament.

The Romans invented lotteries, to enliven their Saturnalia. This festival, which was instituted in commemoration of the freedom and equality which prevailed on earth in the golden reign of Saturn, began by the distribution of tickets which gained some prize. Augustus appointed lotteries which consisted of things of little value; but Nero established some for the people, in which 1000 tickets were distributed daily, and several of those who were favoured by fortune became rich by them. Heliogabalus invented some lotteries of a very singular nature: the prizes were either of great value, or of none at all; one gained a prize of six slaves, and another of six flies; some got valuable vases, and others vases of common earth. A lottery of this kind exhibited an excellent picture of the inequality with which fortune distributes her favours.

The first lottery in England, of which we have any account, was drawn at the west door of St. Paul's cathedral, in 1569, and consisted of 40,000 lots at 40s. each. The prizes were plate, and the profits were to be applied towards repairing the havens of this kingdom. In 1612, King James, for the plantation of English colonies in Virginia, appointed a lottery at the place where the one just mentioned had been determined. The principal prize of this last was 4000 crowns in fair plate.

In the state lottery of the year 1787, one of the £20,000 prizes came to a club consisting of 35 clerks in the India-House. To how much did the share of each amount? *Ans.* £571 8s. 6d. $\frac{3}{4}$.

No. 142. THE MAN OF ROSS.

But all our praises why should lords engross?
 Rise, honest muse! and sing the MAN OF ROSS.
 Who hung with woods yon mountain's sultry brow?
 From the dry rock who bade the waters flow?
 Whose causeway parts the vale with shady rows?
 Whose seats the weary traveller repose?
 Who taught that heav'n-directed spire to rise?
 "The *Man of Ross*," each lisping babe replies.
 Behold the market-place with poor o'erspread!
 The *Man of Ross* divides the weekly bread:
 He feeds yon alms-house, neat, but void of state,
 Where age and want sit smiling at the gate:
 Him portion'd maids, apprentic'd orphans blest,
 The young who labour, and the old who rest.
 Is any sick? the *Man of Ross* relieves,
 Prescribes, attends, the medicine makes and gives.
 Is there a variance? Enter but his door,
 Balk'd are the courts, and contest is no more.

Thrice

Thrice happy man! enabled to pursue
 What all so wish, but want the power to do!
 Oh say, what sums that gen'rous hand supply?
 What mines, to swell that boundless charity?
 Of debts and taxes, wife and children clear,
 This man possess'd—*five hundred pounds a year.*

POPE.

This praise of the *Man of Rofs*, as Dr. Johnson remarks, deserves particular examination. He is said to have diffused all the blessings just enumerated, from *five hundred pounds a year*. Wonders are willingly told, and willingly heard. The truth is, that he was a man of known integrity, and active benevolence, by whose solicitation the wealthy were persuaded to pay contributions to his charitable schemes. This influence he obtained by an example of liberality exerted to the utmost extent of his power, and was thus enabled to give more than he had. This account was received from the minister of the place; and I have preserved it, continues Johnson, that the praise of a good man being made more credible, may be more solid. Narrations of romantic and impracticable virtue will be read with wonder, but that which is unattainable is recommended in vain; that good may be endeavoured, it must be shown to be possible.

Johnson's Life of Pope.

The name of the Man of Rofs was JOHN KYRLE; he died in 1724, in the 82d, or, according to other accounts, in the 90th year of his age. He is said to have reserved only £50 a year for his own particular use out of his annual income, devoting the rest entirely to the purposes of philanthropy.

Supposing his charities divided into equal hebdomadal portions, what was the weekly distribution? *Ans.* £8 13s. 0d. $\frac{1}{4}$.

N. B. Rofs is a fine old town on the river Wye in Herefordshire, one of the pleasantest and most picturesque parts of England. The two charity-schools of Rofs have been lately (1786) enriched by a legacy of £200 per annum from a Mr. Scott, hence denominated the "Second Man of Rofs."

No. 143. POSTS. Posts, in their present improved state, are of very modern invention; for, even in France, the first place of their adoption, they were, in 1619, still unprovided with a letter-office. The year 1635, during Charles the First's reign, presents the first regular establishment of the kind in England. A private person projected, in 1683, the useful conveyance of letters and parcels, by the penny-post, throughout London and its suburbs.

The ancients, being destitute of the conveniency of posts, were accustomed when they took a long journey, and were desirous of sending back any news with uncommon expedition, to take tame pigeons with them. When they thought proper to write to their friends, they let one of these birds loose, with letters fastened to its neck: the bird, once released, would never cease its flight till it arrived at its nest and young ones,

Often

Often through the fields of air
Song or billet-doux I bear.

ANACREON'S DOVE.

The custom of making pigeons the vehicles of postage still retains among the Turks, and in several eastern countries; and Tavernier observes, that, at this day, the consul of Alexandretta transmits diurnal intelligence by them to Aleppo.

The same winged messengers have been used by the Dutch in sieges. When Haerlem was reduced to the last extremity, and on the point of opening its gates to a base and barbarous enemy, a design was formed to relieve it; and the intelligence, says Thuanus, was conveyed to the citizens by a letter which was tied under the wing of a pigeon.

Crows were also sometimes employed as letter-bearers; and Cincinnatus, a Roman knight in the interest of Pompey, and the particular friend of Cicero, used to bring up young swallows, and send them as messengers, to carry news to his friends.

It may be observed, that few institutions are replete with more advantages, or productive of more eventual consolation, than that of posts. Indeed, their utility, not to say necessity in commercial concerns, is too obvious to admit of any doubt. The aids they administer in political transactions are little less apparent. Next to a free press, they are the grand underminers of despotic sovereignty. But it is in the more confined and humble scenes of social life, that they dispense comfort, and diffuse joy, with a liberality which we seldom hear adequately acknowledged; although to them the absent parent, child, friend, and other endearing relatives, are repeatedly indebted, not only for the removal of anxiety, and solace of dejection, but often even for the sole antidote to despondency.

The Cyclopædia states the annual gross amount of our foreign and inland post-offices, so far back as the year 1764, to be £432,048; what was the quarterly, monthly, and weekly income at that period? *Ans.* £108,012 quarterly, £36,004 monthly, £8308 12s. 3d. $\frac{1}{2}$ weekly.

N. B. The whole revenue of the post-office at present, 1795, is stated to amount to £627,000: nearly the half of this sum is, however, said to be consumed in office expences.

No. 144. MAYOR OF LONDON. A mayor is the chief magistrate of a corporation, who, in London and York, is called *Lord-Mayor*. He is chosen annually by the citizens out of the body of aldermen, whose number in the metropolis is 25, and who preside over the 25 wards of the city. The flattering title of *lord* is said to have been first annexed to that of mayor, in the time of Richard II. This happened in consequence of Walworth, then mayor of London, having, with a blow of his dagger, stunned the famous Wat Tyler, and brought him to the ground (whom the king's other attendants instantly dispatched) in a conference which Tyler had with that monarch in Smithfield, A. D. 1381. But if the mayor of London obtained

obtained a new title by this transaction, the conduct of Walworth in it was not very honourable. The king had agreed to have an interview with Tyler; and the mayor of London ought not to have acted as an assassin on the occasion. Those who were concerned in the insurrection under Wat Tyler were guilty of some indefensible actions; but they had real grievances to complain of; and it has been observed, that "it is easy for the opulent, and those in elevated stations, to talk of the unreasonable discontents of the multitude, and their aptitude to sedition and revolt; but it would appear, upon an impartial inquiry, that there have been very few instances of very general risings among the common people, the primary cause of which has not been the oppressions of the poor, in some way or other, by the great and wealthy." Many of the common people in England, at the time of the insurrection under Wat Tyler, particularly those who were called tenants in villenage, were in a state of great vassalage and subjection to the lords and proprietors of the lands, loaded and oppressed with taxes, and in a state of great slavery. Therefore, though some of their proceedings at this period might be censurable, they were certainly contending for that liberty, to which every man has a natural claim, and of which no power on earth had any right to deprive them.

To support the dignity of his important and honourable office, the lord-mayor of London is allowed by the city the sum of £6000; how much is that per month, week, and day? *Ans.* £500 per month; £115 7s. 8d. $\frac{1}{4}$. per week; £16 8s. 9d. per day.

No. 145. BRITISH CONSTITUTION. It has been justly observed, that our constitution is a government of *laws*, not of *persons*. *Allegiance* and *protection* are obligations that cannot subsist separately; when one fails, the other falls of course. The true etymology of the word LOYALTY (derived from the French word *loy*, law) is an obedience to the prince, in all his commands *according to law*; that is, to the *laws themselves*. The meaning of the old maxim, that THE KING CAN DO NO WRONG, is, that he has no *lawful power* to do wrong, and our constitution considers no power AS IRRESISTIBLE, BUT WHAT IS LAWFUL.

That the English government ought to be a good government; that the persons and property of individuals ought to be well protected; and that the aged poor ought to be comfortably provided for; are points which, we imagine, no one will be inclined to controvert, who considers, that the taxes annually levied in England, including the poor-rates, are said to amount to the enormous sum of 24 millions sterling. How much is that per day? *Ans.* £65,753 8s. 5d. $\frac{3}{4}$.

No. 146. BRITISH MONARCHY. It has been no less energetically, than truly observed by Mr. Sheridan, that "a king of England is not seated on a solitary eminence of power, but sees in the co-existent branches of the legislature *his equals*; and in the LAW recognizes HIS SUPERIOR:" a grand constitutional maxim, which should be the *phylactery*, the *frontlet between the eyes*, of every Englishman;

lishman; which *should be not only indelibly impressed upon his own heart, but taught diligently to his children.*

The monarchy of the British kingdoms is *limited and hereditary**; both males and females being capable of succession. The king, however, notwithstanding the limitations to which the crown is subject, is one of the greatest monarchs reigning over a FREE PEOPLE, from whom *solely* deriving his power, he is accountable to them for the delegated trust.

A Briton, therefore, rejects with ineffable indignation and contempt, the slavish doctrine of "right divine" in kings, as well as its soul-annihilating concomitant, the "enormous faith of *many* made for *one*;" he considers the *one* not only made *by*, but *for*, the *many*: and he deems it to be the great constitutional doctrine of this country, that kings can only be secure in their royalty, while they make the felicity of their subjects, by a just administration of the laws, the rule and end of their government. To this purpose is the observation of Rapin. In a government like that of England, says that judicious and impartial historian, all the king's endeavours to usurp arbitrary power, are but so many steps to his own destruction.

A king of England, said Gourville, a Frenchman, who will be the *man of his people*, is the greatest king in the world: but if he will be any thing more, HE IS NOTHING AT ALL. By a fundamental law of the realm, the British sovereign must profess the PROTESTANT religion, neither can he marry a PAPIST.

His annual income, commonly called the civil list, is stated by some political writers at £900,000; by others at £1,000,000 sterling; how much is that *per hour*, supposing it to be the latter sum; and reckoning 8,766 hours in the year? *Ans.* £114 1s. 6d. $\frac{1}{2}$.

No. 147. HOURLY VELOCITY OF THE EARTH. It has been observed in the second question, that our earth is one of the planets belonging to the solar system. Its form has been stated in the sixty-second, where also its diurnal and annual motions have been slightly adverted to. The resumption of the subject will not, we presume, be found entirely useless to our young readers. The daily rotation of the earth causes the uniform succession of light and darkness. Our

* Seven instances, however occur, from the time of William the Norman to the present period, in which the regular line has been broken; and these deviations have been repeatedly authorized by express acts of the legislature.

See Dr. Towers's Thoughts on the Commencement of a New Parliament, Appendix, p. 128, &c.

It is evident, says Mr. Belsham, that the title of George I. was founded solely on the choice of the parliament, *i. e.* of the people or nation; and that the usual order of succession was entirely superseded: more than fifty persons prior in the order of succession being passed over in the act of William, which settled the crown of England on the house of Hanover. So that the rights of the PEOPLE were not only asserted, but exercised in their full extent: and the family upon the throne is indisputably an *elected family*, though the general law or rule of succession remains unaltered.

Memoirs, vol. i. p. 87, &c.
sublime

sublime poet Milton, who appears to have been greatly enamoured with the beauties of nature, has exerted his unrivalled powers in enhancing her charms in this alternation of day and night, in the following exquisite lines.

Sweet is the breath of morn, her rising sweet,
With charm of earliest birds; pleasant the sun,
When first on this delightful land he spreads
His orient beams, on herb, tree, fruit, and flow'r,
Glist'ring with dew; fragrant the fertile earth
After soft show'rs; and sweet the coming on
Of grateful evening mild; then silent night
With this her solemn bird, and this fair moon,
And these the gems of heav'n, her starry train.

PARADISE LOST, Book IV.

The annual motion of the earth occasions the grateful vicissitude of the seasons, and the difference of the length of the days and nights. In this yearly course the earth is said to travel 596,088,000 English miles. What is the earth's rapidity per hour, the year containing 8,766 hours? *Ans.* 68,000 miles!

No. 148. ANSON'S VOYAGE ROUND THE WORLD. In September 1740, a small squadron of ships, commanded by Commodore Anson, set sail from St. Helen's in the Isle of Wight, Hampshire, for the South-Sea, in order to annoy the Spaniards on the coast of Chili and Peru, in South America, and to co-operate occasionally with Admiral Vernon across the isthmus of Darien, which connects North and South America. The scheme is allowed to have been admirably well planned, but it was ruined by unnecessary delays and unforeseen accidents. Anson touched at the Madeiras*; then at St. Catherine's†. In passing the streights of Le Maire‡, and doubling Cape Horn§, the dangers he encountered, and the difficulties he surmounted, must excite surprise in most of the readers of this interesting and perilous voyage.

Perils and conflicts inexpressible
ANSON, with steady undespairing breast,
Endur'd, when o'er the various globe he chas'd
His country's foes. Fast-gather'd tempests rous'd
Huge ocean, and involved him: all around
Whirlwind, and snow, and hail and horror: now,
Rapidly, with the world of waters, down
Descending to the channels of the deep,
He view'd th' uncover'd bottom of th' abyss,
And now the stars, upon the loftiest point
Toss'd of the sky-mix'd furies. Oft the burst

* In the Atlantic ocean, W. of Morocco in Africa.

† Coast of Brazil, South America; in about 29 degrees S. lat.

‡ Between Terra del Fuego (an island S. of South America) and States island.

§ South part of Terra del Fuego.

Of loudest thunder, with the dash of seas,
Tore the wild-flying sails and tumbling masts,
While flames, thick-flashing in the gloom, reveal'd
Ruins of decks, and shrouds, and fights of death.

DYER.

Previously to this most critical juncture, two of his ships had been separated from him in a violent storm. These, after putting in at Rio de Janeiro*, returned to Europe. Having accomplished the passage round Cape Horn, the commodore steered to Sacro†; then to Juan Fernandez‡. In this healthful spot he continued till the valedictory part of his men became convalescent. Putting to sea they made prize of several vessels, and captured the town of Paita§, in which he found considerable booty.

Then Paita's walls, in wasting flames involv'd,
His vengeance felt, and fair occasion gave
To shew humanity and continence,
To SCIPIO's not inferior.

DYER.

Bearing away from hence they sailed to Quibo||; then to the bay of Acapulco**; and afterwards stretched across the South-Sea towards the Philippine isles in the East-Indies. In this passage the Gloucester was abandoned and sunk; the other vessels had been destroyed for want of men to navigate them; so that nothing now remained but the commodore's own ship, the CENTURION, and that but very indifferently manned; for the crews had been exceedingly thinned by sickness. Great were the hardships and misery which they sustained, from the shattered condition of the ships, and from the scurvy, when they reached the plentiful island of Tinian††, where they were supplied with the necessary refreshments. Thence they prosecuted their voyage to Macao, an island near Canton in China. The chief object of the commodore's attention now, was the rich annual ship that sails between Acapulco in Mexico, and Manilla, one of the Philippine islands. In hopes of intercepting her, he set sail from Canton, and steered his course back to the straits of Manilla‡‡, near which she actually fell into his hands, after a short but vigorous engagement.

* Coast of Brazil; in about 23 degrees S. lat.

† Coast of Chili, South America.

‡ See question 134.

§ Peru, South America; in about 5 deg. S. lat.

|| An island in the Bay of Panama; N. W. part of Terra Firma, South America.

** Coast of Mexico, North America; in about 17 deg. N. lat.

†† One of the Marian or Ladrone islands in the East-Indies.

‡‡ Between Manilla and the island of Samar. The ship was taken about 7 leagues N. E. of Cape Spirito Santo, in the last-mentioned island.

There his wave-worn bark
Met, fought the proud Iberian, and o'ercame.

DYER.

With

With this valuable and long looked for prize he returned to Canton; from whence he proceeded to the Cape of Good Hope*, pursued his voyage to England, and arrived in safety at Spithead† in June, 1744, after an absence of 3 years and 9 months.

Commodore Anson was ennobled in consequence of defeating a French Squadron off Cape Finisterre, in Spain, in the year 1747.

Lord Anson's voyage round the world was published in 1748; and no production of this kind ever met with a more favourable reception, four large impressions being sold off within a twelvemonth: it has been translated into most of the European languages; and still supports its reputation, having been repeatedly printed in various sizes. It was composed under his lordship's inspection; and though it carries Mr. Walter's name in the title-page, is said to have been really written by Mr. Benjamin Robins; but this has lately been denied by Mr. Walter's widow.

The galleon, or Manilla ship, had 600 men on board when she was captured; the Centurion only 227, thirty of whom were boys. The cargo, at the lowest estimation, was computed to be worth £313.000 sterling‡. Allowing two thirds of this sum to the commodore and his officers, and dividing the remainder equally among the men and boys belonging to the Centurion, how much had these last each? *Ans.* £459 12s. 4d. $\frac{1}{4}$.

R E D U C T I O N

IS the method of bringing numbers from one name or denomination to another, so as still to retain the same value; and is performed by Multiplication and Division: by the former great names are brought into less, and by the latter less are brought into greater.

E X A M P L E S.

No. 149. THE SPLENDID SHILLING. This is the title of one of the finest burlesque poems in our language. It abounds in exquisite strokes of humour and raillery; and has besides, as Dr.

* South part of Africa.

† A famous road between Portsmouth and the Isle of Wight.

‡ Some value this ship at £400.000; and the other vessels and effects destroyed by Anson at £600,000: so that the damage done to the enemy in this expedition amounted to a million sterling. It must, however, be admitted, that though this fortunate commander enriched himself, the British nation was not indemnified for the expence of fitting him out; and the original design was entirely defeated.

Johnson remarks, the uncommon merit of an original. By contrasting the happiness of a full and empty purse it may, moreover, contain a moral of some importance to youth. They may hence learn (to use the phraseology of the facetious dean of St. Patrick's) *to look upon a shilling as a serious thing*; since, as our bard sings,

Happy the man who, void of cares and strife,
In filken or in leathern purse retains
A splendid shilling! he, nor hears with pain
New oysters cry'd, nor sighs for cheerful ale.

PHILIPS.

Suppose a person to have in a purse the sum mentioned in this question; a guinea; three crown pieces; seven half crowns; four sixpences, and three silver three-pences; how many farthings would he have in all? *Ans.* 2748 farthings.

No. 150. A GUINEA. Our gold coin called a guinea, whose value is 21 shillings, received that denomination, because the gold, of which the first was struck, had been brought from a part of Africa so named. It formerly bore the impression of an elephant on the same account.

Sir Nicholas Crispe, a merchant of London, gave and procured Charles the First in his exigencies £100,000; and, when he was driven from the exchange, raised a regiment and commanded it.

Dr. Johnson's Life of Waller.

Subtract a guinea from the sum above-mentioned, and bring the remainder into farthings. *Ans.* 95,998,992 farthings.

No. 151. POPE'S HOMER. Of the siege of Troy, which furnished the subject of the Iliad and the Odyssey, written by Homer, some account has been given in question the eleventh, to which our young readers are requested to recur.

A translation of the Iliad with notes, was begun by Mr. Pope in 1712, and by his own diligence, with such help as kindness or money could procure him, he finally completed the version in 1720. A work which Dr. Johnson styles a poetical wonder; a performance which no age or nation can pretend to equal; the noblest version of poetry which the world has ever seen. Pope, continues the doctor, cultivated our language with so much diligence and art, that he has left in his Homer a treasure of poetical elegancies to posterity; and his version may be said to have tuned the English tongue; for since its appearance no writer, however deficient in other powers, has wanted melody. Soon after the publication of the Iliad, Pope undertook, with the assistance of Fenton and Broome, to translate the Odyssey, which was accomplished in 1725; and deserves, according to Dr. Johnson, the same general praise as the translation of the Iliad.

Pope received for the Iliad, including subscriptions and the sale of the copy-right, the sum of £5320 4s.

With

With part of this money he purchased a house at Twickenham, to which his residence afterwards procured so much celebration. Pope died in 1744, and was buried at Twickenham.

How many farthings are contained in the sum above mentioned?
Ans. 5,107,392 farthings.

No. 152. THE FATAL EFFECTS OF PROFLIGACY. It has been observed, says Dr. Johnson, in all ages, that the advantages of nature or of fortune have contributed very little to the promotion of happiness; and that those whom the splendor of their rank, or the extent of their capacity, have placed upon the summits of human life, have not often given any just occasion to envy in those who look up to them from a lower station. An observation eminently illustrated in the subsequent relation.

George Villiers, duke of Buckingham, son of the duke of Buckingham who was assassinated by Felton, was a distinguished statesman, poet, and dramatic writer. He is, however, yet more famous for his vices and misfortunes. His morals being very licentious, though he sometimes performed generous actions, he lived vitiously and extravagantly, squandered away almost the whole of his estate, and died in obscurity. This happened at a remote inn in Yorkshire, in the year 1687 or 1688; an event affectingly described, though with some exaggeration, by Pope, in the subjoined lines.

In the worst inn's worst room, with mat half hung,
 The floors of plaster, and the walls of dung,
 On once a flock-bed, but repaired with straw,
 With tape-ty'd curtains, never meant to draw,
 The George and Garter dangling from that bed,
 Where tawdry yellow strove with dirty red,
 Great VILLIERS lies.—Alas! how chang'd from him,
 That life of pleasure, and that soul of whim!
 There, victor of his health, of fortune, friends,
 And fame; this lord of useless thousands ends.

This nobleman's possessions yielded him annually 48,000,000 farthings; what was his yearly income in pounds sterling? *Ans.* £50,000.

No. 153. IMPERIAL GLUTTON. Gluttony, says Holiday, is a vice in a great fortune; a curse in a small one.

Well observe
 The rule of not too much, by temperance taught,
 In what thou eat'st and drink'st; seeking from thence
 Due nourishment, no gluttonous delight.

MILTON.

Vitellius, a Roman emperor, being raised to the throne by his vices, gave himself up to all kinds of luxury and profuseness; but gluttony was his favourite vice; so that he brought himself to a habit of vomiting in order to be able to renew his meals at pleasure. His
 food

food was always of the most rare and exquisite nature. The desarts of Libya, the shores of Spain, and the waters of the Carpathian sea*, were diligently searched to supply the table of this gormandizing emperor; infomuch that, as Josephus asserts, if he had reigned long, the whole empire would not have been sufficient to have maintained his gluttony. He eat four times a day; and Suetonius says, that every meal cost 10,000 crowns: and so extravagant was this imperial monster in every thing, that seven millions were spent in maintaining him only the space of four months. The people, at length, wearied with his vices and enormities, tore the brutal tyrant from an obscure retreat, where he had concealed himself from their just resentment, dragged him naked through the streets, put him to death, and threw his mutilated body, with all possible ignominy, into the river Tyber. Such, says the historian, was the merited end of this monster, after a short reign of 8 months and 5 days; so that Plutarch compares him, and his two predecessors†, to the kings in tragedies, who just appear upon the stage, and then are destroyed.

How many crowns, half-crowns, sixpences, pence, and farthings, are in the enormous sum expended for Vitellius's *four months* support? *Ans.* 28,000,000 crowns; 56,000,000 half-crowns; 280,000,000 sixpences; 1,680,000,000 pence; and 6,720,000,000 farthings.

No. 154. ROYAL-EXCHANGE. This magnificent structure was first erected in 1567, for the reception of merchants, at the sole charge of Sir Thomas Gresham, an eminent merchant of London. This illustrious and benevolent character, in consequence of his transacting the mercantile business of Queen Elizabeth, is supposed to have obtained the appellation of the "Royal Merchant." He was a great encourager of learning, and the liberal arts‡, and eminent for the number and extent of his charitable donations. The queen visited the

* Part of the Mediterranean, between Rhodes and Crete.

† Otho and Galba.

‡ Sir Thomas Gresham was a very splendid benefactor to the city of London. Besides the Royal-Exchange, Sir Thomas Gresham left his magnificent residence, near Bishopsgate-Street, for a college for the benefit of the citizens of London. He thought that as the inhabitants of that city possessed much money, it would also be advantageous that some knowledge and learning should be diffused among them. He bequeathed annuities for public lectures in divinity, law, physic, astronomy, geometry, music, and rhetoric; and his house was appointed for the residence of the lecturers, and there the lectures were to be read. But GRESHAM-COLLEGE has since been turned into the present EXCISE-OFFICE in Broad-Street; a change which no friend to learning, or to liberty, can reflect on but with the utmost indignation. How far the trustees of Sir Thomas Gresham have discharged the duty of their trust, cannot be a matter of very difficult determination; and the parliament, which confirmed and adjusted this strange alteration, may reasonably be suspected to have been an assembly of Goths. No man can suppose, that the intentions of Sir Thomas Gresham have been answered; and if the change of times had rendered some alteration of his regulations now proper, his noble designs for the promotion of science and learning, in the metropolis of England, ought not to have been so completely neglected, as they have been by the present arrangements.

Exchange in January 1571, and by the sound of trumpets, her herald named it the *Royal-Exchange**. This grand fabric being destroyed by the great fire in 1666, Charles II. rode in state into the city in 1667, and laid the first stone of the present building of the same name†, which was completed in about three years, at the expence of 76,190 guineas, 10 shillings; how many pounds sterling did it cost? *Ans.* £80,000.

No. 155. AN ENGLISH PATRIOT. A patriot is one whose ruling passion is the love of his country.

ANDREW MARVELL was an eminent example of genuine English patriotism. Being chosen to represent his native town, Kingston upon Hull, in parliament, a little before, and again after the restoration, he nobly supported the religious and civil liberties of his country, by his writings and his parliamentary interest, against the arbitrary encroachments of the court on both. The tendency of the ruling powers to Popery, appearing to be countenanced and encouraged by time-serving bishops, and other dignitaries of the church of England, these he most deservedly lashed in satirical writings, and at the same time, to check the progress of the measures taken by government to introduce it again, he published an account of the growth of Popery and arbitrary power in England, from 1675 to 1677. This famous tract gave great offence to the ministry, but it opened the eyes of the people, and had a sensible effect in parliament. Prince Rupert took great delight in Marvell's conversation; and much pains were taken to bring him to take the side of administration, but in vain; his patriotism being proof against all the ensnaring offers of court honours, and court emoluments.

Nought could his firmness shake, nothing seduce
His zeal, still active for the common-weal;
Nor stormy tyrants, nor corruption's tools,
Foul ministers, dark-working by the force
Of secret-sapping gold. All their vile arts;
Their shameful honours, their perfidious gifts,
He greatly scorned.

THOMSON.

The following is one of the various instances adduced in proof of this illustrious patriot's incorruptible integrity.

When the lord-treasurer Danby was sent by Charles II. to offer him a thousand pounds in money, as an unconditional present from the king, and only a tribute to his great merit, he spurned the infiduous offer, though as soon as that nobleman had withdrawn, he was himself obliged, from the narrowness of his circumstances, to borrow a guinea from a friend.

* Hume, vol. v. p. 483. Rapin, vol. vii. p. 374.

† Rapin, vol. xi. p. 314.

The honest man
Simple of heart, prefers inglorious want
To ill-got wealth.

PHILIPS.

Subtract the loan from the intended court-bribe, and bring the remainder into farthings. *Ans.* 958,992 farthings.

No. 156. AN AMERICAN PATRIOT. The following noble instance of disinterested patriotism was exhibited during the American war. When the British commissioners were in America, endeavouring to promote a re-union of the two countries, Mrs. Ferguson, the intimate friend of Governor Johnstone, one of the commissioners, informed Mr. Reed, that he might have *ten thousand pounds*, and any office in the colonies in the king's gift, if he would engage his interest to forward the business of their mission. *I am not worth purchasing*, replied the patriot, *but, such as I am, the king of Great-Britain is not rich enough to do it.*

Dr. Gordon's Hist. Amer. War, vol. iii. p. 172.

How many farthings and guineas are in the sum above mentioned ?
Ans. 9,600,000 farthings; 9523 guineas, 17 shillings.

No. 157. TWO VILLAGE-HAMPDENS. I will deserve, says that learned and ingenious writer, Mr. Gilbert Wakefield, the applauses of every true Briton, and honest patriot, by recording the memorable exertions of two individuals in private life, which will sanctify their remembrance to the worshippers of LIBERTY in ages yet unborn :

Two Village-Hampdens, that with dauntless breast
The little tyrants of their fields withstood.

The first of these heroes is Mr. TIMOTHY BENNETT, of Hampton-Wick, near Richmond, Surrey ; and the following is a short history of his achievement.

The foot passage from this village, through *Bushy-Park* (a royal demesne) to *Kingston-upon-Thames*, had been for many years shut up from the public. This honest Englishman, "*unwilling*" (it was his favourite expression) "*to leave the world worse than he found it*," consulted a lawyer upon the practicability of recovering this road, and the probable expence of a legal process. "*I have seven hundred pounds*, says this admirable person, which I should be willing to bestow upon this attempt. It is all I have, and has been saved through a long course of honest industry." The lawyer informed him, that no such sum would be necessary to produce this effect : and Timothy determined accordingly to proceed with vigour in the prosecution of this public claim. In the mean time, Lord Halifax, ranger of Bushy-Park, was made acquainted with his intentions, and sent for him. I am, adds Mr. Wakefield, possessed of an excellent engraving, which represents this worthy, of an inimitably firm and complacent aspect,

sitting down in the attitude of his conversation with his lordship*.

"And who are you, that have the assurance to meddle in this affair?"

"My name, my lord, is *Timothy Bennett, Shoe-Maker, of Hampton-Wick*. I remember, an't please your lordship, to have seen, when I was a young man sitting at my work, the people cheerfully pass by my shop to Kingston-Market; but now, my lord, they are forced to go round about through a hot sandy road, ready to faint beneath their burdens, and *I am unwilling to leave the world worse than I found it*. This, my lord, I humbly represent, is the reason of my conduct."

"Begone, you are an impertinent fellow," replied the lord. However, upon mature reflection, his lordship, convinced of the equity of the claim, notwithstanding the advice of his friends to persist, beginning to compute the ignominy of defeat: LORD HALIFAX, the NOBLEMAN, nonsuited by TIMOTHY BENNETT, the SHOE-MAKER—and the improbability of success, desisted from his opposition, and opened the road; which is enjoyed without molestation to this day.

The other patriotic hero was Mr. LEWIS, of Richmond, who nobly resisted some meditated *royal* encroachments; for the particulars of which we must, however, refer to Mr. Wakefield's Memoirs, p. 250.

"Such disinterested instances of public virtue," subjoins Mr. Wakefield, "redeem the degenerate age, in which we live, from an *universal* imputation of servility and corruption."

How many guineas, pence, half-pence, and farthings, are in the venerable Mr. Timothy Bennett's fortune? *Ans.* 666 guineas, 14 shillings; 168,000 pence; 336,000 half-pence; 672,000 farthings.

No. 158. GRATEFUL SERVANT.

Sweet is the breath of vernal shower;
The bees collected treasure sweet;
Sweet music's melting fall; but sweeter yet
The still small voice of gratitude.

GRAY.

There is, as Mrs. Griffiths observes, a charming glow of affection and gratitude, with a pleasing description of the virtue and sobriety of the ancient peasantry of England, and the difference of manners and morals between those times and the more modern ones, in the following affecting speech of Adam to Orlando, in Shakespeare's "As you like it."

I have five hundred crowns,
The thrifty hire I sav'd under your father,
Which I did store, to be my foster nurse,
When service should in my old limbs lie lame,

* The inscription beneath the engraving, is Timothy Bennett, of Hampton-Wick, Middlesex, Shoe-Maker, aged 75.

And unregarded age in corners thrown ;
 Take that : and he that doth the ravens feed,
 Yea, providently caters for the sparrow,
 Be comfort to my age ! Here is the gold ;
 All this I give you : let me be your servant ;
 Though I look old, yet I am strong and lusty :
 ————— Let me go with you ;
 I'll do the service of a younger man
 In all your business and necessities.

Valuing each crown at 4*s.* 6*d.* $\frac{3}{4}$, how many pounds sterling do they contain? *Ans.* £114 1*s.* 3*d.*

No. 159. DEATH OF CARDINAL BEAUFORT.

Horror gnaws the guilty soul
 Of dying sinners ; while the good man sleeps
 Peaceful and calm *, and with a smile expires.

GLYNN.

No document, no example, as Mrs. Griffiths well remarks, is so effectual a warning to the mind, as the view of a wicked person in his last moments. This speaks to the heart, as well as to the understanding. We then see things and actions in their true light, which the false glare of gain or pleasure, or the involved and complicated nature of sin, are but too apt to hide from our notice.

A death-bed's a detector of the heart.
 Here tir'd dissimulation drops her mask ;
 Through life's grimace, that mistress of the scene !
 Here real and apparent are the same.

YOUNG.

He who has betrayed a friend, wronged the orphan, or oppressed the poor, must surely never have seen a penitent on his death-bed ! What desperate madness, then, must it be, ever to do a deed, for any advantage in life, which after so short—*so very short*—a space of time, we would give a galaxy of worlds to have undone again.

Nothing can more admirably picture to us the horrors of a guilty conscience, than the frantic death-bed raving of Cardinal Beaufort, who, a few weeks before, had basely murdered the mild and virtuous Humphrey, duke of Gloucester, regent of England in the minority of Henry VI.

* Sweet are the slumbers of the virtuous man.

ADDISON.

On the contrary, an evil conscience is a *brew* that gives most shocking *curtain-lectures*. The great delineator of human nature represents the wicked as incapable of tasting "the gifts of all-composing sleep."

Not poppy, nor mandragora,
 Nor all the drowsy syrups of the world,
 Shall ever med'cine thee to that sweet sleep.

SHAKESPEARE.

Bring

Bring me unto my trial when you will.
 Dy'd he not in his bed? Where should he die?
 Can I make men live, whether they will or no?—
 O! torture me no more, I will confess.—
 Alive again? Then shew me where he is;
 I'll give a thousand pound to look upon him.—
 He hath no eyes, the dust hath blinded them.—
 Comb down his hair; look! look! it stands upright,
 Like lime-twigs set to catch my winged soul!—
 Give me some drink; and bid the apothecary
 Bring the strong poison that I bought of him.

SHAKESPEARE.

How different is the end of the good man! His evening of life is calm; his sun goes down with sweet serenity; and he retires from this transitory scene with cheerfulness. Conscious integrity, and well-grounded hopes of the divine favour, assuage the agonies, and sweeten the bitterness of death. "I have sent for you," said the pious Addison, on his death-bed, to a dissolute young nobleman whom he wished to reclaim, "that you may see how a *Christian* can die."

He taught us how to live; and, oh! too high
 The price of knowledge, taught us how to die.

TICKELL.

Heav'n waits not the last moment; owns her friends
 On this side death, and points them out to men;
 A lecture silent, but of sov'reign pow'r!
 To vice confusion, and to virtue peace.

YOUNG.

The agonizing death of Cardinal Beaufort happened in 1447. Subtract a farthing from the sum he mentioned, and bring the remainder into guineas. *Ans.* 952 guineas 7s. 11d. $\frac{3}{4}$.

No. 160. EQUALITY.

The self-same sun that shines upon a court,
 Hides not his visage from a cottage, but
 Looks on all alike.

SHAKESPEARE.

The happiness of the human race, as Mr. Wakefield justly observes, can only be raised on the foundation of that EQUALITY ascertained by the laws of our *creation*, and ratified by the *gospel* in every page, which acknowledges no distinction of *bond* or *free*. Interest may oppose, and sophistry may cavil; but EQUALITY, in its rational acceptation, as relating to civil privileges, and impartial laws, is interwoven with Christianity itself: they must live or perish together.

God gave us only over beast, fish, fowl,
 Dominion absolute; that right we hold

By his donation ; but man over men
He made not lord : such title to himself
Reserving, human left from human free.

MILTON.

By the term *EQUALITY* we are not, however, to understand, as Voltaire remarks, that absurd and impossible equality, by which the master and servant, the magistrate and the artificer, the plaintiff and the judge, are confounded together; but that *equality*, by which the subject depends on *LAWs*; and which is the defence of the weak against the ambition of the powerful. Nothing then can be more innocent than the use of the word *equality*, when taken in the sense meant by its rational advocates. For what do they say? asks that distinguished orator, Mr. Fox, that "all men are equal in respect of their rights." Equal rights to unequal things; one man to a shilling, another to a thousand pounds; one man to a cottage, another to a palace; but the right in both is the same; an equal right of enjoying, an equal right of inheriting or acquiring, and of possessing inheritance and acquisition; and these, continues that illustrious senator, are the principles on which all just and equitable governments are founded.

Add the two sums mentioned by Mr. Fox together, and bring the total into shillings, three-pences, pence, and guineas. *Ans.* 20,001 shillings; 80,004 three-pences; 240,012 pence; 952 guineas, 9 shillings.

No. 161. FIRE OF LONDON. It is well remarked by Dr. Johnson, that the conflagration of a city, with all its tumult of concomitant distress, is one of the most dreadful spectacles which this world can offer to human eyes.

The fire of London, or, as it is sometimes denominated, "the great fire," broke out at a baker's house near London-Bridge, September 2, 1666, at night. The flame spread itself on all sides with such rapidity, that no efforts could extinguish it, till it had destroyed a considerable part of the city; no less than 400 streets and 13,000 houses being reduced to ashes; and the wretched inhabitants, reduced to be spectators of their own ruin, were pursued from street to street by the flames, which unexpectedly gathered round them. Three days and nights did the fire advance; and it was only by the blowing up of houses, that it was at last extinguished.

Hume, vol. vii. p. 415.*

Men, says Rapin, failed not to give scope to their imagination, and to form conjectures upon the causes and authors of this dreadful fire. The pious and religious ascribed it to the just vengeance of heaven, on a city, where *vice* and *immorality* reigned so *openly* and *shame-*

* About this period an office was set up for insuring houses from fire, which was principally contrived by Dr. Barbon, one of the first and most considerable builders of the city.

Rapin, vol. xi. p. 289.
fully,

fully, and which had not been sufficiently humbled by the raging pestilence of the preceding year. Some imputed this misfortune to the malice of the republicans; others to the Papists. It was, however, generally imputed to these last, and the rather, because several other things afterwards helped to confirm this suspicion.

Rapin, vol. xi. p. 286.

It is nevertheless observed by Hume, that no proof or even presumption, after the strictest inquiry by a committee of parliament, ever appeared to authorise such a calumny; yet, in order to give countenance to the popular prejudice, the inscription, engraved by authority on the MONUMENT, ascribed this calamity to that sect.

There London's column, pointing to the skies,
Like a tall bully, lifts the head and lies.

POPE.

The magnificent column just mentioned, was built by Sir Christopher Wren. It is 15 feet in diameter, and 202 in height, and cost the city 12,480,000 farthings. How many pence, half-crowns, and pounds did it cost? *Ans.* 3,120,000 pence; 104,000 half-crowns; 52,000 crowns; 13,000 pounds sterling.

No. 162. THEOLOGICAL TERGIVERSATION. The excellent Mr. Wilde, who continued through life on a small cure of *forty pounds* a year, because he would not repeat his subscription to the articles of our church, asserted, that he was verily persuaded if the BIBLE were burnt to-morrow, and the ALCORAN introduced and established in its stead, we should still, provided the emoluments were the same, have plenty of *bishops, priests, and deacons*.

Mr. Wakefield's Memoirs, p. 60.

That many of the established clergy are illustrious exceptions to this harsh censure cannot be doubted. It must, nevertheless, be admitted, that the sacerdotal order has been occasionally disgraced by wolves in sheep's clothing. Of this number was that celebrated theological Proteus the VICAR OF BRAY*. This ignominious son of the church, whose title may have probably outlived the recollection of his *pious* manoeuvres, was a Papist under the reign of Henry VIII. and a Protestant under Edward VI. he was a Papist again under the sanguinary Mary, and at length became a Protestant in the reign of Elizabeth. When this scandal to the gown was reproached for his versatility of religious creeds, he made answer—"I cannot help that: but, if I changed my religion, I am sure I kept true to my principle; which, is, *to live and die vicar of Bray*."

* Bray is a small village in Berkshire, three miles from Windsor, and one from Maidenhead. In its neighbourhood Cæsar is supposed to have crossed the Thames with his army. But it owes more of its celebrity to the "drum ecclesiastic" than the drum military; no village in England having been more frequently mentioned, or oftener celebrated in song, on account of its turn-coat vicar.

Conduct like that of our conscience-prostituting vicar, doubtless suggested, to that "true child of wit and humour," BUTLER, the following fatirical lines.

What's orthodox and true believing
Against a conscience? *A good living.*
What makes ALL DOCTRINES plain and clear?
About one thousand pounds a year.
And that which was prov'd true before,
Prove false again? *One thousand more.*

Suppose the sums mentioned in the preceding lines were added together, and then divided into guineas, crowns, half-crowns, shillings, and pence, and of each an equal number, how many would there be of each sort? *Ans.* $1352 \frac{4}{355}$.

No. 163. **ECONOMY THE BEST SOURCE OF GENEROSITY.** Make an impartial estimate of your revenue, and whatever it is, says a celebrated writer, live upon less. Resolve never to be poor. Frugality is not only the basis of quiet, but of beneficence. No man can help others that wants help himself; one must have enough before we have to spare.

Frugality, as Dr. Johnson justly remarks, may be termed the daughter of prudence, the sister of temperance, and the parent of LIBERTY. He that is extravagant will quickly become poor, and poverty will enforce dependence, and invite corruption; it will too frequently produce a passive compliance with the wickedness of others; and there are many who learn by degrees to practise those crimes which they cease to censure. Without frugality none can be rich, and with it very few would be poor.

See an admirable Paper on this Subject in the Rambler, No. 57.

The following anecdote, which had been long in traditional circulation, has recently found its way into print.

An extremely rich, but somewhat penurious character, who was surprised in the act of reproaching his maid-servant with the utmost vehemence, for having thrown a match into the fire, when she had used but one of its ends, gave, in a few minutes after, FIFTY POUNDS towards the support of a public charity; observing, as a reason for having just reprehended his domestic for her extravagance, that *economy was the best source of generosity.*

Suppose the collectors to the above-mentioned charity to have received, in the course of a week's collection, exclusive of the donation which gave rise to the present question; 250 guineas; 300 half-guineas; 100 crowns; 45 half-crowns; 173 shillings; and 25 sixpences; how many farthings are contained in the whole of the several sums? *Ans.* 489,504 farthings.

No. 164. **ST. PAUL'S CATHEDRAL.** This is the most capacious, magnificent, and regular Protestant church in the world. The length within is 500 feet; and its height, from the marble pavement to the
cross,

cross, on the top of the cupola, is 340. It is built of Portland stone, in the form of a cross; and is the work of Sir Christopher Wren, and undoubtedly the only work of the same magnitude that ever was completed by one man*. It is not, however, so large as St. Peter's at Rome†; nor is it, as has been erroneously supposed, built after the model of that famous church; but it has been thought superior to it in point of architecture. This eminent architect laid the first stone in 1675, and saw the building finished in 1711‡. The expence of raising this superb structure, which was defrayed by a duty on coals, is calculated at a million sterling.

Suppose the above sum divided into an equal number of guineas, half-guineas, crowns, half-crowns, shillings, sixpences, and three-pences; how many would there be of each sort? *Ans.* 490,797 $\frac{267}{489}$.

No. 165. BRIDGE. A bridge is an edifice either of stone or timber, consisting of one or more arches, erected over a river, canal, or the like, for the conveniency of crossing, or passing over from one side to the other.

Trajan, a Roman emperor, built one of the most magnificent bridges in the world over the Danube. Its ruins are still visible near Warhel in Hungary.

The famous bridge of Venice, called the Rialto, consists but of a single arch, and that a flat or low one, and is considered as a masterpiece of art. It was erected in 1591, after a design of Michael Angelo.

Bridges of boats are either made of copper or wooden boats, fastened with stakes or anchors, and laid over with planks.

One of the most notable exploits of Cæsar, was the expeditious making of a bridge of boats over the Rhine.

* It has been observed in a late work, that Sir CHRISTOPHER WREN "was a man of very uncommon and resplendent merit. He was one of the first and most active members of the Royal Society, and promoted the design of it by discoveries in various branches of science. He was also the author of many mechanical inventions. Mr. Hooke said of him, that, since the time of Archimedes, there scarcely ever met, in one man, such a mechanic hand, and so philosophical a mind." It has also been remarked, that Sir Christopher Wren erected a greater number of magnificent buildings than were ever produced by any other man. "Besides St. Paul's cathedral, he erected, after the fire of London, more than fifty churches in that city. Among these was St. Stephen's, Walbrook, which is esteemed his masterpiece, and the inside of which is uncommonly beautiful. It has been said, that Italy itself can hardly produce a modern building, which can vie with this in taste and proportion. The Monument, Greenwich and Chelsea Hospitals, the palace of Hampton-Court, and the Theatre at Oxford, were also of his erection." But notwithstanding the extraordinary merit of Sir Christopher Wren, he was turned out of his office, as surveyor-general of the works, at a very advanced age, in the reign of George I. in order to make room for another man who had better court interest.

† St. Peter's church at Rome was one hundred and thirty-five years in building; it was not finished but in the reigns of nineteen popes; and twelve successive architects were employed in it.

‡ Biog. Dict. Art. Wren.

There are fine bridges of boats at Beaucaire, and Rouen, which rise and fall with the water; and that at Seville is said to exceed them both. The bridge at Rouen is, however, represented by a modern writer, as the wonder of the present age. There is a wooden bridge over the Drave, five miles long.

We have many bridges of considerable note in our own country; particularly at York, Rochester, Worcester, Durham, Berwick, Blenheim, Aberdeen, and Burton. This last is the longest bridge in England, being 1543 feet in length. But the most singular bridge in Europe, if not in the world, is that built over the river Tawe, or Taaf, near Caerphilly in Glamorganshire, in South Wales. This admirable piece of architecture consists of one most stupendous and magnificent arch, and was the work of Mr. William Edward, a poor country-mason, in the year 1756.

LONDON-BRIDGE was first built of timber before the year 994. The stone-bridge was begun by King Henry II. in 1176, and finished by King John in 1209.

WESTMINSTER-BRIDGE is reckoned one of the most complete and elegant structures of the kind in the known world. It was begun in 1738, and finished in 1750, at the expence of £218,800, defrayed by the parliament.

BLACK-FRIARS-BRIDGE is also a very fine bridge, and its architecture has been spoken of in terms of high commendation. It commands a fine view of the Thames, and discovers the majesty of St. Paul's in a very striking manner. It was begun in 1760, and completed in 10 years and three quarters, at the expence of £152,840 sterling, which was discharged by a toll upon the passengers.

How many farthings are in the amount of the sums expended in building the last-mentioned two bridges; and how many half-crowns, sixpences, pence, and farthings, are in their difference? *Ans.* 356,774,400 farthings in the whole; 527,680 half-crowns, 2,638,400 sixpences, 15,830,400 pence; and 63,321,600 farthings in the difference.

No. 166. HORSE. A beautiful quadruped used in war, in the course, in hunting, draught, carriage, and to ride on, and whose utility to man vastly surpasses that of all other domestic animals.

The horse, says Buffon, in a domestic state, is a bold and fiery animal; equally intrepid as his master, he faces danger and death with ardour and magnanimity. He delights in the noise and tumult of arms, and seems to feel the glory of victory*. He exults in

* The fiery courser, when he hears from far
The sprightly trumpets, and the shouts of war,
Pricks up his ears, and trembling with delight,
Shifts pace, and paws; and hopes the promis'd fight.

the chace* ; his eyes sparkle with emulation in the courset†. But though bold and intrepid, he is docile and tractable ; he knows how to govern and check the natural vivacity and fire of his temper. He not only yields to the hand, but seems to consult the inclination of his rider. Constantly obedient to the impressions he receives, his motions are entirely regulated by the will of his master.

Of all the prone creation, none display
A friendlier sense of man's superior sway.

HOMER.

It is exceedingly to be regretted, that so noble an animal as the horse, should so frequently be treated with unfeeling barbarity by human creatures. See on the subject of humanity to animals, Cowper's Task, book vi. No. 37 of the Adventurer ; and No. 61 of the Guardian. No. 86 of the last-mentioned work contains an admirable critique on the celebrated description of the horse, in the book of Job, which is thus ably paraphrased by Dr. Young.

Survey the warlike horse ! didst thou invest
With thunder, his robust distended chest ?
No sense of fear his dauntless soul allays :
'Tis dreadful to behold his nostrils blaze ;
To paw the vale he proudly takes delight,
And triumphs in the fulness of his might ;
High-rats'd he snuffs the battle from afar,
And burns to plunge amid the raging war ;
And mocks at death, and throws his foam around,
And in a storm of fury shakes the ground.
How does his firm, his rising heart, advance
Full on the brandish'd sword, and shaken lance ;
While his fix'd eye-balls meet the dazzling shield,
Gaze, and return the lightning of the field !
He sinks the sense of pain in gen'rous pride,
Nor feels the shaft that trembles in his side ;
But neighs to the shrill trumpet's dreadful blast
Till death ; and when he groans, he groans his last.

Caligula, an infamous Roman emperor, had a horse which he called INCITATUS. He clothed him in purple, and fed him with gilt oats out of an ivory manger : but this was not all ; he insisted upon it, that he should be paid the same respect that was shewn to the first persons

* ————The hunter-horse, unquell'd by toil,
Ardently rushes to the rapid chace.

THOMSON.

† The impatient courser pants in ev'ry vein,
And, pawing, seems to beat the distant plain ;
Hills, vales, and floods, appear already crost ;
And, ere he starts, a thousand steps are lost.

POPE.

in

in the state; and, to insult the people still more, he made him a *consul*, or chief magistrate.

Caligula a consul made his steed;
What tho' the beast could neither write nor read,
Yet he could talents negative display,
And silence opposition with a neigh.

SALMAGUNDI.

A celebrated writer has observed, that the people of Rome were not very much shocked by the circumstance just recited. They had been prepared for it by gradations of corruption, which insensibly led them to such a pitch of degeneracy, that they no longer resembled, in any respect, the same Romans in the free and virtuous ages of the republic.

Alexander of Macedon had a favourite war-horse named *Bucephalus*, because his head was like that of an ox. Many surprising particulars are related of this noble creature. When he was saddled and equipped for battle, he would suffer no one to back him but his master; and it would not have been safe for any other person to have approached him. When Alexander wanted to ride him, he would kneel down to facilitate his mounting.

Bucephalus would kneel and stoop
(Some write) to take his rider up.

HUDIBRAS.

Some historians say, that this generous animal expired in consequence of extraordinary exertions to save his master, in the battle with *Porus*; others affirm, that he died at the age of 30, quite worn out. Alexander bewailed his death bitterly, believing that he had lost in *Bucephalus* a most faithful and affectionate friend; and afterwards built a city on the very spot where he was buried, near the *Hydaspes*, and denominated it *Bucephalia*, in honour of him.

The horse which *PETER* the Great rode at the famous battle of *Pultowa*, July 11, 1709, is stuffed and deposited in the cabinet of natural history at *Petersburgh*. It is an animal of a moderate size, and of the Persian breed: it is bridled, has a velvet saddle, and a housings embroidered with gold, the same which it wore in the engagement. The length of the stirrups, which are scarcely a foot from the ground, prove the tall stature of the Czar.

Original Anecd. of Peter, by Stæhlin.

The *Theffalian* horses were the most famous of ancient Greece. In modern times, Arabia is most distinguished for the excellence of its horses, and the address of the inhabitants in riding them.

Travellers represent the Arabian horses as having few faults, and no vices. A child, says the Count de Ferrieres *Sauvebælef*, will mount them; and if by any accident he should fall, the animal will stop to take him on his back again. Their mares, with which they never part but with pain, and from the most pressing necessity, are

not

not to be purchased but at an immense price. Some of these creatures will fetch 2000 guineas: but the price of the most beautiful Arabian horse does not exceed 3 or 400.

Trav. in Turkey, &c.

BUCEPHALUS was brought from Thessaly, and purchased for 13 talents, a sum which Rollin estimates at £1900 sterling.

ECLIPSE, an English race-horse, was sold a few years ago for 1500 guineas. How many pounds, crowns, and farthings, does the difference of the value of these two famous animals contain? *Ans.* £325; 1300 crowns; and 312,000 farthings.

No. 167. SALE OF DUNKIRK. Dunkirk is a maritime town of the French Netherlands, and the most easterly harbour on the side of France which is next to Great-Britain.

The Emperor Charles V. held Dunkirk as part of Flanders. In 1558, the French took it by storm; but the Spaniards recovered it again in about a fortnight, and put all the French to the sword. In 1646, it was again taken by the French, and retaken by the Spaniards in 1652. In the year 1658, the French, assisted by CROMWELL, attacked and took Dunkirk, which in consequence of a treaty between the French and English, was immediately put into the hands of the latter, to whom it proved of very great importance; for, during the war in which it was taken, the Dunkirkers had made prizes of no less than 250 of their ships, many of which were of great value. The English, however, only kept it four years; for in 1662, the profligate pensioner of France*, Charles II. to supply his extravagance, had the baseness to sell this valuable acquisition to Lewis XIV. for the paltry sum of £500,000, or, according to Hume, only £400,000 sterling, vol. vii. p. 386.

A pensioned king,
Against his country brib'd by Gallic gold,
The port pernicious sold, the Scylla† since,
And fell Charybdis, of the British seas.

THOMSON.

The

* Charles II. was the base and ignoble pensioner of France, receiving from that kingdom an annual pension of £100,000 sterling. His design was thereby to render himself absolute. See *Rapin*, vol. xi. p. 325, &c. also p. 335 and 416. But to this profligate tyrant a new and expensive statue was lately erected in the Royal-Exchange. If a new statue was necessary in the Royal-Exchange, it should have been a new statue of Sir Thomas Gresham.

† Scylla and Charybdis were a famous rocky promontory and whirlpool in the strait of Messina between Sicily and Italy, very terrible to ancient navigators; since the pilot who was not so skilful as to steer right between them, was sure to perish either in the gulf of the latter, or against the rocks of the former; complete destruction inevitably following the loss of the middle passage.

The king promised that he would lay up all the money in the Tower, and that it should not be touched but upon extraordinary occasions. It is, however, asserted by Burnet, that the immoral monarch squandered it away upon his mistresses creatures.

How many farthings, pence, shillings, and half-crowns, and of each an equal number, are in the sum mentioned by Hume as the price of Dunkirk? *Ans.* 2,219,653 $\frac{31}{173}$.

No. 168. FABLE OR APOLOGUE. A fable, or apologue, seems to be, says Dr. Johnson, in its genuine state, a narrative in which beings irrational, and sometimes inanimate, *arbores loquuntur, non tantum feræ*, are, for the purpose of moral instruction, feigned to act and speak with human interests and passions.

Fables, observes Mr. Addison, were the first pieces of wit that made their appearance in the world, and have been still highly valued, not only in times of the greatest simplicity, but among the most polite ages of mankind. JOTHAM'S fable of the trees is the oldest extant, and as beautiful as any which have been made since that time. NATHAN'S fable of the poor man and his lamb is likewise more ancient than any which is extant, except the above-mentioned, and had so good an effect, as to convey instruction to the ear of a king without offending it, and to bring David to a just sense of his guilt and his duty. We find Æsop in a very early period of the Grecian history; and if we look into the very beginning of the commonwealth of Rome, we see a mutiny among the common people appeased by a fable of the belly and the limbs. As fables took their birth in the very infancy of learning, they never flourished more than when learning was at its greatest height. To justify this assertion, continues Mr. Addison. I shall put my reader in mind of Horace, the greatest wit and critic in the Augustan age; and Boileau, the most correct poet among the moderns: not to mention La Fontaine, who by this way of writing is come more into vogue than any other author of our times.

Spectator, vol. iii. No. 183.

Of all the fables in the English language, those of GAY and MOORE seem to have received the greatest share of public approbation.

Literary men, at different periods, have found their labours recompensed in a very different manner. The "Paradise Lost" of our immortal Milton was sold for the trifling sum of £15; but Shakespeare met with more generous treatment from the earl of Southampton, who is said at one time to have made him a present of a thousand pounds.

Fierce to the right tremendous Scylla roars,
Charybdis on the left the flood devours.

PITT'S VIRGIL, Book III.

Homer also, in the 12th book of the *Odyssey*, has given a very glowing description of the dangers attending the passage of this strait.

The

The last work of our illustrious poet DRYDEN was his fables, published, as it appears, in consequence of a contract with Tonson, the bookseller, by which he obliged himself, in consideration of £300, to finish for the press 10,000 verses.

Dr. Johnson's Life of Dryden.

Add the several sums received by Dryden, Milton, and Shakespeare together, and divide the total into portions containing 15s. 6d. $\frac{3}{4}$. each. *Ans.* 1689 portions $\frac{7\frac{1}{4}}{7}$ or 14s. 11d. $\frac{1}{4}$. remaining.

No. 169. JUDGE JEFFERIES. As the enormities committed by characters eminently wicked, are allowed, by moral writers, to increase our veneration for goodness, it may, perhaps, subserve the cause of virtue and humanity to lay before our juvenile readers a few of the many cruelties exercised by that cruel and unprincipled judge, Sir George Jefferies. This profligate magistrate was one of the greatest advisers and promoters of the oppressive and arbitrary measures, which took place during the tyrannical reign of James II. and his sanguinary proceedings, as a judge, will render his name infamous to the latest posterity.

Whenever a prisoner was of a different party, or he could please the court by condemning him, instead of appearing according to the duty of his office, as his counsel, he would scarcely allow him to speak for himself; but would load him with the grossest and most vulgar abuse, browbeat, insult, and turn to ridicule the witnesses that spoke in his behalf, and even threaten the jury with fines and imprisonment, if they made the least hesitation about bringing in the prisoner guilty. By his direction, a partial jury was prevailed on to give a verdict against the illustrious Algernon Sydney; though the charges against that renowned patriot were not supported either by law or justice*. Having long wanted in cruelty and injustice in the capital, he set out with a savage joy, as to a full harvest of destruction, to try the prisoners concerned in the unfortunate duke of Monmouth's rebellion. Dorchester, Exeter, Taunton, and Wells, were the principal scenes of his brutal ferocities. The juries were so struck with his menaces, that they gave their verdict with precipitation; and many innocent persons were involved with the guilty. The whole country was strewed with the heads and limbs of those who were executed as traitors. Every village almost beheld the dead

* Hume, vol. viii. p. 198. See also the trial of Algernon Sydney.

So violent and rancorous, however, were party prejudices, at the period now alluded to, that some time-serving juries brought in the most shameful verdicts. See the case of the Rev. Mr. Roswell, a most worthy and upright dissenting minister, against whom a verdict was given, which appeared so palpably unjust, that it was not carried into execution even by

“ Murderous rage itself, in Jefferies' form.”

See the particulars in Hume, vol. viii. p. 201. Mr. Roswell's trial has been lately republished in the Protestant Dissenters Magazine.

carcase of a wretched inhabitant. Even the innocent could not escape the hands, no less rapacious than cruel, of this execrable chief justice. Mr. PRIDEAUX, a gentleman of Devonshire, being thrown into prison, and dreading the severe and arbitrary spirit, which at that time met with no controul, was obliged to buy his liberty of Jefferies at the price of fifteen thousand pounds; though he could never so much as learn the crime of which he was accused.

Jefferies, on his return to town, was immediately, for those eminent services, created a *peer*; and was soon after invested with the dignity of chancellor, by James II. an indubitable proof that his sanguinary measures, as well as those of Colonel KIRK, his infamous coadjutor in the cause of tyranny, met with the entire approbation of that bigotted despot*. Happily, however, for the human race, the crimes of tyrants, by exciting the abhorrence of mankind, serve to promote the cause of freedom. The tyrannical conduct of James and his execrable minions occasioned the REVOLUTION. See question 57.

How many farthings and guineas are in the sum extorted from Mr. Prideaux? *Ans.* 14,400,000 farthings; 14,285 $\frac{720}{1000}$ guineas.

No. 170. STATE OF AMERICA IN THE YEAR 1794. Mr. Cooper, in his "Information respecting America," just published, enumerates the following, among other advantages to be enjoyed in that country. Few taxes; no animosities concerning religion or politics; a government *of* and *for* the PEOPLE; no game laws nor tythes; no power in the rich to oppress the poor; no beggars in the streets; no melancholy contrast of vice, and filth, and rags, and wretchedness, in the immediate neighbourhood of the most wanton extravagance, and the most useless parade; the common people not so depraved as in Great-Britain; quarrels uncommon; no military to keep the people in awe; robberies very rare. All these are real advantages: but great as they are, they do not weigh with me, continues Mr. Cooper, so much as the single consideration of *the total absence of anxiety respecting the future success of a family*. In America, particularly out of the large towns, no man of moderate desires feels anxious about a family. In the country, where dwells the mass of the people, every man feels the increase of his family to be the increase of his riches: and no farmer doubts about the facility of providing for his children as comfortably as they have lived, where land is so cheap and so fertile, where society is so much on an equality, and where the prodigious increase of population, and the improving state of every part of the country, furnish a market for whatever superfluous produce he chooses to raise.

In England, for fear of the expence of a family establishment, celibacy is a part of prudence. And the married man doubts whether each child be not a misfortune, and looks upon his offspring with a

* See on this subject Rapin's and Hume's Hist. of Eng.

melancholy kind of affection, that embitters some of the most pleasurable moments of life. There are exceptions to this, but as a general position it is perfectly true, whatever may be the situation in life of the parents, or the rank to which they belong. Mr. Cooper's labourer, at 12s. a week, in England, consoled himself, with tears in his eyes, for the loss of his eldest son (who was accidentally drowned) because *he had one left to provide for*; and Lord S——, of £25,000 a year, laid down his fox hounds, *because he had a large family*.

Subtract a year's income of the labourer from the peer's annual revenue, and bring the remainder into shillings, pence, and farthings.
Ans. 499,376 shillings; 5,992,512 pence; 23,970,048 farthings.

T R O Y W E I G H T.

No. 171. REGAL POVERTY. The necessities of Henry V. were so great in the year 1417, that, to enable him to carry on the war with France, he pawned several valuable articles; among which were two gold chased basons. These he pledged to a minor canon of St. Paul's for 600 marks. The basons weighed 28lb. 8oz. how many grains did they contain? *Ans.* 165,120 grains.

N. B. Hume asserts, that Henry not only pawned his jewels, but sometimes the crown itself. Vol. iii. p. 120.

No. 172. GOLD.

Gold's attractive metal, pledge of wealth,
 Spur of activity; to good or ill
 Powerful incentive.

DYER.

Gold is the most valuable of all metals, and all known parts of the earth yield it, though with great difference in point of purity and plenty. South America furnishes the most: but this precious metal is found in considerable abundance in Asia, in the East-Indies, in Hungary, and in Africa. It is usually found in mines of considerable depth, with an admixture of other mineral and metallic matter, from which it is afterwards separated by a tedious process.

Whate'er is excellent in art proceeds
 From labour and endurance.
 Gold cannot gold appear until man's toil
 Discloses wide the mountain's hidden ribs,
 And digs the dusky ore, and breaks and grinds
 Its gritty parts, and laves in limpid streams
 With oft-repeated toil, and oft in fire
 The metal purifies.

DYER.

Gold

Gold is, however, sometimes met with in the sand and mud of rivers and torrents, particularly in Guinea, in Africa.

Hot Guinea, too, gives yellow dust of gold,
Which with her rivers, rolls adown the fides
Of unknown hills, where fiery-winged winds,
And sandy deserts, rous'd by sudden storms,
All search forbid.

DYER.

We receive about 3,000 ounces of this gold dust annually. How many pennyweights and grains do they contain? *Ans.* 60,000 dwts. 1,440,000 grs.

No. 173. **SILVER.** Silver is the most precious of all metals, gold excepted. This valuable and beautiful metal does not appear to have been in use prior to the deluge; at least MOSES says nothing of it before that time. He speaks of metals of brass and iron, Gen. iv. 22. It is, nevertheless, of great antiquity; for in ABRAHAM'S time it was become common, and traffic was carried on with this metal, Gen. xiii. 2. This venerable personage was very rich in silver and gold; and he purchased a sepulchre for his wife SARAH for 400 shekels of silver, Gen. xxiii. 15. This silver, says Mr. Cruden, was not coined, according to all appearance, but was only in bars or ingots; and in commercial transactions it was always weighed. It was, however, converted very early to the purposes of domestic utility or ornament, as may be rationally inferred from Gen. xlv. 2. "Put my *silver* cup into the sack's mouth." This metal, as well as gold, was much employed for sacred uses.

The silver mines of Peru, in South America, have proved the richest in the known world. The discovery of this amazing treasure happened by a fortuitous accident, in the year 1545.

See Mr. Payne's Geog. vol. ii. p. 751.

The exhalations from these mines render the working of them extremely dangerous. They stupify the miners; none of them can bear so poisonous an air above a day together. Many millions of Indians have perished by them; and prodigious numbers continue to be destroyed yearly.

Cyclop. art. Silver.

In deep Peruvian mines, there slaves
(Wretched requital!) drink with trembling hand,
Pale palsy's baneful cup. With the fatigue
The lusty sicken, and the feeble die.

DYER.

The horrid expence of human life, at which the gold mines in America are wrought, is related by Captain Cook. No less than 40,000 negroes are annually imported for this purpose, on the king of Portugal's account only; and in the year 1766, this number of unhappy

unhappy victims fell so short, that 20,000 more were drafted from the town of Rio.

Harweſworth's Voy. quoted by Dr. Kippis, in his Life of Capt. Cook, p. 23.

The largest piece of ſilver ore, of which we have any account, was dug in the mines of Norway. It is at this time preſerved in the king of Denmark's muſeum of curioſities at Copenhagen, is valued at 5,000 crowns, and weighs 560 pounds.

Cyclop.

In one of the moſt ſplendid and magnificent churches of Moſcow is ſuſpended, from the centre of the roof, an enormous chandelier of maſſy ſilver, weighing 2940 pounds. It was made in England.

Mr. Coxe's Trav. vol. i. p. 277.

How many grains are contained in the piece of ſilver ore and the chandelier? *Anſ. 20,160,000 grains.*

No. 174. **SPLENDID EMBASSY.** The embaffy of Lord Hay, a Scotchman, to the French court, in the reign of James I. A. D. 1616, was one of the moſt magnificent recorded in hiſtory. Among other things, at his public entry into Paris, he had his horſe ſhod with ſilver ſhoes ſlightly tacked on; and when he came oppoſite to houſes or balconies, where eminent perſons, or diſtinguiſhed beauties were, his horſe prancing in humble reverence, flung his ſhoes away, which the ſurrounding mob ſcrambled for. Then one of his train took others out of a velvet bag, and tacked them on; which laſted till he came to the next troop of grantees.

Rapin, vol. viii. p. 129.

Suppoſing that in the above uſeleſs parade there ſhould have been 33 ſhoes thrown off, each weighing 1920 grains, how many pounds would the whole have weighed. *Anſ. 11 pounds.*

No. 175. **GIANTS.** A giant is a perſon of extraordinary bulk and ſtature. It is obſervable, ſays Dr. Johnſon, that the idea of a giant is always associated with pride, brutality, and wickedneſs. Milton's giants had

Fierce faces threat'ning wars,
Giants of mighty bone, and bold empiſe.

The reality of giants, and of nations of giants, has been much controverted among the learned. Travellers and hiſtorians, at different periods, have given various accounts of giants, to which little credit is now given. Dr. Derham obſerves, that though we read of giants before the flood, Gen. vi. 4. and more plainly after it, Numb. xiii. 33. yet it is highly probable, that the ſize of man has always been the ſame from the creation; for as to the Nephilim, Gen. vi. the commentators vary about them, ſome taking them for monſters of impiety, atheiſm, rapine, and tyranny; as to thoſe, Numb. xiii. which

which were evidently spoken of as men of a gigantic size, it is probable, that the fears of the spies might add thereto.

Be this as it may, it is manifest, says the learned editor of the Cyclopædia, that in both these places giants are mentioned as rarities and wonders of the age, not of the common stature; and such instances we have had in all ages. And as for the more credible relations of GOLIATH (whose height was six cubits and a span, 1 Sam. xvii. 4. which, according to bishop Cumberland, is somewhat above 11 feet English); of Maximus the emperor (who was 9 feet high); these and other similar ancient examples and relations, may be matched, nay outdone, with modern ones.

See Hakeawel's Apol. p. 208; or the Ency. Brit. art. Giant.

GOLIATH's coat of mail weighed 5000 shekels of brass, and the head of his spear 600 shekels of iron. To support such ponderous armour, and to wield such a spear, required an extraordinary degree of prowess; but not more than the poets ascribe to the heroes of antiquity, mentioned in profane history. Hector, the famous Trojan chief,

Bore a massy spear of mighty strength,
Of full ten cubits was the lance's length.

POPE'S HOMER.

The same great poet gives the following description of the celebrated huge spear of the Grecian hero, Achilles.

And now he shakes his great paternal spear,
Pond'rous and huge! which not a Greek could rear.
From Pelion's cloudy top an ash entire
Old Chiron fell'd, and shap'd it for his fire;
A spear which stern Achilles only wields,
The death of heroes, and the dread of fields.

Jewish doctors greatly differ in estimating the weight of the shekels so often mentioned in the Old Testament. One in the late French king's cabinet is said to weigh 268 grains. Bishop Cumberland, however, asserts, that he always found each of the many he had weighed, about half an ounce, or 240 grains. According to this calculation, what was the weight of the gigantic Philistine's coat of mail, and the head of his spear separately? *Ans.* 208lbs. 4oz. coat of mail; 25lbs. head of the spear.

No. 176. HUMAN HAIR. The hair was always esteemed, by the ancients, as the principal ornament of beauty. Even VENUS herself, says Apuleius, if she were destitute of hair, though surrounded by the graces and loves, would not have charms to please her own husband Vulcan. Agreeably to this idea, we find the poets often representing the loss of this embellishment, as fatal to personal beauty, in language of similar import with the subsequent line:

" Fallen is thy hair, and beauty is no more."

And

And we hardly ever meet with a description of a fine woman or beautiful man, in the poems of Offian, but their hair is mentioned as one of their greatest beauties.

BOADICEA, the heroic queen of the Iceni, is described, by Dio, with very long hair, flowing over her shoulders, and reaching down below the middle of her back.

The ancient Britons were extremely proud of the length and beauty of their hair; and it was esteemed a considerable honour among the ancient Gauls to have long hair. Hence Cæsar, upon subduing this people, made them cut off their hair as a token of submission.

The hair both of Jewish and Grecian women engaged a principal share of their attention; and the Roman ladies seem to have been no less curious with respect to theirs. They generally wore it long, and dressed in a variety of ways, ornamenting it with gold, silver, pearls, &c. On the contrary, the men among the Greeks and Romans, and among the later Jews, wore their hair short, as may be collected from books, medals, statues, &c. This formed a chief distinction in dress betwixt the sexes; an observation which illustrates a passage in the apostle Paul's epistle to the Corinthians, 1 Cor. xi. 14, 15.

We read in Homer of a Trojan who had his hair "instarred with gems and gold;" and Madame Dacier informs us, that the Athenians were accustomed to put little grasshoppers of gold in their hair. Others, we are told, perfumed theirs with large quantities of fragrant oil, and powdered it with gold-dust.

Those to whom nature had denied the agreeable ornament now under consideration, supplied the defect by art. The Greeks, and, after their example, the Romans, wore false hair; a custom which has at times greatly prevailed in other countries, not excepting our own. Shakespeare has satirized this fashion in three of his plays, viz. *Love's Labour Lost*; *Timon of Athens*; and *The Merchant of Venice*. The following passage is taken from the last.

So are those crisped snaky golden locks,
Which make such wanton gambols with the wind,
Upon supposed fairness, often known
To be the dowry of a second head,
The skull that bred them, in the sepulchre.

The Greeks, and other nations, tore, cut off, and sometimes shaved their hair, when mourning for their deceased relations or particular friends, which they laid upon the corpse, or threw into the pile, to be consumed together with the body; and this was deemed a token of violent affection. Thus Achilles and others, in Homer, offer theirs to Patroclus;

"O'er all the corpse their scatter'd locks they throw:"

and the little cupids on the death of Adonis, according to Bion,

"Shear their locks, excess of grief to show."

Again: "When insatiate death had ravished the youthful and blooming Temas,"

Her lov'd companions pay the rights of woe,
All, all, alas! the living can bestow;
From their fair heads the graceful curls they shear,
Place on her tomb, and drop the tender tear.

SAPPHO.

This custom is taken notice of in the Scriptures. See Ezek. xxvii. 31.

It is recorded by Herodotus, that Mardonius, the Persian general, after one of his defeats, cut off his hair, in token of his grief; and Plutarch tells us, that when Alexander's friend Hephestion died, that "mighty robber and murderer," to express his sorrow, ordered the manes of all his horses and mules to be cut off.

Human hair makes a considerable article of commerce, and is sold from five shillings to five pounds an ounce, according to its quality.

We shall conclude this article with some short strictures on the weight of the handsome ABSALOM's hair, as recorded 2 Sam. xiv. 25, 26. This we read weighed no less than 200 shekels; which, if computed by the Jewish shekel, as calculated by Bishop Cumberland, mentioned in the preceding question, amount to the enormous ponderosity of 8 lbs. 4 oz. Troy. But fortunately for this *age of reason*, it has been remarked, that when the books of Samuel were revised, after the Babylonish captivity, such weights were mentioned as were then known to them; and therefore when the historian mentions this weight of Absalom's hair, he adds, by way of explanation, that it was after the *king's weight*, i. e. after the weight of the king of Babylon, whose shekel was only *one third* of that of the Jews; by which supputation the quantity of hair is so reduced, as not to appear altogether incredible: more especially, if it be recollected how much the supplementary decorations of those days must increase its weight.

Many commentators imagine that Absalom was suspended by his hair, when he was killed by Joab; but others suppose, that his neck was so wedged in between the boughs by the great motion of the mule, that he was not able to disengage himself. For, subjoin these last, he certainly wore a helmet when he went to battle, and hence they conclude, that his hair could not be entangled in the boughs.

Estimating the Babylonish shekel at 80 grains, what was the weight of Absalom's hair? *Ans.* 2 lbs. 9 oz. 6 dwts. 16 grs.

No. 177. **INGOT.** An ingot is a mass of gold or silver melted down, and cast into a mould, but not coined or wrought. This word is frequently used in some particular departments of commerce; and is found in many of our best authors, as Spenser, Dryden, Prior, and Shakespeare. The last great poet compares a rich man to an ass loaded with *ingots*.

If thou art rich, thou'rt poor;
For like an ass, whose back's with *ingots* bound,
Thou bear'st thy heavy riches but a journey,
And death unloadeth thee.

It occurs also in some admirable lines, which, the elegant author observes, contain the moral of his poem; a composition of great excellence. As we are anxious that the sentiments exhibited, in the passage to which we allude, should "grapple the attention" of our fair readers, we shall transcribe it for that purpose.

VIRTUE's an *ingot* of Peruvian* gold,
SENSE the bright ore Potosi's† mines unfold;
But TEMPER's image must their use create,
And give these precious metals sterling weight.

Mr HAYLEY's Triumphs of Temper.

In 31 lbs. 10 oz. 18 dwts. 20 grs. of silver, how many ingots, each weighing 7 lbs. 11 oz. 14 dwts. 17 grs.? *Ans.* 4 ingots.

No. 178. WEDGE. Wedge, in mechanics, is the last of the five powers or simple machines. It is a very great mechanical power, since not only the "knotted oak," but even the "ragged-sided rock" can be split by it; which it would be impossible to effect by the lever, wheel and axle, or pulley; for the force of the blow, or stroke, shakes the cohering parts, and thereby makes them separate the more easily. It is usually driven by a mallet, or wooden hammer. *Wedge* also denotes a mass of metal.

As sparkles from the anvil us'd to fly,
When heavy hammers on the *wedge* are swaid.

SPENSER.

The "accursed thing" in the midst of Israel, was the concealment of a *wedge* of gold, part of the spoils of Jericho, which the wicked ACHAN had purloined, contrary to express command, and for which theft himself and family were afterwards stoned and burnt, in the valley of Achor, in the vicinity of Jericho.

See the 7th Chapter of Joshua.

The fatal wedge of gold, which caused the extermination of Achan's race, weighed 50 shekels. Now, supposing a shekel to weigh 9 dwts. 3 grs. English Troy weight‡, how many grains did it contain? *Ans.* 10,950 grains.

* Peru is a large country of South America, famous for its mines of gold and silver; and some of its medicinal drugs, which are brought into this country, are of excellent use, particularly the Jesuit's bark and Peruvian balsam.

† Potosi is a mountain of Peru, containing the finest silver mine in the world; but its treasure is said to be at present almost exhausted, and the mountain itself is little better than a shell. The rich and populous town of Potosi is situated at the foot of the mountain.

‡ See Scripture Lexicon, p. 335, 2d edit. The exact weight is said to be 9 dwts. 2 grs. $\frac{4}{7}$ Troy.

A VOIR DUPOIS WEIGHT.

No. 179. **BATTERING RAM.** This irresistible machine was a military engine, employed by the ancients to beat down the walls of besieged places. It was a vast piece of timber like the mast of a ship, strengthened at one end with a head of iron, something resembling that of a ram, whence it obtained its appellation. This was hung by the middle with ropes to another beam, which lay across two posts; and being thus suspended in equilibrium, it was alternately drawn back and propelled by a century of men with such impetuosity, that no wall or tower could effectually withstand its reiterated concussions.

It is mentioned by the prophet Ezekiel in two passages, chap. iv. 1, 2, and xxi. 22. and Nebuchadnezzar made use of it at the siege of Jerusalem.

Plutarch tells us, that Anthony, in the Parthian war, used a ram 80 feet in length; and Vitruvius asserts, that they were sometimes 120 feet long.

The battering-ram which was employed by Titus to demolish the walls of Jerusalem (see question 36) weighed, according to Josephus, 100,000 lbs. how many tons, &c. do they contain? *Ans.* 44 tons, 12 cwt. 3 qrs. 12 lbs.

No. 180. **HOPS.** This useful article of commerce was brought into England, according to Anderson, about the year 1525, from the Netherlands, and immediately used in brewing; but the physicians of that period representing to the parliament, that hops were unwholesome, the use of them was shortly after discontinued. They have, however, been many years in general repute in the brewery, for the preservation of malt liquors; which by the superaddition of this balsamic, aperient, and diuretic bitter, become less viscid, less apt to turn sour, more detergent, and more salubrious. They are also employed occasionally in medicine.

There are large plantations of hops in several English counties, particularly in Worcestershire, Herefordshire, and Kent.

“ ————— On Cantium’s* hills,
 “ The flow’ry hops, whose tendrils climbing round
 “ The tall aspiring pole bear their light heads
 “ Aloft, in pendant clusters; which in the malt’s
 “ Fermenting tuns infus’d, to mellow age
 “ Preserve the potent draught.”

In 44 tons, 12 cwt. 3 qrs. 12 lbs. of hops, how many pounds?
Ans. 100,000 lbs. And how many parcels, each containing as many

* Cantium was the ancient name of Kent. The Cantii were, according to Cæsar, the most civilized of all the Britons. That invader landed in their territory August 26, in the afternoon, 54 years B. C.

pounds as there are days in the year, are contained in this number of pounds, supposing 10lbs. more to be added to them? *Ans.* 274 parcels.

No. 181. COLOSSUS. A Colossus is a statue of enormous magnitude. In the temple of Belus, at Babylon, there was a golden statue forty feet high, which weighed 1000 Babylonish talents, and was worth three millions and a half of our money.

Dr. Rutherford's Anc. Hist. vol. i. p. 85.

There was an image erected on the plains of Dura, which, according to Daniel, was sixty cubits, or about ninety feet in height. But the most celebrated Colossus of which any account is preserved, and which is therefore emphatically styled *the colossus*, and deemed one of the wonders of the world, was a statue of brass erected to the sun, at the mouth of the harbour of Rhodes, a city in an island of the same name, in the Mediterranean sea. It was 105 feet high, and proportioned in all its parts; and, according to the general opinion, the ships of that period passed between its legs.

The Rhodian bully,
The brazen wonder of the days of yore,
That proudly stretch'd his legs from shore to shore,
And saw of Greece the loftiest navy travel
With dread submission underneath his navel.

PETER PINDAR.

CHARES, of Lindus, devoted 12 years to the completion of the work, which occurred 288 years B. C. Sixty-six years subsequent to its erection, an earthquake overthrew it, and it lay neglected 894 years, that is, till the year of our Lord 672; when Moarvias the 6th caliph, or emperor of the Saracens, having taken Rhodes, sold the brass of this famous statue to a Jewish merchant, who loaded 900 camels with it. Allowing only 800lbs. weight to every camel (though some will carry 12 or 1300 lbs.) how many tons did the colossus weigh? *Ans.* 321 tons, 8 cwt. 2 qrs. 8 lbs.

No. 182. IRON is a hard, fusible, malleable, and the most useful of all metals, in the affairs of life. A little reflexion will suffice to convince us, how awkward the operations of industry must be, and what a rude scene human life would soon exhibit, without the use of metals, and of this in particular. Without iron we could attain little perfection in tillage or agriculture; in mechanical arts or trades; in architecture or navigation. Society, says Dr. Rutherford, can never make great advances without the use of iron. It is the instrument of *universal industry*. At the time of the Trojan war, iron was held in such estimation, that in the games which Achilles gave in honour of Patroclus, he proposed a ball of that metal as a considerable prize.

Anc. Hist. vol. i. p. 39, 373.

It has been remarked, as an instance of the Divine Goodness to human kind, that those metals which are of most frequent and necessary

necessary use to man, as iron, copper, and lead, are the most common and plentiful. With respect to iron, it is an universal metal, being found in all the mineral earths and stones that have been examined, in the ores of all other metals, and even in the ashes of all vegetables and animals. The Swedish iron has generally been preferred on many accounts, and particularly for the making of steel; but the English iron, properly manufactured, has been found not inferior.

Russia had several considerable iron manufactories in the time of Peter the Great; some of these he visited with great assiduity, and himself learnt the business of a blacksmith. He succeeded so well in that trade, that in one day he forged alone, 18 poods of iron, equal to 720 pounds weight, and put his own particular mark on each bar. This was performed at the forges of one Muller at Istia, ninety wersts distance from Moscow, to which place he often resorted. One of these bars, authenticated by Peter's mark, is still to be seen at Istia in the same forge. Another, forged also with the czar's own hand, is shewn in the cabinet of the Academy of Sciences at Peterburgh; but this last was forged at Olonetz, a place situated on the side of the lake Ladoga, the 12th of October, just before his death, which happened in 1725. This bar weighs 120 pounds.

Peter, on the receipt of one of his day's wages from Muller, went directly to a shop, and purchased a pair of shoes, which he took great pleasure in shewing on his feet, saying to those who were present, "I have earned them well, by the sweat of my brow, with hammer and anvil."

Peter once passed a month at Istia; and when he worked at the forges, the bayards, and other noblemen of his suite, were obliged to blow the bellows, to stir the fire, to carry coals, and perform all the other offices of journeymen blacksmiths*.

Anecdotes of Peter. See also ORIGINAL Anec. of the same Monarch, p. 22, 23, 24, 371, 373.

Add the weight of the iron forged by Peter at Istia and Olonetz together, and bring the amount into drams. *Ans.* 215,040 drams.

No. 183. COPPER. Copper is one of the six primitive metals. It is found in the bowels of the earth in several varieties, as native, &c. Copper is used in mixture with other metals. Mixed with tin, in considerable quantity, it produces BELL-METAL; with a smaller proportion BRONZE; with zinc it forms BRASS, PINCHBECK, &c. Copper, when taken into the human body, acts as a violent emetic, and has been generally accounted poisonous, though lately received with some applause into the materia medica as a tonic. Great attention to cleanliness is recommended in the use of copper utensils; and it is altogether improper to let any fluid remain in a copper vessel

* Peter probably thought, and which might be one reason of his exultation at receiving his wages as a blacksmith, that emperors, and kings, and lords, were not often so usefully employed.

till it be cold; for this metal is much more calcinable in the cold than when heated. Its pernicious effects are prevented by having the vessels tinned.

There are copper mines in many parts of Europe, &c. The mine in the isle of Anglesey, on the coast of North Wales, produces about 1500 tons of *copper* annually, from between six and seven thousand tons of *ore*. And the copper mines of Cornwall produce in the same period no less than 4000 tons of *copper*. The yearly produce of these last is calculated at £140,000 sterling.

Ency. Brit.

At the beautiful and magnificent palace of the duke of Devonshire at Chatsworth, in Derbyshire, on the banks of a fine piece of water, is a tree of *copper*, representing a willow, from every leaf of which water is made to issue, by the turning of a cock, so as to form an artificial shower.

Beaut. of Art and Nat. vol. i.

We read in the Scriptures of two vessels of fine *copper*, precious as gold.

Ezra viii. 27.

Subtract the Anglesey copper from the Cornish, bring the remainder into drams, and divide them into as many parcels of drams as there are weeks in the year. *Ans.* 1,433,600,000 drams; 27,569,230 parcels, $\frac{4}{52}$.

No. 184. SPECTATOR. The Tatler, Spectator, and Guardian, were periodical papers, published by a few eminent writers in the reign of Queen Anne, a period denominated the Augustan age of English literature.

The Tatler and Spectator not only reduced, as Dr. Johnson justly remarks, the unsettled practice of daily intercourse to propriety and politeness, and exhibited the character and manners of the age, but superadded literature and criticism, and taught, with great justness of argument, and dignity of language, the most important duties and sublime truths. All these topics were happily varied with elegant fictions and refined allegories, and illuminated with different changes of style and felicities of invention. Of essays thus elegant, thus instructive, it is natural to suppose the approbation general; and it is said by Addison, in a subsequent work, that they had a perceptible influence upon the conversation of that time, and taught the frolic and the gay to unite merriment with decency; an effect which, adds Johnson, they can never wholly lose, while they continue to be among the first books by which both sexes are initiated in the elegancies of knowledge.

The principal writers who undertook the Spectator, which was published daily, were ADDISON and STEELE. They found, however, in their progress, many auxiliaries: many pieces were offered, and many were received. The papers written by Addison are marked by one of the letters in the word CLIO, the muse of history.

The

The prose of Addison, says Johnson, is the model of the middle style; pure without scrupulosity, and exact without apparent elaboration. Whoever, continues he, wishes to attain an English style, familiar but not coarse, and elegant but not ostentatious, *must give his days and nights to the volumes of ADDISON.*

In him
Humour in holiday and slightly trim,
Sublimity and attic taste, combin'd
To polish, furnish, and delight, the mind.

COWPER.

The ninth number of the *Spectator* gives a humorous account of several convivial societies. One of these was a club of fat men, consisting of 15 persons, weighing together 3 tons. What was the average weight of each individual, in pounds? *Ans.* 448 pounds.

No. 185. **CORPULENCY.** Corpulency is the state of being too much loaded with flesh or fat; and, according to the sons of Esculapius, is the occasion of various diseases, particularly the apoplexy.

The most extraordinary instance of corpulency ever known, at least in late times, and in this country, was that of Mr. Bright, of Malden, in Essex, who died in 1750, in the 29th year of his age. Seven persons of the common size were with ease enclosed in his waistcoat; and a stocking, which when sent home to him was found too little, was large enough to hold a child of four years old. A pattern of this stocking is exhibited at Mr. Parkinson's museum, Black-Friars-Bridge.

Mr. Bright weighed 153,600 drams; what was his weight in hundreds, &c.? *Ans.* 5 cwt. 1 qr. 12 lbs.

No. 186. **BELL.** This is a well known machine, ranked by musicians among the musical instruments of percussion.

Bells are observed to be heard farther placed on plains than on hills; and still farther in valleys than in plains: the reason of which will not be difficult to assign, if it be considered, that the higher the sonorous body is, the rarer is its medium; consequently, the less impulse it receives, and the less proper vehicle it is to convey it to a distance.

The invention of bells is by some attributed to the Egyptians. Be this as it may, it is certain, that they were always used to announce the festivals in honour of Osiris. Among the Hebrews, the high priests in grand ceremonies wore a kind of tunick, ornamented with small golden bells; and the prophet Zachariah, xiv. 20. speaks of bells hung to war horses. At Athens the priests of Proserpine and Cybele used them during their sacrifices. Bells were known also among the Persians, the Greeks, and the Romans.

Pope Sabinian, and Paulinus, bishop of Nola, a city of Campania in Italy, introduced bells into the church, about A. D. 400,

to summon the people to divine worship, and to distinguish the canonical hours; but it does not appear, that large bells were used before the sixth century. In Britain they were applied to church purposes before the conclusion of the seventh century; being introduced about the time when parish-churches were first erected among us. Those of France and England appear to have been furnished with several bells. In the time of Clothaire II. king of France, and in the year 610, the army of that prince was frightened from the siege of the city of Sens, by ringing the bells of St. Stephen's church. Bells were baptized about the beginning of the following century.

The practice of ringing bells in change, or regular peals, is said to be peculiar to England; whence Britain has been termed the *ringing island*. The custom seems to have commenced in the times of the Saxons, and was common before the conquest. It is with us reduced to a science, and peals have been composed which bear the name of the inventors.

The music of bells is altogether melody; but the pleasure arising from it consists in the variety of interchanges, and the various succession and general predominance of the consonances in the sounds produced.

There is in souls a sympathy with sounds;
And, as the mind is pitch'd, the ear is pleas'd
With melting airs, or martial, brisk, or grave:
Some chord in unison with what we hear
Is touch'd within us, and the heart replies.
How soft the music of the village bells,
Falling at intervals upon the ear
In cadence sweet, now dying all away,
Now pealing loud again, and louder still,
Clear and sonorous as the gale comes on!

COWPER.

There are several bells of great magnitude and ponderosity in England; particularly Tom of Lincoln, weighing 11,200 pounds; Peter of Exeter, weighing 12,500 pounds; and "Mighty Tom" of Christ-Church, Oxford, weighing 17,000 pounds. George of Amboise*, a bell in the steeple of the great church of Rouen, in the department of Lower Seine, France, weighs 36,000 pounds. But the largest bell in the known world is that of Moscow, the ancient capital of the Russian empire. Its height is 19 feet, its circumference at the bottom 21 yards 11 inches, its greatest thickness 23 inches, and its weight 432,000 pounds. The beam to which this vast machine was fastened being accidentally burnt, the bell fell down a few years ago.

Coxe's Trav. vol. i. p. 261.

How many tons, &c. does the bell of Moscow weigh? *Ans.* 192 tons, 17 cwt. 0 qrs. 16 lbs.

* George d'Amboise was archbishop of Rouen in the fifteenth century.

No. 187. Ox. This is a well known tame quadruped. There are, however, four sorts of this animal naturally wild.

"The strong laborious ox, of honest front," is the only horned animal in these islands, that will apply his strength to the service of mankind. And it is now generally allowed, that, in the draught, oxen are, in many cases, more profitable than horses.

The plain ox,
An harmless, honest, guileless animal,
Whose toil, patient and ever ready,
Clothes the land with all the pomp of harvest.

THOMSON.

In Bombay, and in many other parts of the East-Indies, oxen are generally used instead of horses, not only for drawing carriages, but for riding; and, however ridiculous such a practice may seem to us, it appears, that they are not in this respect inferior to ordinary horses, being capable of going at the rate of seven or eight miles an hour.

Ency. Brit. art. Bombay.

In Surat there is a small kind of ox, not bigger than a great dog, with a fierce look, which is used for drawing children in a small cart.

Cyclop. art. Bos.

Apis, a god of the Egyptians, was worshipped under the form of an ox. Some imagine, that Isis and Osiris are the deities honoured under this name, because during their reign they taught the Egyptians agriculture. These people believed, that the soul of Osiris was really departed into the ox, where it wished to dwell, because that animal had been of the most essential service in the cultivation of the ground.

It is recorded, by several ancient writers, that MILO, the celebrated athlete of Crotona in Italy, could carry an ox the space of forty yards; kill it with one blow of his fist; and eat it up in one day.

DIDO, queen of Carthage, we are told, when she landed in Africa, bought as much land as she could compass with an ox's hide, which she artfully cut into small thongs, and thus cheated the owner of so much ground as served her to build Carthage upon. To this circumstance the following lines in Hudibras allude.

The mighty Tyrian queen, that gain'd
With subtle shreds a tract of land.

A similar artifice is said to have been practised by the crafty Hollanders upon the inhabitants of Formosa, an island near China, in Asia.

See Mr. Payne's Geog. vol. i. p. 64.

There is scarcely any part of the ox but what is either used in manufactures, commerce, or medicine. The skin has been of great use in all ages. The ancient Britons built their boats with osiers, and covered them with the hides of bulls, which served them for short coasting voyages.

The bending willow into barks they twine ;
 Then line the work with spoils of slaughter'd kine.
 Such are the floats Venetian fishers know,
 When in dull marshes stands the settling Po ;
 On such to neighb'ring Gaul, alur'd by gain,
 The bolder Britons cross the swelling main.

ROWE'S LUCAN.

At present the hide, when tanned and curried, serves for boots, shoes, and numberless conveniencies of life. Of the horns are made combs, boxes, handles for knives, and drinking vessels ; and when softened by water, obeying the manufacturer's hands, they form pellucid laminæ for the sides of lanterns. This last conveniency we owe to the eminently great and good King ALFRED. Horns are also employed in medicine as alexipharmics. The ox's bones are used by mechanics where ivory is too expensive ; by which the common people are served with many neat conveniencies at an easy rate. The blood is the basis of that fine colour the Prussian blue. For numerous other particulars we refer our young readers to the Ency. Brit. art. Bos.

The famous Lincolnshire ox, which was exhibited some time ago in London, is said to have weighed 33 cwt. and in January 1793, several periodical publications mentioned an ox sold by Mr. Child, of Abingdon, which weighed, when alive, 1 ton, 5 cwt. 2 qrs. 14 lb. Add the weight of these enormous animals together, and bring the total into drams. *Ans.* 1,680,896 drams.

A P O T H E C A R I E S W E I G H T.

No. 188. In 27 lbs. 7 ozs. 2 drs. 1 scr. 2 grs. how many grains?
Ans. 159,022 grains.

No. 189. In 159,022 grains, how many pounds, ounces, drams, scruples, and grains? *Ans.* 27 lbs. 7 ozs. 2 drs. 1 scr. 2 grs.

N. B. The company of apothecaries were incorporated by a charter from James I. procured at the solicitation of Dr. Mayerne and Dr. Atkins. Till that time they only made a part of the grocers company ; plums, sugar, spice, Venice treacle, mithridate, &c. being sold in the same shop, and by the same person. The reason of separating them was, that medicines might be better prepared, and in opposition to divers persons who imposed unwholesome remedies on the people. To his majesty belong two apothecaries : the salary to the first £320, to the second £275. To the household belong also two. The first mention of an apothecary attending the king's person in England, is about 1344, in the reign of Edward III. who settled a pension of 3*d.* per day for life, on Courfus de Gangeland, for having taken care of him during his illness in Scotland.

In

In a parliament called by Henry VIII. A. D. 1514, it was enacted, that surgeons should be discharged of constableness, ward-duties, bearing of arms, and of inquests and juries; by reason of the continual service and attendance they give day and night, and at all hours, to their patients*: and by an act passed in the reign of queen Anne, apothecaries are exempted from serving ward and parish offices, or on juries.

There are but two apothecaries allowed in Copenhagen, the capital of Denmark, and only one in every other considerable town of that kingdom. In Russia, we are told, there are no apothecaries at all; and but few physicians.

Travellers speak of a famous apothecary's shop at Dresden, furnished with 4,000 silver pots, all filled with the choicest drugs. And the dispensary, or apothecary's office at Loretto, is said to contain upwards of 340 large gallipots of beautiful Faenza porcelain, exquisitely painted with boys, bacchanals, &c. by the famous Raphael. The Chinese dispense medicines gratis to all the poor who stand in need of any relief from physic.

The COLLEGE OF PHYSICIANS was instituted in the year 1518, in the reign of Henry VIII. whose charter for that purpose bears date October 23d. By the appointment in this corporation, or college, are included the physicians in London, and seven miles round that city.

Rapin, vol. vi. p. 147.

By other statutes in 1540, in the reign of Henry VIII. it was enacted, that physicians in London should be discharged from watch and ward, and not serve the office of constable, or any other: also that the president, and four fellows of the college, shall search and examine the wares and drugs of the apothecaries; and that they may practise surgery.

C L O T H M E A S U R E.

The word cloth, taken absolutely, commonly means a texture of wool; but it is also used to denote any thing woven for dress or covering, whether of animal or vegetable substance. The art of weaving woollen cloth was brought into England from Flanders, by John Kempe, in the year 1331.

Fine linen is made from a fibrous plant called flax; and coarse linen from a plant of the same kind denominated hemp. These, however, are not the only materials that supply it: for a cloth is sold at Leipzig, said to be made of nettles; and, in Sweden, they fabricate a coarse sort from hop-binds, or hop-tops. Linen is said to have been first manufactured in England by Flemish weavers, under the protection of Henry III. in 1253; antecedent to which æra, woollen shirts were the only ones worn in this country. In 1634, lord-deputy Wentworth

* Rapin, vol. vi. p. 95.

established the linen manufacture in Ireland, where it has been brought to a great degree of perfection. The same commodity is the staple of Scotland; and the Russians, Germans, Swifs, Flemings, Hollanders, and French, are the principal European nations who traffic in it.

The use of linen is of very remote antiquity. Upon Joseph's exaltation to the viceroyship of Egypt, vestures of fine linen are marked as the principal ornaments of his state attire*. Indeed, from the frequent mention made of the Egyptian linen by the ancients, many learned men have been induced to assert, that it was of far superior fineness and value to any of modern manufacture. Late investigation has, however, evinced the fallacy of this assumption. For, when Dr. Hadley, in conjunction with other intelligent persons, examined an Egyptian mummy, of which an account is given in the Philosophical Transactions for 1764, they found the upper filletting scarcely equal in fineness to what is sold at present for 2s. 4d. a yard, under the name of long lawn; and the inner filletting, in general, still coarser. Now, there is every reason to suppose the linen, in which the mummies were wrapped, to have been the finest at that time in Egypt; because embalming was only practised towards the remains of persons of high distinction, at whose interment no charges were spared. Another ingenious writer† has also amply refuted the same notion, by citations from authors and travellers of acknowledged credit, who had professedly discussed, or occasionally adverted to, the subject under consideration. On the authority, therefore, of these accounts, and the force of the inferences deduced from them, we are warranted in affirming, that the Egyptian linen was solely indebted for its celebrity to the comparative inferiority of every other, at the same period. That, however, other nations were by no means strangers to the same manufacture, is with great probability inferred, by the valuable writer just alluded to, from the story of Rahab, Josh. ii. 6. as well as from the portrait of a virtuous Jewish matron, Prov. xxxi. 13, 24.

No. 190. SCOTCH REBELLIONS. Soon after the accession of George I. a rebellion was raised in Scotland in favour of the son of James II. known in our history by the title of the *Pretender*, who landed at Peterhead in Aberdeenshire, Dec. 26, 1715. Being weakly projected, and rashly and injudiciously conducted, this insurrection was soon suppressed, and the prisons of London were crowded with the daring adventurer's deluded adherents. The Pretender himself escaped from Montrose in Angus or Forfarshire, on board a French ship lying in the harbour, and arrived in five days at Gravelines, a sea-port between Calais and Dunkirk, situated in late French Flanders, now in the department of the North. The earl of Derwentwater and lord Kenmuir were decapitated on Tower-Hill; and several of the rebels were executed in other places.

* Gen. xli. 42.

† Harmer. See his excellent Observations on divers Passages of Scripture, vol. ii. p. 349, et seq.

The national tranquillity was again disturbed in the reign of George II. A. D. 1745, by another adventurer. This was the son of the old Pretender, and commonly called the *Young Pretender*. This aspiring claimant landed in Scotland, and the boldness of the enterprise astonished all Europe. After gaining some trifling advantages over the king's forces in that country, he made an irruption into England, and, for a short time, greatly alarmed the pusillanimous part of the nation. Retreating northwards again, he was at length totally defeated by the duke of Cumberland, in the battle of CULLODEN, near INVERNESS in Scotland, A. D. 1746. Immediately after the engagement, the Pretender sought safety by flight. He continued wandering among the frightful wilds of Scotland, for nearly six months; and as thirty thousand pounds were offered for taking him, he was constantly pursued by the troops of the conqueror, and often hemmed round by his pursuers, but still rescued by some lucky accident from the impending danger, and at length he escaped to Morlaix in France.

In the mean time, the scaffolds and gibbets were preparing for his adherents, many of whom were hanged in the neighbourhood of London and other parts. The earl of Kilmarnock, and the lords Balmerino and Lovat were beheaded on Tower Hill. Thus ended the last effort of the STUARTS for re ascending the throne.

The inhabitants of LONDON distinguished themselves, by their zeal for the government, in the course of this rebellion. Upwards of £18,000 were subscribed at Guildhall, for the relief of the soldiers employed in the king's service. A great variety of clothing was in consequence conveyed to the army; and, among other articles, 20,000 shirts were sent.

Supposing each shirt to contain $3\frac{1}{2}$ yards, what number of nails did the whole contain? *Ans.* 1,120,000 nails.

No. 191. WEAVING INGENUITY. Mr. Pennant informs us, that there was a weaver residing at Wick, in Caithness, Scotland, who could weave a shirt, with buttons and holes entire, without any seam, or the least use of the needle. The value of one of these garments was £5 sterling. One of these shirts is shewn at Mr. Parkinson's Museum, Black-Friars-Bridge.

In 500 such shirts, each containing 3 yards and $\frac{3}{4}$, how many ells English? *Ans.* 1,500 ells.

No. 192. ASBESTOS. The asbestos is a sort of fossil stone, which may be split into threads and filaments, and wrought into cloth.

Ingenious trade, to clothe the naked world
Her soft materials not from sheep alone,
From various animals, reeds, trees, and stones,
Collects sagacious.

DYER.

Cloth made of the extraordinary fossil production now under consideration, is endued with the wonderful property of remaining unconsumed in the fire.

The

The soft asbestos form'd SERENA's vest
 Whole wond'rous folds, in fiercest flames entire,
 Mock the vain ravage of consuming fire.
 Mr. HAYLEY's Triumphs of Temper.

Supposing Serena's vest to have contained $12\frac{1}{4}$ yards; how many ells Flemish would 365 such garments contain? *Ans.* 6,205 ells Flemish.

N. B. The asbestos is found in the isle of Anglesey, and in Aberdeenshire, Scotland, &c.

No. 193. HUCKABACK. Huckaback is a kind of linen on which the figures are raised. It is much used for table-cloths and napkins.

Clean hag-abag I'll spread upon his board,
 And serve him with the best we can afford.
 GENTLE SHEPHERD.

Darlington, in the county of Durham, has long been noted for the manufacture of huckabacks. This linen is made from English flax, brought from the south of Yorkshire, and partly from foreign flax, imported at Stockton. Most of it goes to London by sea.

Dr. Aikin's England delineated.

In 3 dozen of napkins, each containing 20 nails, and 1 dozen table-cloths, each containing 38 nails, how many yards? *Ans.* 73 yards 2 quarters.

No. 194. CAMBRICK. Cambrick is a species of linen, made of flax, very fine and white; the name of which was originally derived from the city of Cambray*, where cambricks were first manufactured. The cambricks allowed to be worn in this country are fabricated in Scotland and Ireland. Cambrick is much used for ruffles and handkerchiefs.

In 365 yards of cambrick how many handkerchiefs of $\frac{3}{4}$ of a yard; 1 yard; 1 yard and $\frac{1}{4}$; and 1 yard and $\frac{1}{2}$ each; and of each an equal number? *Ans.* 81 of each, $\frac{2}{18}$.

No. 195. IRISH LINEN. A colony of Scots, in the reign of James I. and other Presbyterians, who fled from persecution in that country in the succeeding inglorious reigns, planted themselves in the north-east part of Ireland, and established that great staple of wealth, the linen manufactory, which has been since not only brought to the utmost degree of perfection in that particular district, but has been extended over great part of the kingdom, and which, including the fabrication of thread, has given employment to an immense number of

* Cambray is one of the most opulent and commercial cities in the Netherlands. It is seated on the river Scheld. The celebrated FENELON, author of *Telema- chus*, &c. was archbishop of this place.

persons, and brought vast sums into the nation ; it being chiefly by the exportation of this article, that the Irish are enabled to pay for the great annual importation of others from England.

In the year 1794, there were 43,259,764 yards of linen exported from Ireland ; how many parcels, each containing 20 pieces, each 25 yards and $\frac{1}{2}$, does that number of yards contain? *Ans.* 84,823 parcels, 34 yards.

No. 196. SCOTCH LINEN. The linen manufacture of Scotland, notwithstanding a strong rivalry from Ireland, is in a very flourishing state. Their exports in linen, cambricks, osnaburgs, dornicks, damasks, diapers, &c. are said to have amounted, some years ago, to upwards of £400,000 sterling annually, exclusive of their home consumption ; and this trade is supposed to have increased considerably of late.

In $75\frac{3}{4}$ yards of Scotch cambrick ; $54\frac{1}{4}$ yards of dornie ; and $124\frac{1}{2}$ yards of damask, how many nails? *Ans.* 4,072 nails.

No. 197. OSNABURGS. Osnaburgs are a kind of coarse linen, first made at Osnaburg, in Westphalia, Germany, of which there are two kinds ; the one white, and the other brown. The manufacture of the white is well understood in our own country : but the method practised in Germany of making the brown sort, and of giving it its peculiar colour, is not known. Some have supposed, that it depends on the manner of bleaching the flax, and others on that of bleaching the yarn after it is spun.

Dundee is a large and flourishing town of Angus, or Forfarshire, in Scotland ; seated on the north side of the estuary of the Tay. From this town vast quantities of osnaburgs are annually exported : in one year four millions of yards have been stamped at the public office.

Scotland delineated, p. 156, &c.

How many parcels, each containing 10 pieces, each 26 yards and $\frac{1}{2}$, are in the quantity of osnaburgs above mentioned? *Ans.* 15,094 parcels, 90 yards.

No. 198. DIAPER. Diaper is a sort of linen cloth woven in flowers, and other figures ; by some reckoned the finest species of figured linen after damask. The word diaper is used by Shakespeare to denote a napkin or towel.

Dunfermline in Fifeshire, Scotland, has a good trade in diapers.

Scotland delineated, p. 191.

In 50 pieces of diaper, each consisting of 24 yards, how many parcels severally containing 5 ells English ; 6 ells French ; and 7 ells Flemish ; and of each an equal number? *Ans.* 58 parcels $\frac{4}{5}$.

No. 199. DAMASK. Damask linen is a kind of wrought linen made in Flanders, so called, because its large flowers resemble those of

of damasks, which were a sort of silk stuffs, having some parts raised above the ground, representing flowers or other figures. They obtained this appellation from their having been invented at Damascus in Syria, a place also noted for its steel, its roses, and its damascene plums, or damsons.

Damask linen is chiefly used for tables: a table-cloth, and a dozen of napkins, are called a *damask-service*.

In a dozen damask-services, the table cloths containing 5 yards and $\frac{3}{4}$ each; and the napkins 1 yard and $\frac{1}{4}$ each, how many quarters and nails? *Ans.* 996 quarters; 3,984 nails.

No. 200. HOLLAND. Holland, in linen-drapery, is a fine, white, even, close kind of linen cloth, chiefly used for shirts, sheets, &c.

Some for the pride of Turkish courts design'd
For folded turbants finest holland bear.

DRYDEN.

It is principally wrought in the provinces of Holland, Friesland, and other parts of the United-Provinces; whence the appellation. The chief mart or staple of this cloth is at Haerlem, in Holland, whither it is sent from most other places, as soon as woven, there to be whitened in the ensuing spring.

In Shakespeare, the hostess tells Falstaff, that the shirts she bought him were holland, at eight shillings a yard; a high price at this day, even supposing, what is not probable, that the best holland at that time was equal in goodness to the best that can now be purchased. Hence Hume concludes, that the finer manufactures, by the progress of arts and industry, have rather diminished in price, notwithstanding the great increase of money.

Hist. Eng. vol. vi. p. 176.

How many dozen of shirts, each shirt containing 3 yards and $\frac{3}{4}$, can be made from 16 pieces of holland, each 26 yards and $\frac{1}{4}$? *Ans.* 9 dozen, $\frac{1}{2}$, $\frac{2}{3}$.

No. 201. FEMALE PATRIOTISM. The generous exertions of the American daughters of liberty in Philadelphia, and the neighbourhood, to assist the continental soldiers, in the war with England, are mentioned with deserved approbation by Dr. Gordon. Desirous of sharing with the gentlemen of America in the splendors of patriotism, and aspiring to the honour of giving the army some public mark of the esteem they entertained of their virtue, they formed a female association, and collected subscriptions for this purpose. Their donations, says the historian, purchased a sufficient quantity of cloth, and their hands made the same into two thousand one hundred and seven shirts, which were delivered to the person appointed to receive them by General WASHINGTON*, the patriotic champion who so nobly defended

* Dr. Gordon's *Hist. Amer. Rev.* vol. iii. p. 376, 496.

the standard of liberty in the New World, and in the issue of the struggle "taught a lesson useful alike to those who inflict, and to those who feel oppression."

Supposing each shirt contained 3 yards and $\frac{1}{4}$, how many pieces, each consisting of 25 yards and $\frac{1}{2}$, must the American ladies have purchased, to have accomplished their patriotic purpose? *Ans.* 268 pieces, 13 yards $\frac{3}{4}$.

No. 202. DISTRESS OCCASIONED BY WAR. Spain was so exhausted by continued wars in Italy and Flanders, and by emigrations to America; wanting at the same time every encouragement to industry at home; that wretchedness at length so universally prevailed, that in the year 1660 it was computed there were 3,000,000 of persons who wore no shirts, because they could not afford to purchase linen.

Mr. Townsend's Journey, vol. ii. p. 165.

May we not, on occasions like this, exclaim with Homer,

"Curs'd is the man, and void of law and right,
Unworthy property, unworthy light,
Unfit for public rule, or private care,
That wretch, that monster, who delights in war;
Whose lust is murder, and whose horrid joy
To tear his country, and his kind destroy."

Allowing $3\frac{1}{2}$ yards to each shirt, how many yards would have furnished a shirt apiece for the persons mentioned above? *Ans.* 10,500,000 yards.

L O N G M E A S U R E.

No. 203. VOLCANO.

The first Almighty Cause,
Acts not by partial, but by gen'ral laws.

POPE.

That partial evil is universal good, is a proposition which has been repeatedly illustrated by the best moral writers. The sun, it has been remarked, that burns up the mountains, fructifies the vales; the deluge that rushes down the broken rocks with dreadful impetuosity, is separated into purling brooks; the rage of the hurricane purifies the air; and *the dread volcano ministers to good: its smothered flames might undermine the world.*

Volcano is a name given to burning mountains, or to vents for subterraneous fires that emit or eject flames, ashes, cinders, stones, liquid sulphur, and other substances.

The

The principal apertures of this kind in Europe, are ETNA in Sicily, VESUVIUS in Naples, and HECCLA in Iceland.

So late as the year 1783, a volcanic eruption in Iceland, surpassed any thing recorded in history. The lava spouted up in three places, to the height of two miles perpendicular, and continued thus for two months; during which time it covered a tract of 3,600 square miles of ground, in some places more than 100 feet deep.

Chronological Tab. Ency. Brit.

The eruptions and flame from mount Etna are seen, by those who sail in the Mediterranean sea, at the distance of 168 English miles; and in 1536 this volcano raged with such peculiar violence, that it shook all Sicily, and disgorged a great quantity of ashes, which were not only dispersed all over the island, but also carried beyond sea to Italy, so that several ships, then on their passage to Venice, at 200 leagues distance, suffered damage. How many yards are in that space?

Ans. 1,056,000.

N. B. The eruption of Etna, in 1669, destroyed 27,000 human habitations, and 17,000 persons perished by it in Catania.

No. 204. VESUVIUS. In the year 79 occurred the first eruption of Vesuvius on record. It happened in the time of Vespasian, when Pliny the elder, a celebrated natural philosopher, having been prompted by curiosity to observe its effects, was suffocated with the sulphureous smoke. Herculaneum was also overwhelmed at the same time; and, like Pompeii and other cities, was thought to have been utterly destroyed, till the beginning of the present century, when it was discovered, and many of the houses were found perfectly furnished, with the furniture in good preservation. It is situated 8 miles from Naples. How many inches and barley-corns are in that space? *Ans.* 506,880 inches, 1,520,640 barley-corns.

No. 205. SILK-MILL. At Derby there is a wonderful machine, the only one of its kind in England. It is an engine for making organzine or thrown silk, by which invention one person can twist as much silk as could be performed by fifty in the usual way, and that in a truer and better manner. The model of this celebrated piece of mechanism is said to have been clandestinely taken by the brother of the late Sir Thomas Lombe, merchant of London, from the original in the king of Sardinia's dominions, about the year 1714. The two brothers acting in concert employed an excellent mechanic, named Soracle, and completed the whole machinery, which has greatly encouraged the silk manufacture of this kingdom, and saved a great deal of money to the nation, formerly paid to the Piedmontese for organzine silk. This grand machine contains 26,586 wheels, and 97,746 movements, and one water-wheel communicates motion to all the rest of the wheels and movements, of which any one may be stopped separately and independently of the rest. One fire engine conveys air to every part of the machine; and one regulator governs the whole; 73,728 yards of silk are wound every time the water-wheel goes round,

which

which is three times in a minute; so that 318,504,960 yards may be wound in 24 hours: how many miles and leagues are contained in this quantity? *Ans.* 180,968 miles, 1,280 yards; 60,322 leagues, 2 miles.

N. B. 1760 yards make a mile.

No. 206. HANNIBAL'S MARCH. This renowned Carthaginian general set out from New Carthage, now called Carthagena, in Murcia, Spain, to invade Italy. Hannibal, in this march, crossed the Pyrenean hills; the river Rhone, near Avignon, in France; and the Alps. In traversing those high mountains he encountered extreme fatigue, and lost a considerable part of his army. This invasion was productive of innumerable disasters, and almost total ruin, to the Roman state. He defeated their numerous forces (always with prodigious slaughter) near the river Ticinus; near the Trebia; near the lake Thrasymenus; and, finally, near Cannæ, the most memorable of his victories, and most fatal to his enemies. Being, at length, recalled to defend his own country, he was there defeated by Scipio, at the battle of Zama. Soon after this overthrow, he sought an asylum with Prusias, king of Bythia, who, desirous to gratify the Romans, designed to betray him into their hands; to avoid which disgrace, Hannibal poisoned himself, in the 70th year of his age; enjoying at his death the reputation of having been one of the greatest commanders the world had produced; a testimony confirmed to our time by the unanimous voice of posterity.

Hannibal undertook this arduous expedition about 217 years B. C. and the distance from New Carthage to the plains of Italy is computed at a thousand miles. How many inches are in the space mentioned in Hannibal's march. *Ans.* 63,360,000.

No. 207. BATTLE OF CUNAXA, OR CYNAXA. The battle of Cunaxa, a place situated about 25 leagues N. W. of Babylon, is highly distinguished in ancient history. It was fought about 401 years B. C. between young Cyrus and his brother Artaxerxes. The latter having succeeded to the Persian throne on the death of Darius Nothus his father, the former, aided by some Grecian troops, attempting to dethrone him, was slain in this engagement; which, however, owes almost the whole of its celebrity to the retreat of the 10,000 Greeks, that immediately succeeded it, and which is one of the most memorable events in history. Those able and intrepid warriors, hopeless of succour, bereft of their principal commanders, destitute of allies, provisions, money, horses, and archers, with, in fine, no resource but the prudence and valour which love of LIBERTY, and impatience to be restored to their native country, inspired, traversed five or six hundred leagues intersected by vast rivers, and obstructed by innumerable defiles. Yet they proceeded through various fierce and barbarous nations, surmounted all the obstacles and dangers that arose at every step, and, in a word, accomplished their very arduous enterprize, after repeated triumphs over toils, necessities, fraud, and force. This
retreat

retreat is esteemed the boldest and best-conducted exploit on record. It is minutely narrated by the admired historian Xenophon, whose melody of periods, and elegance of diction, obtained for him the appellation of *Attic Bee*. He was on this occasion not only a spectator of the facts he relates, but the prime mover and animating spirit of the whole glorious expedition.

This memorable retreat is delineated by Thomson in the following glowing and energetic lines:

— Thro' the continent ten thousand Greeks
Urg'd a retreat, whose glory not the prime
Of victories can reach. Deserts, in vain,
Oppos'd their course, and hostile lands, unknown,
And deep rapacious floods, dire-bank'd with death,
And mountains, in whose jaws destruction grinn'd,
Hunger and toil, Armenian snows and storms,
And circling myriads still of barbarous foes.
Greece in their view, and glory yet untouch'd,
Their steady column pierc'd the scattering herds
Which a whole empire pour'd, and held its way
Triumphant, by the sage-exalted Chief
Fir'd and sustain'd. Oh! light and force of mind
Almost almighty, in severe extremes!
The sea, at last, from Colchian mountains seen,
Kind-hearted transport round their captains threw
The soldiers' fond embrace: o'erflow'd their eyes
With tender floods, and loos'd the general voice
To cries resounding loud—The sea! the sea!

THOMSON'S LIBERTY.

The distance from Cunaxa, the place of engagement, to Cottyora, near Cerasus and Trapezond, on the coast of the Black Sea, where the ten thousand embarked, is generally supposed to be about 600 leagues; how many inches and barley-corns are in that space? *Ans.* 114,048,000 inches; 342,144,000 barley-corns.

No. 208. CIRCUMFERENCE OF THE EARTH. It is an old and familiar adage, that patience and perseverance overcome the greatest difficulties. The most laborious works, says Dr. Johnson, are performed, not by strength, but perseverance. The highest and most spacious palace was raised by single stones; and he that should walk with vigour three hours a day, will pass, in seven years, a space equal to the circumference of the globe, which, at the equator, is 360 degrees, or 25,020 English miles. How many barley-corns will encompass it; and how many miles per hour, and per day, must a person walk to accomplish the doctor's assertion? *Ans.* 4,755,801,600 barley-corns; $3\frac{1}{4}$ miles per hour, 435 remainder; and $9\frac{3}{4}$ miles per day, 435 remainder.

No. 209. SPINNING COTTON. Manchester in Lancashire, says the ingenious lecturer in philosophy, Mr. Walker, is a well-built town; doubled in its size within the last thirty years; more than doubled

doubled in the number of its inhabitants; and enriched by the cotton manufactory beyond the power of calculation! To such perfection has the spinning of cotton by machinery arrived, that a pound of raw cotton has, for a wager, been spun into 356 hanks, each containing 840 yards.

Tour, p. 31.

How many yards, feet, inches, and miles, are in the number of hanks mentioned by Mr. Walker? *Ans.* 299,040 yards; 897,120 feet; 10,765,440 inches; 169 miles, 57,600 inches (equal to 1600 yards) remaining.

No. 210. SPINNING WORSTED. Mr. Gates of Spalding, in a series of letters to Lord Romney, has communicated an account of the amazing efforts of Miss Ann Ives of that town, in spinning fine woollen yarn, which she has brought to a degree of perfection hitherto unknown in this part of the world. One pound weight of English wool was spun by this young lady into 256 skains of yarn, each 560 yards long; a surprising degree of fineness!

What number of yards, barley-corns, and miles, are contained in the yarn spun by the ingenious Miss Ives? *Ans.* 143,360 yards; 15,482,880 barley-corns; 81 miles, and 86,400 barley-corns (equal to 800 yards) remaining.

No. 211. NATIONAL DEBT. The word *fund*, in general, signifies any sum of money appropriated for a particular purpose. But, when we speak of *the funds*, we usually mean the large sums of money which have been lent to government, and constitute the *national debt*; and for which the lenders, or their assignees, receive interest from revenues allotted for that purpose. The term *stock* is used in the same sense.

The practice of funding was introduced by the Venetians and Genoese in the sixteenth century, and has been adopted since by most of the nations in Europe. Princes had often borrowed money, in former times, to supply their exigencies, or to carry on their schemes, and sometimes mortgaged their territories in security: but these loans were generally extorted, and their payment was always precarious; for it depended on the good faith and success of the borrower, and never became a regular burden on posterity. The origin of funds is derived from the peculiar manners and circumstances of modern Europe. Since the invention of gunpowder, and the progress of commerce, the military occupation has become a distinct employment in the hands of mercenaries; the apparatus of war is attended with more expence; and the decision of national quarrels has often been determined, rather by the command of money than by national bravery. Ambitious princes have, therefore, borrowed money, in order to carry on their projects with more vigour. Weaker states have been induced, from motives of self-defence, to apply to the same resource; and the wealth introduced by commerce has afforded the means.

The

The establishment of the funds was introduced in England at the time of the revolution; and has since been gradually enlarged, and carried to an amazing extent. Ministers of state, in consequence of the funding system, and the facility with which money was raised for the purposes of government, have been induced the more readily to engage in unnecessary and most pernicious wars*. This has occasioned the people of this country to be burthened with numerous and oppressive taxes, and been productive of great national evils.

The national debt of England is estimated by political writers at three hundred and thirty millions sterling. Suppose this enormous sum counted in shillings, each measuring an inch in breadth, and all placed in contact with each other's edges, what length of line would they require? *Ans.* 104,166 miles, 1,173 yards, 1 foot: a space which is 4,086 miles more than *four times* the circumference of our earth at the equator; its widest part, exclusive of the odd yards, &c. mentioned above.

N. B. The equatorial circumference of the earth is 25,020 English miles.

LAND MEASURE.

No. 212. FIRE OF LONDON. The ruins of the city of London, in the great fire, A. D. 1666, of which an account is given in the 161st question, are computed to have covered 69,760 perches of ground, from the Tower by the Thames side, to the Temple church, and from the north-east gate, along the city wall, to Holborn-bridge. How many roods and acres are in that quantity; and how many lots, each containing 1 acre, 1 rood, and 1 perch? *Ans.* 1744 roods, 436 acres; and 347 lots $\frac{13}{201}$.

No. 213. PYRAMIDS. A pyramid is a solid figure, whose base is a polygon, and whose sides are plain triangles, their several points meeting in one. The pyramids of Egypt are some of the most ancient structures on our earth. They descend even from an unknown antiquity. Herodotus, who wrote 2000 years ago, speaks with as much uncertainty about the time when they were constructed as we do at present. These majestic monuments are generally supposed to have been designed as places of sepulture for the Egyptian kings.

Instead of useful works, like Nature's, great,
Enormous, cruel wonders, crush'd the land,
And round a tyrant's tomb, who none deserv'd,
For one vile carcase perish'd countless lives.

THOMSON.

* The American war, which might easily and honourably have been avoided, which was ingloriously commenced and ingloriously terminated, and which scarcely any man will now be found hardy enough to defend, cost this nation above one hundred millions of money, and many thousand valuable lives. See Question 216.

Some authors, however, contend, that they were constructed in honour of the Deity. They have always been ranked among the wonders of the world. The charge of building them was immense. According to Herodotus, 100,000 workmen were employed for thirty years without intermission in preparing the materials, or constructing the work; and he adds, that 1,600 talents of silver were expended in radishes, onions, and garlick* by the workmen; a sum equal, according to different calculations, to about £400,000, £289,379, or, at least, £220,000 sterling. Three of these magnificent structures yet remain, at the distance of some leagues from Grand Cairo, where Memphis formerly stood. The perpendicular height of the largest, called the Great Pyramid, is about 450 feet; if measured obliquely, 700; and its base covers 1760 perches of ground. How many acres are in this quantity? *Ans.* 11 acres.

No. 214. INUNDATION. Inundation is a sudden overflowing of the dry land by the waters of the ocean, rivers, lakes, springs, or rains. The word inundation, it is remarked by Cowley, implies less than deluge.

History has recorded innumerable instances of the devastations occasioned in various parts of the globe by inundations. Several of these are enumerated in Mr. Mortimer's Student's Dictionary, from which we shall select the two following.

In 1446, a dyke broke at Dort, or Dordrecht, in Holland, by which the adjacent districts were entirely deluged, and 100,000 human beings lost their lives. A similar catastrophe befell the same country in 1570, when no less than 400,000 persons were drowned.

The dangerous banks called the Goodwin-Sands, situated opposite to the isle of Thanet in Kent, are traditionally supposed to have been formerly part of the domains of the potent and imperious Goodwin, or Godwin, earl of Kent, father of king Harold. These sands, which often prove fatal to sailors, run parallel with the coast between the North and South Forelands, for the space of three leagues. They were formed by an inundation of the sea in the year 1100, which englutted 640,000 perches of land: how many acres were absorbed by this disaster? *Ans.* 4,000 acres.

* Garlick has, of all our plants, the greatest strength, affords most nourishment, and supplies most spirits, to those who eat little flesh. It seems to have been a considerable article of food in ancient times.

Honey new-prefs'd, the sacred flour of wheat,
And wholesome garlick crown'd the fav'ry meat.

POPE'S HOMER.

The Spaniards at present eat great quantities of garlick. Mr. Townsend saw two waggons loaded with it near Carthagena, which he was assured was the weekly supply for that city.

Journey, vol. iii. p. 150.

No. 215. GARDENING. Gardening was probably one of the first arts that succeeded to that of building houses, and naturally attended property and individual possession. Culinary, and afterwards medicinal herbs, were the objects of every head of a family: it became convenient to have them within reach, without seeking them at random in woods, in meadows, and on mountains, as often as they were wanted. When the earth ceased to furnish spontaneously all those primitive luxuries, and culture became requisite, separate enclosures for rearing herbs grew expedient. Fruits were in the same predicament; and those most in use, or that demand attention, must have entered into and extended the domestic enclosure. Thus we acquired kitchen-gardens, orchards, and vineyards: no doubt the prototype of all these forts was the garden of EDEN.

A cottage, and a slip of ground for a cabbage and a gooseberry-bush, such as we see by the side of a common, were, in all probability, the earliest seats and gardens. As settlements increased, the orchard and the vineyard followed; and the earliest princes of tribes possessed just the necessaries of a modern farmer. Matters, we may well believe, remained long in this situation; and we have reason to think that, for many centuries, the *garden* implied no more than a kitchen-garden or orchard. The garden of Alcinous, in the *Odyssey*, is the most renowned in the heroic times; yet its whole compass enclosed only four acres:

Four acres was th' allotted space of ground,
Fenc'd with a green enclosure all around.

The trees were apples, figs, pomegranates, pears, olives, and vines.

Previously to this, however, we have in the sacred writings hints of a garden more luxuriously furnished.

See the Song of Solomon. Horace Walpole's Hist. of Gardening.

Gardening, in the perfection to which it has been lately brought in Britain, is entitled to a place of considerable rank among the liberal arts. It is as superior to landscape painting as a reality to a representation: it is an exertion of fancy; a subject for taste; and being released now from the restraint of regularity, and enlarged beyond the purposes of domestic convenience, the most beautiful, the most simple, the most noble scenes of nature, are all within its province.

Wheatley's Obs. on Mod. Gard.

No pleasure derived from art has been so universal as that taken in gardens. This, in the first place, was owing to the union of simple gratifications they afforded; not fewer than four of the senses, the taste, smell, sight, and feeling, being most agreeably affected by horticulture.

Dr. Aikin's Letters to his Son.

The most magnificent and splendid gardens in England are those of STOWE in Buckinghamshire, which were laid out by the late Lord Viscount Cobham, and are now possessed by the marquis of Buckingham, his nephew.

The magnificent boundary, round the whole circuit of Stowe gardens, comprehends, according to Mr. Wheatley, a space of nearly 400 acres. How many perches are in that quantity; and how many lots, each containing 39 perches, can the said number of perches be divided into? *Ans.* 64,000 perches; 1641 lots $\frac{1}{39}$.

No. 216. UNITED STATES. Great part of North America was colonized by British subjects, and, till the late disastrous American war, formed part of the British empire.

The sensations of the first colonists, who, to avoid civil and religious tyranny, fled from the cultivated plains of England, the comforts of civilized life, and the stronger attachment of kindred and habits, to take refuge in the woods and marshes of America, are admirably expressed by the late respectable Mr. Day, in the subsequent nervous lines.

The favour'd clime, the soft domestic air,
And wealth and ease, were all below their care;
Since there an hated TYRANT met their eyes,
And blasted every blessing of the skies.
For not the winding stream, or painted vale,
The sweets of summer, or the vernal gale,
Were form'd to fetter down the noble soul
Beneath the magic of their soft controul.
Wherever nature bids her treasures rise,
Or circling planets rush along the skies,
Or ocean rolls his ever-ebbing wave,
Has fate ordain'd a refuge for the BRAVE,
Who claim from Heaven (and Heaven allows the claim)
To live with FREEDOM, or to die with FAME;
And find, alike contented with their doom,
In every clime a COUNTRY or a TOMB.

The brave descendants of those illustrious SONS OF LIBERTY (as the late Colonel Barré emphatically styled the Americans, in the English House of Commons*) finding, as they conceived, their rights repeatedly invaded by several obnoxious and oppressive acts of the British parliament, at length took arms in 1775, and, after a glorious contest with the mother country of nearly eight years continuance, terminated the war in *Freedom, Security, and Independance*, under the command of GENERAL WASHINGTON, the great defender of the cause of liberty in the New World. The thirteen provinces which had thus resolutely united, and strenuously fought to rescue themselves and posterity from what they deemed peculation and tyranny, are now known by the style of the UNITED STATES OF AMERICA; a title which all nations have admitted, and which various defeats and disasters at length compelled even Great-Britain to acknowledge in the most authentic manner, and with expressions and declarations that convey a full recognition of their independent sovereignty.

* See Dr. Gordon's Hist. Amer. Rev. vol. i. p. 160, 167.

The unfortunate war, whose cause and issue we have now cursorily mentioned, is stated to have cost the inhabitants of Great-Britain, who were before overwhelmed with debts and taxes, £115,654,914 sterling, which enormous principal, since January 1775, requires a provision of £4,557,575, for the annual liquidation of its interest. The loss of men on each side is not a less deplorable evil. According to authentic estimates, there perished by the sword, fatigue, and confinement, nearly 80,000 Americans; and, by the returns at New-York, the number of British killed in the service, amounted to 43,633.

The whole territory of the United-States of America is said to contain by computation a million of square miles, in which are 640 millions of acres. Of these 51 millions are water; deducting these, what number of acres, roods, and perches of land, do the United-States contain? *Ans.* 589,000,000 acres, 2,356,000,000 roods, 94,240,000,000 perches.

No. 217. ENGLAND. England is the southern part of the island of Great-Britain, which is itself the principal of the European islands; “a precious stone set in the silver sea.”

“ Britain the queen of isles our fair possession
 “ Secur’d by nature, laughs at foreign force;
 “ Her ships her bulwark, and the sea her dyke,
 “ Sees plenty in her lap, and braves the world.”

Such noble warlike steeds, such herds of kine,
 So flock, so vast; such spacious flocks of sheep,
 What other paradise adorn but thine,
 Britannia? —————
 ————To these thy naval streams,
 Thy frequent towns superb of busy trade,
 And ports magnific add, and stately ships
 Innumerable.

DYER.

But what should endear our country still more to us, is the consideration of its having been long the residence of a greater degree of political and religious liberty than has been enjoyed in almost any other part of the world. An Englishman must also naturally derive considerable pleasure from the reflexion, “that some of the eminent writers of his own country have greatly contributed to diffuse that spirit of freedom, which has lately been exhibited in different parts of Europe, as well as on the other side of the Atlantic. The French nation have had the generosity to acknowledge this; and much of that flame of liberty, which has characterized the Americans of the present age, was undoubtedly derived from the mother-country, and from that light and knowledge, which were communicated to the British colonies from the LOCKES and the SYDNEYS of England.”—“That sun of liberty, says Mr. Wakefield, which has shot his beams even into

into the extremities of the *western hemisphere*, and is invigorating *European* nations with meridian rays, first rose from the bosom of OUR ISLAND: and may he never set, till every vestige of slavery and superstition be effaced from *it* and from the earth; till FREEDOM have established on the hearts of men UNIVERSAL EMPIRE.

Memoirs, p. 404.

Political writers greatly vary in their accounts of the quantity of land in England. Dr. Grew makes the number of acres amount to upwards of 46 millions. Sir William Petty reckons but 28, others estimate them at 29 millions; and Dr. Davenant states the quantity of land in England and Wales to be 39 millions of acres. Mr. Zimmerman supposes that England contains about 42 millions of acres: how many roods and perches are in that quantity? *Ans.* 168,000,000 roods, 6,720,000,000 perches.

No. 218. WASTE LANDS IN GREAT-BRITAIN. By the report of the committee of agriculture, it appears, that the total amount of waste lands in our island is as follows. England 6,259,470 acres; Wales 1,629,507; and Scotland 14,218,124 acres. On the consideration of this subject, where is the man who will not exclaim, with the author of the *Political Arithmetic*, "When will the minister arise, who, amidst the profusion of the public money, will have virtue enough to appropriate ONE POOR MILLION to the cultivation of the waste lands of this country?"

What is the entire number of acres in the above quantity, and how many farms, each containing 50 acres, 3 roods, and 39 perches, might they be divided into? *Ans.* 22,107,101 acres; 433,525 farms $\frac{568}{8139}$.

D R Y M E A S U R E.

No. 219. CORN. This word denotes either a genus of plants, which produce a grain in an ear fit for bread, the ordinary food of man; or the grain, or seed, of that plant, separated from the spica, or ear. In the commerce of grain, *corn* generally means wheat, but the farmers rank among the number of *corns* several other grains, as rye, barley, &c. Concerning the discovery and culture of corn, authors are much divided. The common opinion is, that in the first ages men lived on the spontaneous fruits of the earth, as acorns, &c. having neither the use of corn, nor the art of preparing or making it eatable. CERES has the credit of being the first that showed the use of corn, on which account she was placed among the gods: and *Ceres* is metaphorically called *bread* and *corn*, as the word *Bacchus* is sometimes used to signify *wine*. The Athenians pretend, that it was among them the art of using corn

corn began; and the Cretans, Sicilians, and Egyptians lay claim to the same. Some think, that the title of the Sicilians is best supported, that being the country of Ceres: others, however, maintain, that it was in Egypt the art of cultivating corn originated; and it is certain, that there was corn in Egypt, and the East, long before the time of Ceres. And it appears, both from sacred and profane history, that Egypt was anciently the most fertile of all other countries in corn; furnishing with it a considerable part of the people subject to the Roman empire, and was therefore called the *dry nurse of Rome and Italy*. BRITAIN, France, and Poland, seem, till lately, in the place of Egypt, and with their superfluities to have supported a good part of Europe. Corn may be preserved for several centuries.

See the Cyclop. and Ency. Brit.

The process attending the cultivation of corn is well described in the following lines:

The husbandman
Pursues his cares; his plough divides the glebe;
The seed is sown; rough rattle o'er the clods
The harrow's teeth; quick weeds his hoe subdues;
The sickle labours, and the slow team strains,
Till grateful harvest-home rewards his toils.

DYER.

It has been justly remarked, that agriculture is the art of free nations, and that it can never flourish under the fetters of despotism. The ancient republics afford us several instances of generals and statesmen having exchanged their boisterous employments, in wars and politics, for the more peaceable ones of the fields, and the cultivation of the ground. Thus adding to the culture of philosophy that of rural œconomy, and rendering themselves doubly serviceable to their country.

In ancient times, the sacred plough employ'd
The kings and awful fathers of mankind;
And some, with whom compar'd your insect-tribes
Are but the beings of a summer's day.
Have held the scale of empire, rul'd the storm
Of mighty war, then with unwearied hand,
Disdaining little delicacies, seiz'd
The plough, and greatly independent liv'd.

THOMSON.

The arable lands sown with wheat in ENGLAND produce, it is computed, 34,000,000 bushels of this valuable grain annually; how many quarters, weys, and lasts, are in that quantity? *Ans.* 4,250,000 quarters; 850,000 weys; 425,000 lasts.

No. 220. BARLEY. The principal use of this well-known species of grain among us, is for the making of beer; in order to which it is first malted. In Scotland, barley is a common ingredient in broths; and the consumption of it for that purpose is very considerable;

derable; *barley-broth* being a dish as frequent there as that of *soup* in France. Pearl-barley is barley freed from the husk by a mill. Barley-water is a decoction of this last, reputed soft and lubricating, of frequent use in physic, as a beverage in many disorders; and is recommended, with nitre, by some authors of reputation, in flow fevers.

The quantity of barley produced in England is supposed to be much greater than that of wheat. In 49,876,543 bushels of this grain how many pints, and how many portions, each containing 10 bushels, 1 pint? *Ans.* 3,192,098,752 pints; 4,979,873 portions $\frac{1}{64}$.

No. 221. MALT. Malt denotes barley cured, or prepared for making a potable liquor, under the denomination of beer or ale. Barley is converted into malt by being steeped in water and fermented, and then dried on a kiln; which is a sort of stove so constructed as to admit heat for the purpose of drying any thing.

It is conjectured, that twenty-three millions of bushels of barley are annually converted into malt in England. How many carts may be loaded from that quantity, each carrying 5 quarters, 1 bushel, 2 pecks? *Ans.* 554,216 $\frac{1}{16}$.

No. 222. COAL. Coal is a common fossil fuel. Mr. Brand, in his History of Newcastle, observes, that though some writers have not scrupled to affirm that coal was unknown to the ancient Britons, yet others have contended for the contrary by almost irresistible arguments. And the facts and testimonies, adduced by Mr. Brand, afford much reason to conclude, that coal, though at first unnoticed in Britain by the Romans, was afterwards in actual use among them.

The first public mention of coal we meet with is in the year 1232, when king Henry III. confirmed the charter, granted by John his father, to the inhabitants of Newcastle, to dig coals in the common soil without the walls, and to convert them to their own profit, in aid of their *fee-farm* rent of £100 per annum. The measure whereby coal is sold in London is the chaldron, containing 36 bushels; but in several parts of the country it is disposed of by weight at so much per ton. cwt. &c.

The coal trade is generally allowed to be the best nursery for British seamen. Sailors bred up in that trade can hardly be equalled for skill, spirit, and hardiness in their profession. And the duty on coals is an important branch of revenue, amounting, it is affirmed, to half a million sterling per annum.

The quantity annually imported into London, deduced from an estimate of 10 years, viz. from 1770 to 1779, is 658,853 chaldrons. How many bushels and pecks are in that quantity? *Ans.* 23,718,708 bushels, 94,874,832 pecks.

No. 223. NUTS. Nut, among Botanists, denotes a *pericarpium* of an extraordinary hardness; which contains a softer edible nucleus, or kernel. Of these we have divers kinds; as small nuts, filberds, chesnuts, walnuts, &c.

Amiens, a handsome town in the department of Somme, and late province of Picardy in France, was taken by the Spaniards in 1597, by the following stratagem: soldiers, disguised like peasants, conducted a cart loaded with *nuts*, and let a bag of them fall just as the gate was opened; and while the guard was busy in gathering them up, the Spaniards entered, and became masters of the place. It was retaken by Henry IV. who was assassinated in Paris in 1610.

Suppose the above-mentioned cart to have been loaded with 14 sacks of nuts, each sack containing 3 bushels, 3 pecks, 1 gallon, 1 pottle, 1 quart, and 1 pint; how many pints are contained in the whole? *Ans.* 3570 pints.

No. 224. WHIRLWIND. There are several sorts of whirlwinds distinguished by their peculiar names.

See the Cyclop.

That which is most properly called a vortex, or whirlwind, is an impetuous wind, turning rapidly every way, and sweeping all around the place. It frequently descends from on high; and this kind is frequent in the eastern ocean, chiefly about Siam, China, &c. which renders the navigation in those parts exceedingly dangerous.

In the month of May 1782, a most furious whirlwind, accompanied with heavy rains, almost ruined FORMOSA, an island near the coast of China, in Asia. The courts of judicature, public granaries, warehouses, the shops of tradesmen, and private dwellings, were levelled to the ground, and appeared little more than a heap of ruins. Among the shipping the havoc was equally dreadful. There were seventeen men of war in the harbour when the tempest began; of these two were sunk, two were dashed to pieces, and ten were so dreadfully shattered, as to be rendered totally unfit for service. The smaller ships, which were about 100 in number, shared nearly the same fate; for more than eighty were sunk, of which five had just taken their lading on board, which amounted to a hundred thousand bushels of rice: all this was totally lost.

How many lots, each containing 3 bushels, 2 pecks, 1 gallon, 1 pottle, 1 quart, and 1 pint, does the above quantity contain? *Ans.* 26,778 lots, $\frac{58}{239}$.

W I N E M E A S U R E.

Wine is defined a brisk, agreeable, spirituous, and cordial liquor, extracted from vegetable bodies, and fermented. All sorts of vegetables, fruits, seeds, roots, &c. may be made to afford it; as grapes, pulse,

pulse, peas, turnips, radishes, and even grafts. The word wine is, however, appropriated, in a more particular manner, to the fermented juice of the grape. Of this various sorts are made in France, Germany, Spain, Portugal, Hungary, and Italy. Concerning the acquaintance which our progenitors had with wine, it has been conjectured, that the Phœnicians might possibly have introduced a small quantity of it; but this liquor was very little known in our island before it was conquered by the Romans. Wine is of extensive utility, not only as a beverage, but as a medicine; and several eminent physicians recommend it as an excellent cordial, peculiarly salutary in fevers, &c.

No. 225. PORT-WINE. This wine receives its name from being made in the districts adjacent to Oporto, or Porto, a rich, handsome, and considerable town of Portugal; and on this account all red wines that come from Spain or Portugal are usually called Port-wines.

The Portuguese wines, when old and genuine, are esteemed to be very friendly to the human constitution, and safe to drink; but it is generally supposed, that not half the quantity that is consumed under the name of port-wines, in the British dominions only, comes from Oporto. The merchants in this city have, however, very spacious wine-vaults, capable of containing six or seven thousand pipes; and it is said, that twenty thousand pipes are annually exported from Oporto. How many pints are in the quantity last mentioned? *Ans.* 20,160,000 pints.

No. 226. GERMAN WINES. There are excellent wines made in the imperial dominions; in Tyrol; in the Palatinate; and particularly on the banks of the Rhine and Moselle, two large rivers in the western part of Germany. The Rhenish and Moselle wines differ from those of other countries in a peculiar lightness and detensive quality, and are said to be more sovereign in some diseases than any medicine. A certain writer calls the Rhenish made in Hockheim*, the prince of German wines. Old, strong, rhenish wine, is called *hock*, or *hockamore*.

Made 'em stoutly overcome,
With bachrach, *hockamore*, and mum.

HUDIBRAS.

The city of BREMEN, on the river Wesel, in Lower Saxony, Germany, is, says Mr. Wraxall, noted for its old hock, which is brought from the banks of the Rhine, and deposited in the public cellars. These are wonderfully capacious, but are not comparable in magnificence to those at Oeyras in Portugal, belonging to the marquis de Pombal,

* Hockheim, or Hockham, is only an inconsiderable village, not far distant from the city of Mentz, on the Rhine.

or those of Constantia at the Cape of Good Hope. There is one particular room, called the Rose, where they keep wine, which they state to be 170 years old, and for which they asked £1 5s. a bottle.

At HEIDELBURG, on the river Neckar, near its junction with the Rhine, Germany, there was a tun or wine vessel constructed, in 1343, which contained twenty-one pipes. Another was made, or the one now mentioned rebuilt in 1664, which held six hundred hogheads, English measure. This was emptied, and knocked to pieces by the French in 1688. But a new and larger one was afterwards fabricated by order of the elector Charles Lewis, which, according to Salmon, held eight hundred hogheads. It was formerly kept full of the best Rhenish wine, and the electors have given many entertainments on its platform; but this convivial monument of ancient hospitality is now, says Mr. Walker, but a melancholy, unsocial, solitary instance of the extinction of hospitality; it moulders in a damp vault, quite empty. It is, continues the ingenious philosophical lecturer, nine yards long, seven in diameter, and holds 67,000 gallons, a measure, however, he adds, greatly inferior to many of the London porter-tubs.

How many tuns, &c. does this famous vessel contain according to this calculation? *Ans.* 265 tuns, 1 pipe, 1 hhd, 31 gallons.

No. 227. TUN OF KONIGSTEIN. This celebrated vessel is said to be the most capacious cask in the world; holding 1,869,336 pints. Its length is seven Dresden ells, and its diameter at the bung twelve ells. The top is railed in, and affords room for twenty people to regale themselves. There are also several kinds of welcome cups, which are offered to strangers, who are invited, by a Latin inscription, to drink to the prosperity of the universe. It was built in 1725. Konigstein is a fortress erected on the summit of a perpendicular rock, about five miles from Dresden in Saxony, Germany, and is used as a place of confinement for state prisoners.

See Mr. Payne's Geo. vol. ii. p. 175, &c.

How many hogheads, pipes, and tuns does the Konigstein cask contain? *Ans.* 3,709 hhds; 1854 pipes and 1 hhd; 927 tuns.

No. 228. FRENCH WINES. The wines of France are peculiarly excellent; and though they differ very sensibly in their taste and properties, there are few constitutions, be they ever so valetudinary, to which some one or other of them is not adapted.

Thomson, in his Autumn, has thus characterized some of these delicious wines:

The Claret smooth and red,
The mellow-tasted Burgundy, and, quick
As is the wit it gives, the gay Champagne.

At Clervaux, a small town in the department of Aube, and late province of Champagne, in France, there are several enormous

casks which will contain from one hundred to four hundred tuns of wine; and the famous tun of St. Bernard will hold no less than 1,612,800 pints of this liquid. In these capacious vessels wine is sometimes kept for the space of ten years.

How many tuns does St. Bernard's tun contain? *Ans.* 800 tuns.

No. 229. MADEIRA WINE. This is the produce of Madeira, a beautiful and fertile island, situated in the Atlantic ocean, in about 33 degrees of north latitude, and 17 degrees of west longitude. The wines of Madeira are greatly improved by the heat of the sun, and therefore acquire a considerable augmentation of price by being conveyed across the equator previously to their arrival in England. The island of Madeira, which belongs to Portugal, produces twenty-eight thousand pipes of wine annually, eight thousand of which are drank there, and the rest exported; principally to the West-Indies.

How many bottles, each containing three pints and a half, might be filled with the quantity of wine said to be produced yearly in the island of Madeira? *Ans.* 8,064,000 bottles.

No. 230. SPANISH WINES. The principal Spanish wines are sherry, pacaretta, mountain, and tent. Sherry is a sort of *jec* or dry wine, prepared about XERES, in the diocese of Seville, Andalusia, Spain; and hence called, according to our orthography, sherris, or sherry. The wines most remarkable in Cadiz are sherry and pacaretta, both from Xeres and its vicinity. In the district of Malaga there are fourteen thousand vine-presses, chiefly employed in making the rich wines, which, if white, from the nature of the country, is called *mountain*; if red, from the colour, *wino tinto*, known to us by the name of *tent*. The wine of La Mancha* appeared to Mr. Townsend to be the best in Spain: it had, he says, the flavour of the richest Burgundy, with the strength and body of the most generous port.

Journey, vol. ii. p. 263, 390. vol. iii. p. 29.

The same entertaining traveller informs us, that one merchant exported 5,000 butts of wine in a year from Malaga. Mr. Townsend calculates the butt at 135 gallons. How many gallons, quarts, and pints are in the above quantity, and of each an equal number? *Ans.* 490,909 $\frac{1}{11}$.

No. 231. MALMSEY. This wine was formerly the produce of Candia, the islands in the Archipelago, and the Morea in Greece; but is now chiefly brought from Madeira, and some from Spain. It

* La Mancha is a territory in the province of New Castile, situated between the river Guadiana and Andalusia. It is a mountainous country; and is greatly endeared to the admirers of genuine wit and humour on account of its "far-famed" knight, the renowned Don Quixote, who is supposed to have performed his chief exploits in this district.

is a sweet wine, of a golden or brownish-yellow colour; and to this is applied an Italian proverb, signifying, *manna to the mouth, and balsam to the brain*. Malmsey is said to have received its name from Malvasia, a small island east of the Morea, a peninsula, in Turkey in Europe. The French call this wine Malvoisac. The duke of Clarence, brother to Edward IV. is said to have been drowned in a butt of malmsey.

How many gills are contained in a butt of malmsey? *Ans.* 4,032 gills.

N. B. A gill is a liquid measure, the fourth part of a pint.

No. 232. SACK. This is a kind of sweet wine now brought chiefly from the Madeira islands, and Palma, one of the Canaries. The first is called Madeira *sec*, the latter, which is the richer and better of the two, Canary or Palm *sec*. The name sack is a corruption of *sec*, which signifies dry; those wines being made from half-dried grapes: but wine-merchants of the present day use the word *soft* to denote the same quality. The sack of Shakespeare is believed to be what is now called sherry.

See Mr. Malone's Shakespeare; first part of Henry IV.

If $\frac{2}{3}$ of a pipe of sack were bottled off into quarts, and the remainder into pints, how many dozen would there be of each? *Ans.* 28 of each.

No. 233. ENGLISH WINE. Mr. Miller asserts, that he has made wine from English grapes, as good as any of the best and purest French wines, drank either in Paris or Champagne. *See the Cyclop. art. Wine.* It is supposed, that we had formerly considerable vineyards in England, particularly in Gloucestershire. *See Dr. Aikin's England Delineated.* And about a century after the accession of William the Norman, there was a vineyard near Pembroke, in Wales.

Ency. Brit. art. Ale.

Our domestic wines, commonly called *sweets* or *made wines*, are now chiefly made from raisins; and persons skilled in the business can produce a variety of artificial wines, which bear a great resemblance to many foreign ones. Our good housewives, moreover, make a pleasant vinous beverage from no less than thirty several sorts of fruits, &c.*

Now will the corinths†, now the rasps, supply
Delicious draughts; the quinces now, or plums,
Or cherries, or the fair Thibean‡ fruit,
Are press'd to wines.

* See Farley's Art of Cookery.

† Currants.

‡ The mulberry; see Pyramus and Thisbe, Mr. Lempriere's Dict.

B. sides the orchat, ev'ry hedge and bush
 Affords assistance; ev'n afflictive birch,
 Curs'd by unletter'd, idle youth, distils
 A limpid current from her wounded bark
 Profuse of nursing sap. When solar beams
 Parch thirstily human veins, the damask'd meads
 Unforc'd display ten thousand painted flow'rs
 Useful in potables. Thy little sons
 Permit to range the pastures; gladly they
 Will mow the cowslip posies, faintly sweet,
 From whence thou artificial wines shalt drain
 Of icy taste, that, in mid fervours, best
 Slake craving thirst, and mitigate the day.

PHILIPS.

If a hogthead and half of cowslip wine be drawn off into bottles containing severally two gallons, one gallon, a quart, and a pint, in equal numbers, how many would there be of each sort? *Ans.* 21 of each; 18 pints remaining.

No. 234. FALERNIAN WINE. The Falernian wine so much celebrated by the ancient Roman poets, particularly Virgil and Horace, was the produce of Falernus, a fertile mountain and plain of Campania, a district of Italy in which Rome is situated.

Among the Romans, the age of wines was in a manner the criterion of their goodness; and Horace, in his odes, boasts of his drinking Falernian wine, born, as it were with him, or which reckoned its age from the same consuls. What was called Cyprian wine is said to have been kept for two hundred years; but the moderns keep no wines to any such age; for in Italy and Germany, where they are longest preserved, scarcely any are found above fifteen years old; and in France, the best keeping wines are reckoned superannuated in five or six years.

The wines of Italy are still deemed excellent, particularly those of Savoy, Piedmont, Lombardy, the Pope's territories, Naples, and Tuscany. Florence, the capital of the last-mentioned district, is delightfully situated in "Arno's fertile vale," between mountains covered with olive-trees and vines.

"There grapes in thickest clusters hang
 "Among the sweets of Arno's vale."

If a tun of Florence wine were bottled off into hampers, containing severally 3 dozen of quart bottles, and 2 dozen of pint bottles, how many hampers would there be of each sort? *Ans.* 21 of each.

No. 235. GREEK OR TURKEY WINES. The wines so denominated come from Candia, Chios, Lesbos, Tenedos, and other islands of the Archipelago, which anciently belonged to the Greeks, but now to the Turks. The ancient poets were lavish in praise of this wine. That of Lesbos is mentioned in Virgil's Georgics:

Nor

Nor our Italian vines produce the shape,
Or taste, or flavour of the Lesbian grape.

And Horace, inviting his mistress to his country seat, promises to entertain her with a glass of Lesbian, which he calls *innocent*, or *harmless*.

Lib. i. Od. 17.

The same poet also makes frequent mention of the wine of Chios, and Virgil takes notice of it in one of his Eclogues:

Two goblets will I crown with sparkling wine,
The gen'rous vintage of the Chian vine;
These will I pour to thee, and make the nectar thine.

DRYDEN.

Supposing each of the two goblets, mentioned by Virgil, to have contained a pint and three quarters, how many times might they both be filled out of a pipe of Chian wine? *Ans.* 288 times.

No. 236. TOKAY. The same kind of grape, it has been observed, proves very different in taste and flavour, according to the climate, and exposure to the sun. Tokay is an exquisite Hungarian wine; and one particular sort is the produce of a hill which directly fronts the south, and is called from the peculiar sweetness of its grapes, the sugar-hill. This, says Neuman, affords the most delicious wine, and is appropriated to the sole use of the imperial family; hence, perhaps, came the epithet "Imperial Tokay."

Tokay, or Tockay, is a strong but inconsiderable town in Upper Hungary, only noted for its wine.

How many casks, each holding a dozen of half-pint bottles, could be filled out of half an hoghead of Tokay wine? *Ans.* 42 casks.

No. 237. CLARET. Claret, or claret, *pale-red*, is a name given by the French to such of their red wines as are not of a deep or high colour. The word is a diminutive of *clair*, *bright*, *transparent*.

Lord Chesterfield, in his celebrated letters to his son, informs him, that claret comes from BOURDEAUX; a testimony confirmed by the authors of the Ency. Brit. who affirm, that the country adjacent to this city not only produces the finest clarets, but, at the season of the vintage, forms one of the most delicious landscapes in the world.

Mr. Townsend says, that a generous wine, produced near Alcalá in Spain, is much used for enriching the poorer wines in the neighbourhood of Bourdeaux, for the purpose of making claret.

Journey, vol. iii. p. 302.

Bourdeaux, in the department of Gironde, and late province of Guienne, is an ancient, large, handsome, and rich town, situated on the beautiful river Garonne. A hundred thousand tuns of wine and brandy are said to be exported annually from Bourdeaux.

Supposing

Supposing three-fourths of the above quantity to be claret, how many hampers, each containing three dozen quart bottles, could be filled out of it? *Ans.* 2,100,000 hampers.

No. 238. SCHIRAS WINE. Schiras is generally esteemed the second city of Persia; Ispahan being considered as the capital: though colonel Capper, who was in that country in 1778, assures us, that the seat of government was transferred the same year from the latter to the former city. The city of Schiras, on account of the number of ingenious and learned men born in it, has been denominated the *Athens of Persia*. The wine of Schiras is not only the best in Persia, but, as some think, in the whole world. It is so potent as to admit two-thirds of water without spoiling the taste.

Alexander the Great, of whom some account has been given in the 21st and 22d questions, died of intoxication at Babylon*, in the 33d year of his age. At his final drunken carousal, though already in a state of inebriation, he had the presumption to empty the cup of Hercules, which, according to Rollin, held six bottles, at a single draught.

Supposing each bottle to contain a pint and a half, how many times could this fatal cup have been filled from a pipe of Schiras wine? *Ans.* 112 times.

No. 239. ANCIENT HOSPITALITY. The following character of the "hospitable, rich, and good AXYLUS†," as drawn by Homer, affords an admirable instance of ancient hospitality.

In fair Arisba's walls (his native place)
He held his seat; a friend to human race.
Fast by the road, his ever-open door
Oblig'd the wealthy, and relieved the poor.

POPE'S HOMER.

This manner of keeping house near a frequented high-way, and relieving all travellers, is agreeable to that ancient hospitality which we now only read of. The patriarchs in the Old Testament sat at their gates to see those who passed by, and entreat them to enter into their houses. This cordial manner of invitation is particularly described in the 18th and 19th chapters of Genesis.

Diodorus Siculus informs us, that GALLIAS, of Agrigentum, in Sicily, having built several inns for the relief of strangers, he appointed persons at the gates to invite all who travelled to make use

* This place has been noticed in the 13th question.

† Axylus was a Trojan, and killed at the siege of Troy.

Breathless the good man fell, and by his side
His faithful servant, old Calchius dy'd.

POPE'S HOMER.

of them; and that this example was followed by many others, who were inclined, after the ancient manner, to live in a humane and beneficent correspondence with mankind.

Gallias entertained and clothed at one time no less than 500 horsemen; and there were in his cellars 300 vessels, each of which contained 100 hogheads of wine. How many pints are in that quantity? *Ans.* 15,120,000 pints.

ALE AND BEER MEASURE.

Ale and beer are fermented liquors obtained from an infusion of malt; the former differing from the latter chiefly in having a less proportion of hops. This liquor, the natural substitute of wine, in countries that could not produce the grape, was originally made in Egypt, the first-planted kingdom, on the dispersion from the East, which was supposed unable to produce grapes. And as the Noachian colonies penetrated farther into the west, they found, or thought they found, the same defect, and supplied it in the same manner. Thus the natives of Spain, the inhabitants of France, and the aborigines of Britain, all used an infusion of barley for their ordinary liquor: and it was called by various names, all literally importing only *the strong water*. The ancient Britons and other Celtic nations sometimes made their ale of wheat, oats, and millet. This was the favourite liquor of the Anglo-Saxons and Danes, as it had been of their ancestors, the ancient Germans.

Before their conversion to Christianity, they believed that drinking large and frequent draughts of ale was one of the chief felicities, which those heroes enjoyed who were admitted into the hall of Odin.

See the Ency. Brit. art. Ale.

To heighten the enjoyment they were moreover assured, that their favourite beverage should be drank out of the skulls of their enemies.

No. 240. ALE. Ale is made by infusing malt in hot water, and then fermenting the liquor by the application of barm or yeast. Hops are also an essential ingredient. *See Question 180.*

There are various sorts of ale known in Britain, particularly *pale* and *brown*: the former is brewed from malt slightly dried; and is esteemed more viscid than the latter, which is made from malt more highly dried. Many places in England are famous for the excellency of their ale, particularly Dorchester in Dorsetshire, and Burton in Staffordshire. The ale of this last county is by some deemed incomparable,

parable, and great quantities of it are sent down the Trent to Hull, and exported to other parts of the kingdom, and abroad.

Ale is of so great antiquity in this kingdom, that in the year 1492, we meet with a licence from Henry VII. to a Fleming, to export fifty tons of this liquor.

Cyclop. art. Beer.

Supposing a ton of ale to contain four hogsheads, how many firkins, quarts, and pints, are in the above-mentioned quantity? *Ans.* 1,200 firkins; 38,400 quarts; 76,800 pints.

No. 241. BEER. Beer, like ale, as we have before observed, is a liquor made of malt and hops. It is, however, distinguished from ale, either by being older, stronger, or smaller.

The following phrase denotes, we presume, beer of superior potency.

Here's a pot of good *double beer*, neighbour; drink.

SHAKESPEARE.

Old or strong beer is sometimes called by the cant word, *Stingo*. It is moreover designated by the term *October*; because that month is held to be peculiarly propitious to the brewing of this grateful beverage.

Nor wanting is the brown OCTOBER, drawn,
Mature and perfect, from his dark retreat
Of *thirty years*: and now his honest front
Flames in the light refulgent, not afraid
Even with the vineyard's best produce to vie.

THOMSON.

The British beer is said to be superior to that of other countries, even of Bremen, Mons, and Rostoch.

Soon after the commencement of the ill-fated American war, two brewers agreed to supply government with 10,000 butts of strong beer, for the use of our troops in Boston, the capital of New England. How many pints were in that quantity? *Ans.* 8,640,000 pints.

No. 242. SPRUCE-BEER. This is a kind of diet drink made by infusion or coction of the leaves and small branches of the black and white spruce-fir, and reckoned antiscorbutic. It is much drank in America.

In as many butts of spruce-beer as there are calendar months in a year, as many hogsheads as there are weeks in a year, and as many firkins as there are days in a year, how many pints? *Ans.* 59,112 pints.

No. 243. CAPACIOUS CASKS. The late Mr. Boswell, in his Journal, relates, that Dr. Johnson once mentioned that his friend Thrale, the brewer, had four casks so large that each of them held 1,000 hogsheads. The public prints inform us, that Mr. Meux is now building

building a vat which, when finished, will contain 20,000 barrels of porter.

How many gallons, quarts, and pints of beer, will the vat contain more than the casks? *Ans.* 504,000 gallons; 2,016,000 quarts; 4,032,000 pints.

No. 244. PORTER. This is a kind of malt liquor, which differs from ale and pale beer in its being made with high dried malt. Dr. Ash, in his English Dictionary, says, that it obtained this appellation from being much drank by porters in the city of London.

By a statement given, in several periodical publications, it appears, that from Midsummer 1788, to the same period in 1789, there were brewed in the metropolis, and its environs, 705,625 barrels of porter. Messrs. Whitbreads, Thrale's, the Calverts, Trueman's, and Giffard's brew-houses, are generally deemed the most eminent in London. A great quantity of porter is brewed annually at Worcester, and sent to different parts by means of the river Severn. Much of the London porter is exported to the West-Indies in bottles.

Suppose the 125th part of the porter mentioned in this question were bottled off into hampers, each containing 3 dozen quart bottles, how many would there be? *Ans.* 22,580 hampers.

T I M E.

Time is defined to be a succession of phenomena in the universe, or a mode of duration, marked by certain periods and measures, chiefly by the motion and revolution of the sun. The idea of time in general, we acquire, as Mr. Locke observes, by considering any part of infinite duration, as set out by periodical measures. The idea of any particular time, or length of duration, as a day, an hour, &c. we acquire first by observing certain appearances at regular, and, seemingly, equidistant periods.

Some authors distinguish time into astronomical and civil: the former being that taken purely from the motion of the heavenly bodies, without any other regard. The latter is astronomical time, accommodated to civil uses, and formed and distinguished into years, months, days, &c. Time makes the subject of CHRONOLOGY.

No. 245. EPITAPH. An epitaph is a monumental inscription, in honour or memory of a person deceased. It has been disputed, whether the ancient Jews inscribed epitaphs on the monuments of the dead; but be this as it may, epitaphs it is certain, of very ancient date, are found amongst them.

The Athenians, by way of epitaph, put only the name of the dead, with the epithet "good," or "hero," and a word expressive of their good wishes to the defunct. The Lacedemonians allowed epitaphs to none but those who had died in battle. The Romans inscribed their epitaphs to the *manes*, *diis manibus*.

The epitaphs of the present day are generally crammed with fulsome compliments which were never merited, characters which human nature in its best state could scarcely lay claim to, and expressions of respect which were never paid in the life-time of the deceased. Hence the French proverb, with great propriety, took its rise; *Menteur comme une épitaphe*: He lies like an epitaph.

The following epitaph is the simple chronicle of an extraordinary man, and as well told, perhaps, as many of the lofty and pompous inscriptions in the abbey of Westminster.

Beneath this stone, in sound repose,
Lies William Rich, of Lydeard-Close;
Eight wives he had, yet none survive,
And likewise children eight times five;
Of great-grand-children five times four.
Rich born, rich bred, but Fate adverse
His wealth and fortune did reverse.
He lived and died immensely poor,
July the 10th, aged ninety-four.

How many moments did the subject of this epitaph exist; reckoning 365 days, 6 hours, to the year? *Ans.* 2,966,414,400 moments.

No. 246. ENOCH'S TRANSLATION. When Enoch, whom Milton styles

The only righteous in a world perverse,

had sojourned upon earth as many years as the year has days, he was translated to heaven, there, according to the same great poet,

To walk with God
High in salvation, and the climes of bliss,
Exempt from death; to shew us what reward
Awaits the good.

How many months, weeks, days, and hours, did Enoch inhabit our planet, reckoning 13 months, 1 day, 6 hours to the year? *Ans.* 4,745 months, 18,980 weeks, 133,225 days, 3,199,590 hours.

No. 247. ANTEDILUVIAN LONGEVITY. The term antediluvians is a general name for all mankind who lived before the flood, and so includes the whole human race from Adam to Noah and his family.

One of the most extraordinary circumstances, which occurs in the antediluvian history, is the vast length of human lives in those first
ages,

ages, in comparison with our own. Few persons now arrive to 80 or 100 years; whereas, prior to the flood, they frequently lived to near 1,000: a disproportion almost incredible, if it were not supported by the joint testimonies of sacred and profane writers. For such a constitution, however, various moral and natural reasons are assigned, which we have not here room to insert. The oldest of the antediluvian patriarchs was METHUSELAH, who lived 969 years.

See a Chronological Table on this Subject in the Ency. Brit. art. Antediluvians.

How many hours did Methuselah exist? *Ans.* 8,494,254 hours.

No. 248. POSTDILUVIAN LONGEVITY. Postdiluvians are persons who have lived since the deluge. From the different longevities of men in the beginning of the world, after the flood, and in these ages, Mr. Derham draws a good argument for the interposition of a Divine Providence.

Immediately after the creation, when the world was to be peopled by one man and woman, the ordinary age was upwards of nine hundred years. Immediately after the flood, when there were three persons to stock the world, their age was cut shorter, and none of those patriarchs, excepting Shem, arrived at 500. In the second century we find none that reached 240; in the third, none but Terah, that came to 200 years; a part of the world being at that period so well peopled, that they built cities. By degrees, as the number of people increased, their longevity decreased, till it came down, at length, to 70 or 80 years; and there it stood, and has continued to stand, ever since the time of Moses. And by this means the world is neither overstocked, nor kept too thin; but life and death keep a nearly equal pace.

That the common duration of man's life has been the same in all ages since the world was peopled, is plain, both from sacred and profane history. To pass by others, Plato lived to 81, and was accounted an old man: and the instances of longevity mentioned by Pliny as very extraordinary, may most of them be paralleled in modern histories, particularly in Dr. Plott's Nat. Hist. of Oxfordshire and Staffordshire.

In the year 1670 died Henry Jenkins, who deserves to be remembered on account of his very uncommon age. He was a poor fisherman of Yorkshire, born in 1501, and lived in the reigns of eight kings and queens of England. He was 169 years old at his death, exceeding the famous Thomas Parr, who died in 1635, full seventeen years.

What was the age of Parr at his decease; what year gave him birth; and how many moments did his whole period of existence fall short of that of Jenkins? *Ans.* Age of Parr 152 years; year of his birth 1483; and the difference of the moments they lived 536,479,200.

No. 249. BREVITY OF LIFE.

Let no fond hopes, my friend! beguile
Thine eyes from life's contracted span;
Nor, sooth'd by fortune's flattering smile,
Deem long the longest date of man.

HORACE, by Mr. WAKEFIELD.

In life, says Dr. Johnson, is not to be counted the ignorance of infancy, or imbecility of age. We are long before we are able to think, and we soon cease from the power of acting. The true period of human existence may, therefore, he subjoins, be reasonably estimated at forty years. Well may we then exclaim with the "British Homer,"

The time of life is short!
To spend that shortness basely were too long,
Tho' life did ride upon a dial's point
Still ending at th' arrival of an hour.

A fatal forgetfulness of the fragility of human life has constantly pervaded the majority of mankind. Not only in the slumber of sloth, but in the dissipation of ill-directed industry, is the shortness of life generally forgotten. A few, however, of the wisest and best of men have been distinguished for the well-ordered and conscientious distribution of their time. Of this happy number was our justly celebrated Alfred the Great,

"Lov'd for that valour which preserves mankind."

This illustrious monarch divided that invaluable treasure into three different portions, allotting one to sleep, meals, and exercise; and devoting the other two to writing, reading, business, and prayer.

Supposing the term of years mentioned by Dr. Johnson were divided in king Alfred's judicious manner, how many hours would the portion allotted to energetic action contain; reckoning 365 days 6 hours to the year? *Ans.* 233,760 hours.

No. 250. EARLY RISING.

"Rise, light thy candle, see thy task begun
"E'er redd'ning streaks proclaim the distant sun."

Persons, not accustomed to accuracy and minuteness of calculation, will learn with surprise the vast space of time gained by moderation in sleep, or, in other words, how considerably early rising will extend life in a given number of years. The advantages of this habit must, indeed, be very numerous: since, as the pious Hervey observes, divine and human wisdom, the scriptures and the classics, are found to concur in frequent recommendations of it. Not to advert to solitary passages to this effect in other books of holy writ, several of Solomon's proverbs, while inveighing against sloth, or extolling diligence, make the time spent in the repose of sleep, the principal evidence of the former

former vice, or test of the latter excellence. Our own poets also have been glowing and energetic on this most interesting topic. See particularly Milton's *Paradise Lost*. The following exquisite lines are taken from Thomson's *Summer*,

Falsely luxurious, will not man awake,
And, springing from the bed of sloth, enjoy
The cool, the fragrant, and the silent hour,
To meditation due and sacred song?
For is there ought in sleep can charm the wise?
To lie in dead oblivion, losing half
The fleeting moments of too short a life,
Total extinction of th' enlightened soul!
Or else to feverish vanity alive,
Wilder'd, and tossing thro' distemper'd dreams?
Who would in such a gloomy state remain
Longer than nature craves, when every muse
And every blooming pleasure wait without,
To bless the wildly-devious morning-walk.

"Early rising, says a writer distinguished for his erudition, has been the constant object of my attention: and it is, indeed, a powerful preservative from vice, a spur to industry and order; and constitutes the most valuable recommendation that literature can boast. I wish my advice, and imperfect experience of its benefits, could persuade every youth to engrave it, in impressions not to be effaced, on the tablet of his heart, and exemplify it in his daily practice!"

Mr. WAKEFIELD's *Memoirs*, p. 140.

The late eminent Dr. Doddridge, author of many excellent writings, in which his pious, benevolent, and indefatigable zeal, to make mankind wise, good, and happy, is conspicuously manifested, ascribes their production principally, if not entirely, to the habit of rising early.

How much time, in the course of 40 years, does a person, who rises at five o'clock in the morning, gain over another, who continues in bed till seven, supposing them both to go to rest at the same hour at night? *Ans.* 29,200 hours; or 3 years, 121 days, and 16 hours; which reckoning only 365 days to the year, are exactly equivalent to the addition of 10 years to a man's life, of which (supposing the two hours in question to be so spent) eight hours every day should be employed in study and devotion.

No. 251. NAVIGATION.

The Heaven conducted prow
Of navigation bold, doth fearless brave
The burning line, and dare the wintry pole:
Mother severe of infinite delights.

THOMSON.

Navigation

Navigation is the art or act of sailing, or conducting a vessel from one place to another, in the safest, shortest, and most commodious way. The art of navigation has been exceedingly improved in modern times, both with regard to the vessels themselves, and the methods of working them. But the greatest advantage, which the moderns have over the ancients, is from the mariner's compass, by which they are enabled to find their way with as great facility, in the midst of an immeasurable ocean, as the ancients could have done by creeping along the coast, and never going out of sight of land.

Later times, more fortunate, have found
O'er oceans' open wave the surest course.

The whole globe
Is now of commerce made the scene immense,
Which daring ships frequent, associated
Like doves or swallows in th' ethereal flood,
Or, like the eagle, solitary seen.

DYER.

The state of navigation, in ancient times, is well expressed in the subsequent lines.

Rude as their ships was navigation then,
No useful compass or meridian known;
Coasting they kept the land within their ken,
And knew no North but when the pole-star shone.

DRYDEN.

The mariner's compass consists of a circular brass box, containing a paper card with 32 points or divisions, and a *magnetic* needle which always turns to the North, excepting a small declination variable at different places. The magnet, or loadstone, is a sort of ferruginous stone, usually found in iron mines. Various parts of the world produce them, but the best are brought from China and Bengal. The most distinguishing properties of the magnet are—its attracting iron, pointing to the poles of the world, and communicating these properties by touch, to iron. The ancients used the magnet in medicine; the moderns more happily employ it to conduct them in their voyages.

When from the bosom of the mine,
The magnet first to light was thrown,
Fair commerce hail'd the gift divine,
And, smiling, claim'd it for her own.
"My bark," she said, "this gem shall guide
"Thro' paths of ocean yet untried,
"While as my daring sons explore
"Each rude, inhospitable shore,
"Mid desert sands and ruthless skies,
"New seats of industry shall rise,
"And culture wide extend his genial reign,
"Free as the ambient gale, and boundless as the main.

PYE.

The

The utility of this instrument is not confined entirely to the purposes of navigation; it being occasionally used by travellers in crossing sandy deserts, and other pathless ways.

The trading caravans urge,
Thro' dazzling snows, their dreary trackless road;
By compass steering oft' from week to week,
From month to month.

DYER.

It has been much disputed who was the inventor of the compass, but the honour is usually ascribed to FLAVIO DE GIOVIA, a native of Amalfi, an ancient commercial city in the kingdom of Naples.

Supposing this event to have taken place 15,526,339,200 moments ago, how many years has it been discovered this present year 1795; and what was the year of its discovery; reckoning in both questions 365 days 6 hours to the year? *Ans.* 492 years the time it has been discovered; and the year 1303 was the era of its discovery.

NO. 252. DEATH OF GENERAL WOLFE. This renowned English officer signalized himself by his valour and military skill upon many occasions, and at length fell a victim to a most dangerous, but glorious and successful enterprise, the conquest of Quebec, the capital of Canada, in North America. His death is thus related by Smollett. He stationed himself where the attack was most warm; and as he stood conspicuous in the front of the line, he had been aimed at by the enemy's marksmen, and received a shot in the wrist, which, however, did not oblige him to quit the field. Having wrapped a handkerchief round his hand, he continued giving orders without the least emotion, and advanced at the head of the grenadiers, with their bayonets* fixed, when another ball unfortunately pierced the breast of this young hero, who fell in the arms of victory, just as the enemy gave way. When the fatal ball took place, General Wolfe, finding himself unable to stand, leaned upon the shoulder of a lieutenant, who sat down for that purpose. The officer, seeing the French give way, exclaimed, "They run! they run!"—"Who run?" cried the gallant Wolfe, with great eagerness, when the lieutenant replied, "the French;"—"then," said he, "I die happy." So saying, the hero expired in the 34th year of his age.

"Short was his date, but deathless his renown."

A death more glorious, and attended with circumstances more picturesque and interesting, as Mr. Belsham well observes, is no where to be found. The death of Epaminondas† only, to which that of Wolfe has been compared, seems to dispute the pre-eminence! The death of

* A bayonet is a short sword or dagger fixed at the end of a musket. This military weapon was invented at Bayonne, in the department of the Lower Pyrenees, France; whence it derived its name. The first use of them in battle, according to Dufresnoy, was in the year 1693.

† See question the 19th.

General Wolfe happened 1,136,073,600 moments ago this present year 1795; how many years have elapsed between that period and the present, and what was the year of his demise, reckoning 365 days 6 hours to the year? *Ans.* 36 years; and the year of his death was 1759.

No. 253. "THE PATRIOT OF THE WORLD." This glorious epithet has been applied with peculiar propriety to that celebrated philanthropist Mr. HOWARD, whose activity, says Mr. Polwhale, unchecked by danger, carried him half over the globe, to relieve the miseries of mankind. Regardless of his health, his repose, and his safety, he traversed inhospitable tracts, to mingle with barbarous multitudes; to plunge into the midst of contagion! thither his noble fervor urged him—unterrified "by the arrow that flieth by day, or the pestilence that walketh in darkness"—to visit those, who had no comforter!—to heal the broken-hearted; to proclaim liberty to the captives, and the opening of the prison to them that are bound.

He, touch'd with human woe, redressive search'd
Into the horrors of the gloomy jail,
Unpitied, and unheard, where misery moans,
Where sickness pines, where thirst and hunger burn,
And poor misfortune feels the lash of vice*.

THOMSON.

To enter the dwellings of the wretched, to examine debts, and wants, and diseases; to endure loathsome sights and smells, within the sphere of infection; to give time, and thought, and hands, and money—this, observes an ingenious writer, is the *substance* not the *shadow* of VIRTUE. This "friend to every clime" fell a victim to his indefatigable humanity, January 20, 1790, in the 65th year of his age, at CHERSON, the capital of New Russia, situated on the river Nieper, about 50 miles E. of Oczakow. How many moments have elapsed from the time of Mr. Howard's death to the same period in the present year 1795? *Ans.* 157,788,000 moments.

No. 254. DEATH OF CAPTAIN COOK. This consummate seaman was a native of Marton, a village in the north riding of Yorkshire, where he was born October 27, 1728. His nautical talents are allowed to have been unequalled. Not his own country only, but all Europe has borne testimony to his merit. Such was the ardour of his zeal, that he thrice circumnavigated the globe, explored the utmost navigable limits of the ocean, and cheerfully sustained the tropical heat and the polar cold.

His dauntless breast did brave
The scorch'd equator, and th' antarctic wave;
Climes, where fierce suns in cloudless ardours shine,

* It hath been excellently remarked by a celebrated author, that if misery be the effect of virtue it ought to be revered; if of ill-fortune, to be pitied; and if of vice, not to be insulted, because it is perhaps itself a punishment, adequate to the crime by which it was produced.

And pour the dazzling deluge round the line;
The realms of frost, where icy mountains rise,
Mid the pale summer of the polar skies.

Mifs SEWARD.

This illustrious navigator at length fell a sacrifice to the momentary fury of an obscure savage,

“Far from his friends, and from his native shore.”

But his name will be held in honour, and recited with applause, so long as the records of human events shall continue in the earth: nor is it possible, as Dr. Kippis observes, to say, what may be the influence and rewards, which, in other worlds, shall be found to attend upon eminent examples of wisdom and of virtue.

The death of Captain Cook happened at OWHYHEE, one of the Sandwich islands, 504,921,600 moments ago, this present year 1795; how many years have elapsed since this melancholy catastrophe took place, and what was the year of his decease? *Ans.* 16 years; and 1779 the year of his demise. *N. B.* Captain Cook was killed on Sunday the 14th of Feb. at eight o'clock in the morning.

No. 255. PEACE. Peace is at once the mother and the nurse of all that is good for man; it shines upon human affairs like the vernal sun.

ERASMUS.

Oh! first of human blessings and supreme,
Fair PEACE! how lovely, how delightful thou!
By whose wide tie the kindred sons of men
Like brothers live, in amity combin'd,
And unsuspecting faith; while honest toil
Gives every joy, and to those joys a right,
Which idle barbarous rapine but usurps.
Oh, PEACE! thou source and soul of social life,
Beneath whose calm inspiring influence
Science his views enlarges, art refines,
And swelling commerce opens all her ports:
Blest be the man divine who gives us thee!
Who bids the trumpet hush his horrid clang,
Nor blow the giddy nations into rage:
Who sheaths the murderous blade; the deadly gun
Into the well-pil'd armoury returns!
And, every vigour from the work of death
To grateful industry converting, makes
The country flourish, and the city smile.

THOMSON.

Some of the principal places at which treaties of pacification have been concluded, are Munster, in 1648; Nimeguen, in 1679; Ryfwicke, in 1697; Utrecht, in 1713; and Aix la Chapelle, in 1748. How many years, months, weeks, days, hours, minutes, and moments, have intervened between the last-mentioned period and the present year 1795, reckoning 13 months, 1 day, 6 hours to the year?

Ans. 47 years, 611 months, 2,444 weeks, 17,155 days, 412,002 hours, 24,720,120 minutes, 1,483,207,200 moments.

Y

No. 256.

No. 256. WAR. War has been justly called "The malady which infects princes." There is nothing, says the truly great and good ERASMUS, more unnaturally wicked, more productive of misery, more extensively destructive, more obstinate in mischief, more unworthy of MAN as formed by nature, much more of MAN PROFESSING CHRISTIANITY, than WAR. This *common misfortune of the world* causes a suspension of commerce, a decay of wealth, an increase of taxes, a state of impatience, anxiety, and discontent; multiplies houses of mourning, and fills a country with robbers, thieves, and violators of innocence. The flocks are scattered, the harvest trampled, the husbandman butchered, villas and villages burnt, cities and states, that have been ages rising to their flourishing state subverted, and all places resound with the voice of lamentation. But none of these things appear to enter into the consideration of ambitious despots. They seem not in the least affected by

The widows' tears, the orphans cries,
The dead men's blood, the pining maiden's groans,
For husbands, fathers, and betrothed lovers,
That are swallowed in their controversies.

SHAKESPEARE.

Most of the *brutes*, as Erasmus observes, live in concord with their *own kind*, move together in flocks, and defend each other by mutual assistance. Indeed, all kinds of brutes are not inclined to *fight* even their enemies. There are harmless ones like the hare. It is only the *fiercest*, such as lions, wolves, and tigers, that fight at all. A dog will not devour his own species; lions, with all their fierceness, are *quiet among themselves*; dragons are said to live in peace with dragons; and even venomous creatures live with one another in perfect harmony. —But to MAN, no wild beast is more destructive than his fellow MAN.

Hear it not, ye stars!
And thou, pale moon! turn paler at the sound;
Man is to man the forest, surest ill.

YOUNG.

View, says Erasmus, with the eyes of your imagination, savage troops of men, horrible in their very visages and voices;* men, clad in steel, drawn up on every side in battle array, armed with weapons, frightful in their crash and their very glitter; mark the horrid murmur of the confused multitude, their threatening eye-balls, the harsh

* When the blast of war blows in your ears,
Then imitate the actions of the tyger;—
Stiffen the sinews, summon up the blood,
Disguise fair nature with hard-favour'd rage;
And lend the eye a terrible aspect:
Set the teeth, and stretch the nostrils wide;
Hold hard the breath, and bend up every spirit
To his full height.

SHAKESPEARE.

jarring

jarring din of drums and clarions, the terrific sound of the trumpet, the thunder of the cannon, a noise not less *formidable than the real thunder of heaven*, and MORE HURTFUL; a mad shout like that of the shrieks of bedlamites, a furious onset, a cruel *butchering* of each other!—see the *slaughtered* and the *slaughtering*!—heaps of dead bodies, fields flowing with blood, rivers reddened with human gore! so deep is the tragedy, continues this illustrious writer, that the bosom shudders even at the feeble description of it, and the hand of humanity drops the pencil while it paints the scene.

See Dr. KNOX's *Antipolemus*.

The horrors of a field of battle after the butchering is over, are well described in the following lines.

O'erspread with shatter'd arms the ground appears,
With broken bucklers, and with shiver'd spears.
Here swords are fluck in hapless warriors kill'd,
And useless there are scatter'd o'er the field.
Here, on their face, the breathless bodies lie;
There turn their ghastly features to the sky.
Beside his lord the courser press'd the plain;
Beside his slaughter'd friend the friend is slain;
Foe near to foe; and on the vanquish'd spread
The victor lies; the living on the dead!
An undistinguish'd din is heard around,
Mixt is the murmur, and confus'd the sound:
The threats of anger, and the soldiers' cry,
The groans of those that fall, and those that die.

HOOBLE's *Tasso*.

The unfortunate war which England maintained with America, a country which, during the unhappy contest, the celebrated Earl of Chatham emphatically styled “the glorious asylum of LIBERTY, of MANLINESS, and of VIRTUE,” continued nearly 252,460,800 moments. How many years did it last? *Ans.* 8 years. See on the *subject of America, question 216*.

No. 257. GOOD KINGS.

A tender monarch, like a shepherd swain,
Humane in counsels, in designs humane,
For public good alone prolongs his days,
And counts his years by deeds deserving praise:
Wreaths stain'd with blood he nobly scorns to wear;
But to his virtues future glory owes;
Such was that ancient, that heroic pair,
AURELIUS, TITUS*, thus to deathless honours rose.

The late king of Prussia!

Titus has been dead 15,024,924 hours this present year, 1795: how long has that event taken place, and what was the year of his demise, reckoning 8766 hours to the year? *Ans.* His death happened 1714 years ago; and the year 81 was the period of his decease.

* See the 36th question.

No. 258. DEATH OF LORD RUSSEL. In the illustrious roll of martyrs to the cause of liberty, no name, says Mr. Belsham, stands more conspicuously distinguished, or is written in fairer characters, than that of Lord RUSSEL, whose patriotism appears un sullied with any base alloy of personal resentment or interest.—So long as sensibility and gratitude are numbered amongst the affections of the human heart, so long shall we reverence those who have dared to die for their country; and, with an almost superstitious devotion,

“ Kiss with joy the sacred earth
“ That gave a HAMPDEN or a RUSSEL birth.”

Lord Russel was son of the duke of Bedford, and is universally spoken of as a nobleman of great and distinguished virtue. He was, on trial, brought in guilty of high treason, for words only spoken in his hearing; a sentence which was considered by all impartial men, as one of the most shameful instances of injustice ever known in England. It was pretended, that he was concerned in what is called the “ Rye-House plot;” supposed by many to have been only an artifice of the *alarmists* of those days, to destroy the patriots. Lord Russel was beheaded, or rather, as it has been remarked, *murdered*, July 21st, 1683, on a scaffold erected in Lincoln’s-Inn-Fields. How many years and days have elapsed between that period and the current year 1795? reckoning 365 days 6 hours to the year. *Ans.* 112 years, 40,908 days.

No. 259. THE SANGUINARY MARY. In the reign of this cruel bigot England was filled with scenes of horror, which have ever since rendered the popish religion an object of great detestation; and which prove, says Hume, that no human depravity can equal revenge and cruelty, covered with the mantle of religion.

It is computed, that during the three years which these shocking violences and barbarities were carried on, there were 277 persons brought to the stake; besides those who were punished by imprisonment, fines, and confiscations. Among those who suffered by fire were 5 bishops, 21 clergymen, 8 lay gentlemen, 84 tradesmen, 100 husbandmen, servants, and labourers, 55 women, and four children. The unprincipled wretches employed by the bloody queen on these occasions, were the bishops GARDINER and BONNER. The latter especially, was a man of profligate manners, and a brutal character, who seemed to rejoice in the torments of the unhappy sufferers.

When persecuting zeal made royal sport
With tortur’d innocence in MARY’s court,
Then BONNER, blithe as shepherd at a wake,
Enjoy’d the show, and danc’d about the stake.

COWPER.

It is well remarked by Hume, that human nature appears not, on any occasion, so detestable, and at the same time so absurd, as in religious persecutions, which sink men below infernal spirits in wickedness, and below the beasts in folly. Very different was the conduct of the ancient *heathen* philosophers:

They,

They, ever-candid, reason still oppos'd
To reason, and, since virtue was their aim,
Each by sure practice try'd to prove his way
The best. Then stood untouch'd the solid base
Of Liberty, the liberty of mind;
For *systems* yet, and *soul-enslaving creeds*,
Slept with the *monsters* of succeeding times.
From *priestly* darkness sprung th' enlightening arts
Of fire, and sword, and rage, and horrid names.

THOMSON.

We cannot be particular in enumerating all the barbarities practised during the reign of Mary; but must refer our young readers to the histories of England, contenting ourselves with the bare mention of the renowned martyrs RIDLEY, and LATIMER; prelates celebrated for learning and virtue, who suffered death in the flames, with inflexible constancy.

Against such cruelties
With inward consolations recompens'd;
And each supported so, as did amaze
Their proudest persecutors.

MILTON.

These venerable protestant worthies received the honour of martyrdom 7,573,824,000 moments ago this present year 1795; how many years have intervened since; and in what year did the direful event take place? *Ans.* 240 years ago; and the year 1555, the period in which it happened.

THE RULE OF THREE DIRECT

FROM its vast extent, both in common life, and the sciences, is frequently called the GOLDEN RULE. It teaches, by having three terms given, to find a fourth that shall have the same proportion to the third, as the second has to the first.

R U L E.

First. State the question: that is, place the given numbers so that the first and third may be terms of supposition and demand, and the second of the same kind as the answer required.

Secondly. Bring the first and third numbers into the same denomination, and the second into the lowest name mentioned.

Thirdly. Multiply the second and third numbers together, and divide the product by the first, the quotient will be the answer to the question in the same denomination as that in which the second number was left.

EXAMPLES.

E X A M P L E S.

No. 259. SPIKENARD. Spikenard is an odoriferous plant, abounding in the island of Java and other parts of the East-Indies. Its ointment was in high estimation among the ancients. The evangelist Mark, chap. xiv. ver. 3. relates, that while our Saviour sat at table in the house of Simon the leper in Bethany, a village near Jerusalem, a woman entered with an alabaster pot of ointment of spikenard, which having broken, she poured the contents on his head. Supposing a Roman denarius or penny to be worth $7\frac{1}{2}d$ of our money, what was the value of this unguent, which, ver. 5, was estimated at 300 such pence? *Ans.* £9 7s. 6d. sterling.

N. B. Dr. Whitby has abundantly proved this to have been a different story from that mentioned, Luke vii. 36, et seq.

No. 260. MEAD. This is a wholesome, agreeable liquor, prepared of honey and water.

He sheers his over-burden'd sheep;
Or mead for cooling drink prepares,
Of virgin honey * in the jars.

DRYDEN.

Mead is a liquor of very ancient use in Britain, and some persons deem the best sort scarcely inferior to foreign wines. It is thought probable, that before the introduction of agriculture into our island, mead was the only strong liquor known to its inhabitants; and it continued to be a favourite beverage among them and their posterity, long after they had become acquainted with other liquors.

See the Ency. Brit. art. Feast.

If two gallons of mead be worth 4s. $9\frac{1}{2}d$. what is the value of an hoghead, wine measure? *Ans.* £7 10s. $11\frac{1}{4}d$.

No. 261. METHEGLIN. Metheglin is a species of mead; prepared from honey boiled with water and fermented, and one of the most pleasant and general drinks the northern parts of Europe afford, and much used among the ancient inhabitants.

“ The juice of bees, not Bacchus, here behold,
“ Which British bards were wont to quaff of old;
“ The berries of the grape with furies swell†,
“ But in the honeycomb the graces dwell.”

If an hoghead of Metheglin, wine measure, be worth £7 10s. $11\frac{1}{4}d$. what are the value of two gallons? *Ans.* 4s. $9\frac{1}{2}d$.

* Virgin honey is that deposited in clean new cells, which, when first formed, are of a pure white colour.

† Alluding to a saying which the Turks have, “ That there lurk a devil in every berry of the vine.” The Mahometan religion prohibits the use of wine.

No. 262. HONEY. Honey is a sweet vegetable juice, collected from the flowers of various plants, by "nature's confectioner" the "skilful BEE". Of the œconomy of these insects, alike remarkable for industry and art, naturalists relate wonders. The moral virtues have been all, at one time or other, attributed to them; and they have been particularly celebrated for their prudence, industry, mutual affection, unity, loyalty, public spirit, sobriety, and cleanliness. Certain it is, that the industry and activity of bees in their domestic labours afford a very instructive and amusing spectacle; *all* are busily engaged in their several departments; whilst some are employed in gathering honey or wax, others repair rotten combs; others carry out the dead, and cleanse the hives; others keep guard, upon the floor, &c.

And sad-ey'd justice, with his surly hum,
Delivers o'er to executors pale
The *lazy yawning drone*.

————— So work the honey bees;
Creatures, that by a rule in nature teach
The art of order to a peopled kingdom.

SHAKESPEARE.

These active and useful insects have also been noticed by another of our great poets, who, after expatiating on the beautiful face of nature in spring, when the fields and meadows are

"Full of fresh verdure and unnumber'd flowers"—

subjoins, that

Here their delicious task the fervent bees,
In swarming millions, tend; around, athwart,
Thro' the soft air the busy nations fly,
Cling to the bud, and with inserted tube
Suck its pure essence, its ethereal soul;
And oft' with bolder wings they soaring dare
The purple heath, or where the wild thyme grows,
And yellow load them with the luscious spoil.

THOMSON.

The honey of Hybla, on the east coast of Sicily, and of Hymettus, a mountain of Greece, was reckoned by the ancients the best in the world.

Sweet as honey of Hybla.

SHAKESPEARE.

Hymettus spread, amid the scented sky,
His thymy treasures to the labouring bee.

THOMSON.

The honey of Minorca, an island in the Mediterranean; of Narbonne, in the department of Aude, and late province of Languedoc, is deemed excellent: and that of Hampshire, is considered as the best produced in England. Honey, considered as a medicine, is a very useful detergent, and aperient, powerfully dissolving viscid juices, promoting

promoting expectoration, and, in some instances, has been remarkably efficacious in asthmatic cases. *See the Ency. Brit.*

The honey of Narbonne, says Mr. Townsend, is delicate in its flavour, and beautifully white! It was sold in that city for fifteen pence a pound. *Journey through Spain, &c. vol. i. p. 82.*

What is the value of 2 cwt. 1 qr. 27 lb. 12 oz. 15 drams, of honey at the price above mentioned? *Ans. £17 9s. 9d. $\frac{33}{6}$.*

No. 263. WOOL. Wool is the hair, or covering of sheep; which, being washed, shorn, dressed, combed, spun, woven, &c. makes divers kinds of stuffs, cloths, &c. for apparel and furniture. Wool is very justly held to be the grand staple commodity of this kingdom, since the annual value of exported goods of that manufacture is estimated at nearly £4,000,000 sterling! Dr. Anderson, in a memorial subjoined to the "Report of the Committee of the Highland Society," proves, from indisputable records, that from the earliest times down to the reign of queen Elizabeth, the wool of Great-Britain was not only greatly superior to that of Spain, but was accounted the finest in the universe; and that even in the times of the Romans, a manufacture of woollen cloths was established at Winchester for the use of the emperors.

Thomson, after describing, in his usual happy manner, the process of sheep-sheering, exclaims

A simple scene! yet hence BRITANNIA sees
Her solid grandeur rise; hence she commands
Th' exalted stores of every brighter clime,
The treasures of the sun without his rage:
Hence, fervent all, with culture, toil and arts,
Wide glows her land: her dreadful thunder, hence
Rides o'er the waves sublime, and awes the world.

Admitting, according to the lowest computation, that England maintains 12,000,000 of sheep, and estimating each fleece at 2s. 4 $\frac{1}{4}$ d. what is the yearly value of English wool? *Ans. £1,412,500.*

No. 264. WOOLLEN MANUFACTURE. The woollen manufacture makes the principal article of our foreign and domestic trade. In 1769, and the two succeeding years, the value of woollens exported from England amounted to upwards of £13,000,000 sterling.

ZIMMERMAN, p. 200.

Pursue,
Ye sons of Albion*! with unyielding heart,
Your hardy labours: let the sounding loom
Mix with the melody of every vale;
The loom, that long renown'd wide envy'd gift
Of wealthy Flandria, who the boon receiv'd
From fair Venetia; she from Grecian nymphs;

* Albion was the ancient name of Great-Britain.

They from Phenicé, who obtain'd the dole
 From old Egyptus. Thus around the globe
 The golden-footed sciences their path
 Mark, like the sun, enkindling life and joy,
 And follow'd close by ignorance and pride,
 Lead day and night o'er realms. Our day arose
 When ALVA's* tyranny the weaving arts
 Drove from the fertile vallies of the Scheld.

DYER.

This important branch of commerce received considerable improvement in the reign of Edward III. by means of persons whom that monarch invited from the Netherlands in the year 1331; but what contributed most of all to the perfection of this valuable manufacture, was the just-mentioned emigration of the Protestants from that country.

"Brethren, by impious persecution driven,
 "Who arm'd their breasts with fortitude to try
 "New climes beyond the baneful pow'r of tyrants."

These fugitives, being well received by queen Elizabeth, established several large manufactures at Norwich, Colchester, Sandwich, Southampton, &c. See *Rapin*, vol. vii. p. 322. also vol. xi. p. 321.

It is computed, that 1,500,000 people are employed in the British woollen manufacture. Now, supposing each of these to earn, one with another, 6d. per *working* day, how much will their labour amount to in a year? *Ans.* £11,737,500.

No. 265. TEA. Tea is a plant or shrub indigenous to China in Asia. It is a received opinion, that the green and bohea tea grows upon the same shrub; but that the latter admits of some kind of preparation, which removes its raking qualities, and gives it a deeper colour. This fashionable commodity was first brought into Europe by the Dutch in 1610, and into England by lord Arlington and lord Ossory from Holland about the year 1666, at which period it was sold for 60s. a pound. But it appears, that before this time, the drinking of tea, even in public coffee-houses, in this country was not uncommon; for in 1660, a duty of 8d. per gallon was laid on the liquor made from it, and sold in all coffee-houses. The present consumption of tea is immense; it being computed by Zimmerman, in his political survey of Europe, that there are no less than 189,000,000 lb. exported annually from China into Europe. This respectable writer is, however, supposed to be misinformed in this particular, as persons conversant in the tea trade affirm, that the Britannic kingdoms consume nearly as much tea as all Europe besides; and 20,000,000 lb. are conjectured to be the greatest quantity yearly expended in the British dominions: of these, two millions are supposed to be smuggled, and

* The duke of Alva was appointed governor of the Netherlands by the tyrant Philip II. of Spain. During his administration, nothing was heard of but confiscation, imprisonment, exile, torture, and death. And on his departure from that country in 1574, this unfeeling despot boasted, that, during the course of five years, he had delivered above 18,000 persons into the hands of the executioner.

Hume, vol. v. p. 217.

eighteen millions to be sold by the East-India company. What is the value of the last-mentioned quantity, at only 5s. 9d. per lb? *Answer* £5,175,000.

No. 266. **CHEESE.** Cheese is a kind of food made by pressing the curd of coagulated milk, and suffering the mass to dry. Milk is coagulated by runnet, or rennet, a liquor made by steeping the maw or stomach of a calf in warm water, in which spices and aromatics have been previously infused. Bacon, in his Natural History, observes, that the milk of the fig has the quality of rennet. *See question 71.*

The too free use of cheese is condemned by physicians, who maintain, that it is a food fit only for the laborious, or those whose organs of digestion are strong. In England, cheese is made entirely from cow's milk: but in some places they make it of ewe's milk; and in others, a certain proportion of ewe or goat's milk is added to that of the cow. The Laplanders make a sort of cheese of the milk of their rein-deer.

England has been long noted for the excellency of its cheese. Camden, and others, suppose, that we learnt the art of making it from the Romans. Cheddar in Somersetshire, and Stilton in Huntingdonshire, are famed for an exquisite sort; the latter being usually called the *Parmesan* of England, and sells for fourteen or sixteen pence per pound. Parma is a district in the north of Italy, renowned through all Europe for its excellent cheese, as our well-known ballad bears testimony:

“ Let Lodi or Parmesan bring up the rear.”

Lodi is near the city of Parma, and the adjacent district is sometimes denominated the Lodetan.

Much of the cheese called *Stilton cheese*, is made in the neighbouring counties. The counties of Wilts, Gloucester, Warwick, and Cheshire, make immense quantities of cheese. From this last county Chester alone annually exports 22,000 tons, 14,000 of which are sent to London. *Zimmerman, p. 200.*

Supposing the Chester cheese factors to receive $4\frac{3}{4}$ d. per lb. on an average, what is the value of the whole quantity exported? *Answer* £975,333 6s. 8d.

No. 267. **CYDER, or CIDER,** an excellent drink made of the juice of apples, especially of the more curious table kinds.

The pippin, burnish'd o'er with gold, the moyle,
Of sweetest honey'd taste, the fair permain,
Temper'd like comliest nymph with red and white.

See PHILIPS'S Cider, line 460, &c.

Herefordshire and Devonshire are famous for cider; but much of that made in the latter county is of a harsh, sour, and watery nature, to which qualities is commonly imputed a kind of severe colic prevalent among the lower class of people.

Dr. Aikin's England Delineated.

The Herefordshire cider is so exquisite, that when the earl of Manchester was ambassador in France, he is said frequently to have passed this beverage on their nobility for a delicious wine.

Some

Some ciders have by art or age unlearn'd
 Their genuine relish, and of sundry vines
 Affum'd the flavour: one fort counterfeits
 The Spanish product; this to Gauls has seem'd
 The sparkling nectar of Champaign; with that
 A German oft' has swill'd his throat, and sworn
 Deluded that imperial Rhine bestow'd
 The gen'rous rummer, whilst the owner pleas'd
 Laughs inly at his guests, thus entertain'd
 With foreign vintage from his cider cask.

PHILIPS.

There is a spirituous liquor drawn from cider by distillation, called cider-spirit, to which the dealers in spirits can give the flavour of some other kinds, and sell it under the assumed names, or mix it in large proportion with foreign brandy, rum, or arrack, in the sale, without any danger of a discovery of the cheat.

Cyclop. and Ency. Brit.

The best cider, of all the kinds, is said to be that made from the red-streak apple, grafted upon the gennet-moil stock.

Let ev'ry tree in ev'ry garden own
 The redstreak as supreme, whose pulpos fruit,
 With gold irradiate and vermilion shines.
 Hail Herefordian plant! that dost disdain
 All other fields.

PHILIPS.

Other ciders have various degrees of potency, and a great variety of flavour.

———From Silurian* vats, high-sparkling wines
 Foam in transparent floods; some strong, to cheer
 The wint'ry revels of the labouring hind,
 And tasteful some, to cool the summer-hours.

THOMSON.

If a hoghead of cider containing 110 gallons† be purchased for £4 10s. 6d. and retailed at 1¼d. a pint, what would be gained by the sale? *Ans.* £1 17s. 10d.

No. 268. PERRY. Perry is a pleasant beverage made from pears,

What tho' the pear-tree rival not the worth
 Of Ariconian‡ products? yet her freight

* Herefordshire formed a considerable part of the ancient Siluria.

† Cider is retailed by wine measure, but often bought in vessels called hogheads, which contain 110 or 112 gallons each.

‡ Ariconium was a spacious city in the time of the Romans. It is supposed to have been situated about 3 miles W. of Hereford, and to have been destroyed by an earthquake; a calamity particularly noticed by Philips, in his poem entitled "Cider," line 173, &c.

Is not contemn'd, yet her wide branching arms
 Best screen thy mansion from the fervent dog,
 Adverse to life. The wintry hurricanes
 In vain employ their roar, her trunk unmov'd
 Breaks the strong onset, and controls their rage;
 Chiefly the Bosbury, whose large increase
 Annual in sumptuous banquets claims applause:
 Thrice acceptable bev'rage! could but art
 Subdue the floating lee, Pomona's self
 Would dread thy praise, and shun the dubious strife.

PHILIPS.

If two hogheads of perry, wine measure, were bought for £10 10s. and bottled off into quart bottles, how must they be sold per dozen to gain £3 13s. 6d. by the sale? *Ans.* 6s. 9d. per dozen.

No. 269. BOOKS CONSUMED AT EPHESUS. A book is the general name of almost every literary composition; but, in a more limited sense, is applied only to such compositions as are large enough to make a volume. As to the origin of books, or writings, those of Moses are undoubtedly the most ancient that are extant. Of profane books, the oldest are Homer's poems. Several sorts of materials were used formerly for making books: plates of lead and copper, the barks of trees, bricks, stone, and wood, were the first materials employed to engrave such things upon as men were willing to have transmitted to posterity. The leaves of the palm-tree and the Egyptian papyrus were afterwards used. By degrees wax, then leather was introduced, especially the skins of goats and sheep, of which, at length, parchment was prepared: then linen, silk, horn, and lastly paper came into use. The first books were in the form of blocks and tables; but as flexible matter came to be wrote upon, it was found more convenient to make books in the form of rolls. These were composed of several sheets fastened to each other, and rolled upon a stick; the whole making a kind of column or cylinder. *See on this subject the Cyclop. and Ency. Brit.*

Books have been termed the "remedies of the mind." The learned Dr. Parr, speaking of his own library, soon after that of his friend, Dr. Priestley, had been destroyed by the savage fury of an ignorant and bigotted rabble, observes, that he collected his own books with indefatigable industry, and in their purchase had expended more than half the produce of more than twenty years unwearied labour; that he considered them as the pride of his youth, the employment of his riper age, and, perhaps, the best solace of declining life.

At the head of all the pleasures which offer themselves to the man of liberal education, says Dr. Aikin, may confidently be placed that derived from books. In variety, durability, and facility of attainment, no other can stand in competition with it; and even in intensity it is inferior to few. In books, we have the choicest thoughts of the ablest men in their best drefs. We can, at pleasure, exclude dulness and impertinence, and open our doors to wit and good sense alone.

Letters to his son, p. 290.
 When

When the books of Labienus were burnt at Rome, he would not survive their loss, but shutting himself up in the tomb of his ancestors, pined away, and was buried alive.

Dr. Johnson advised young people never to be without a book in their pocket, to be read at bye-times when they had nothing else to do; observing at the same time, that much of his own knowledge had been thus obtained. A retentive memory, he subjoins, will do much, and a person will have strange credit given him, if he can but recollect striking passages from different books, and bring his stock of knowledge artfully into play.

Mrs. Piozzi's *Anecd.*

With views probably similar to those of Dr. Johnson, we find the Ethiopian eunuch making the best use of his time, by reading in his chariot, during a journey. See *Acts*, chap. viii.

In so illustrious and powerful a manner did Christianity, at its first promulgation, flourish and triumph over all considerations of honour or interest; such an amazing effect had it upon the lives and morals of its early converts, that they not only relinquished their former abandoned pursuits, and forsook their sensual and immoral practices, but resigned every domestic endearment, waved every secular advantage, and took joyfully the spoiling of their goods, whenever any of these came in competition with their duty. A striking instance of the readiness, with which sacrifices were made at the altar of Christianity, is afforded in the penitent forcerers of Ephesus, who, in consequence of the preaching of St. Paul, and the miracles that God enabled him to work, brought all the books they had which treated of the idle and absurd science of magic, and publickly burnt them. The value of these books was no less than 50,000 pieces of silver,* which are computed by Dr. Benson to be worth £7,500; by another critic £6,250; by Dr. Prideaux £1,875; by Arbuthnot £1,614 11s. 8d. and by Clark £1,500 sterling. See *Dr. Doddridge's Fam. Exp. Pyle's Paraphrase, and Clark's Annot. on the Bible*

What is the value of each piece of silver, according to these several calculations? *Ans.* 3s.—2s. 6d.—9d.—7½d.—7d. $\frac{4}{3}\frac{0}{0}\frac{0}{0}\frac{0}{0}$.

No. 270. ROMAN LUXURY. It has been often remarked, that an hospitable and splendid table is highly commendable among the opulent; it indicates a greatness of mind, a becoming liberality of nature, and serves the cause of the poor and needy: but when feasting degenerates into excessive luxury, and insupportable expence, the authors never fail justly to incur the charges of prodigality and folly. To this kind of excess some of the ancient Romans were notoriously addicted, as appears from the following relation.

When the servants of LUCULLUS, a famous Roman commander, were apprised of the apartment in which he designed to sup, they regulated the order, quantity, quality, and expence of the banquet accordingly. The charges of an accidental entertainment, made by him

* See *Acts* xix. 19.

for CICERO and POMPEY, because ordered in the *Apollo*, amounted to the enormous sum of 50,000 drachmas; hence, *to sup or dine in the Apollo*, has become a sort of proverbial phrase to denote a superb entertainment, or an immoderately expensive meal.

Valuing two drachmas at 1s. $1\frac{1}{2}d.$ what was expended in Lucullus's splendid supper? *Ans.* £1,406 5s.

No. 271. SERVANTS. Servant is a term of relation, signifying a person who owes and pays a *limited* obedience for a certain time to another, in quality of master, who is accountable for the conduct of his servant in the general course of business, whether he acts by express or implied command. The kindness of the centurion, mentioned in Luke's gospel, to his slave, and the anxiety he shewed to get him healed, was suitable to the character of a humane master, and exhibits an excellent pattern of duty, very proper for the imitation of Christian masters, among whom, says a commentator, it is but too common, to use their slaves and dependants as if they were not creatures of the same species with themselves, but beings of an inferior order. The following observations of Dr. Johnson, respecting menial domestics, seem to merit particular attention. "As it is at home that every man must be known by those who would make a just estimate either of his virtue or felicity; for smiles and embroidery are alike occasional, and the mind is often dressed for show in painted honour and fictitious benevolence; and as the most authentic witnesses of any man's character are those who know him in his family, and see him without any restraint, or rule of conduct, but such as he voluntarily prescribes to himself; the highest panegyric that private virtue can receive is the PRAISE of SERVANTS. For, however vanity or insolence may look down with contempt on the suffrage of persons undignified by wealth, and unenlightened by education, it very seldom happens that they commend or blame without justice." *Rambler*, No. 68. If a servant's wages be £12 12s. per annum, how much is that per week and per day? *Answer* 4s. 10d. $\frac{3}{5}$ and $8\frac{1}{4}d.$ $\frac{5}{365}$ per day.

No. 272. BRANDY. Brandy is a spirituous and inflammable liquor, extracted from wine and other liquors* by distillation. The brandy made in France is esteemed the best in Europe. The chief French brandies are those of Bourdeaux, Rochelle, Cognac, or Cogniac, the isle of Rhe, Orleans, Poitiers, Nantz, &c.

The too free use of brandy is attended with ill effects, as it attenuates the body, impairs the strength, stupifies the brain, and, in some instances, shortens the duration of human existence.

As in my youth I never did apply
Hot and rebellious liquors in my blood;
Therefore my age is as a lusty winter,
Frosty but kindly.

SHAKESPEARE.

* Mr. Confett, in his Swedish Tour, says, they make the low priced brandy in that country from rye and a species of ants; a large black insect very plentiful there; and which the natives think highly palatable and pleasant to eat.

In Virginia and Maryland peaches and apples afford brandy. That made from the former Mr. Cooper deems as fine a liquor as he ever tasted.

Information respecting America, p. 121.
The

The art of distilling brandy, and other spirits, was first brought into Europe by the Moors of Spain, about the year 1150. They learned it of the African Moors, who had it from the Egyptians; and these are said to have practised it in the reign of the emperor Dioclesian, though it was unknown to the ancient Greeks and Romans.

The yearly export of brandies from France is said to amount to 25,000 tons. What is the value of this quantity at 5s. 6½d. per gallon.
Ans. £1,745,625.

No. 273. RUM. Rum is a species of vinous spirit, drawn by distillation from fugar-canes, or rather from melasses, or molasses, which are the dregs of fugar. The word rum is the name it bears among the native Americans. Dr. Johnson acknowledges his ignorance of its derivation.

The island of Jamaica alone, is said to produce annually four millions of gallons of this liquor. What is their value at 3s. 9½d. per gallon? *Ans.* £758,333 6s. 8d.

No. 274. SUGAR. Sugar is a very sweet agreeable saline juice, expressed from a kind of canes, or reeds, growing in great plenty in the East and West-Indies.

It is supposed, that fugar was not known among the ancient Greeks and Romans, who used only honey for sweetening; but this question is not yet entirely decided among the learned, who are moreover divided concerning the country to which it was indigenous. Some say, that it came originally from China, by way of the East-Indies and Arabia into Europe; others assert, that the fugar cane is as natural to America as India; while others maintain, that it was not known in America, till the Europeans transplanted it thither. According to the more prevalent opinion, sugar had its origin in the eastern part of Asia. From that continent it was transplanted to Cyprus; thence to Sicily; thence to Madeira and the Canary isles; and from these last to Brasil, where, indeed, some suppose that sugar was originally and spontaneously produced. About the year 1506 sugar-canes were brought from Brasil and the Canaries, and planted in Hispaniola; and in 1641 they were transplanted from Brasil to Barbadoes, and thence to our West-India isles. Our ancestors made use of fugar, rough as it came from the cane; the boiling, baking, and refining of it being comparatively a modern invention.

To cultivate the sugar-cane in the West-Indies, the wretched Africans are torn from their native land, in defiance of every principle of religion, humanity, and justice. When the European kidnapping manufacturers of human woe land on their coast; not only parents are dragged from their families, and children from their parents; and the most endearing ties of friendship, attachment, and relationship burst asunder;

“ For bended knees, pure hands held up,
Sad sighs, deep groans, or silver-fhedding tears,”

avail nothing with their sanguinary invaders; but whole villages and towns are depopulated or burnt, and every species of terror, dismay, and brutality, instantly pervades their unhappy country.

Tell,

Tell, if thou can'st, the sum of sorrows there;
Mark the fixt gaze, the wild and frenzied glare,
The racks of thought, and freezings of despair!

ROGERS'S *Pleasures of Memory*.

As soon as the traffickers in human gore have gotten their complement on board the ship, it immediately makes off; when many of the miserable victims fall into such deep grief and despair, that they languish, sicken, and die in the passage: while others, scorning to survive the loss of liberty, embrace a voluntary death. But, gentle reader, "pause not here;"—behold the despairing survivors transported

Beyond the western wave,
Go, view the captive barter'd as a slave!
Crush'd till his high heroic spirit bleeds,
And from his nerveless frame indignantly recedes.

Pleasures of Memory.

Arrived at the destined plantations, the day hardly dawns when the whip resounds through those regions of horror; nor ceases, till darkness closes the scene, which day after day is renewed, till at length the miserable creatures expire beneath the lash, which in vain endeavours to rouse them to a renewal of their labour.

A celebrated French moralist well observes, that he cannot look on a piece of sugar without conceiving it stained with spots of human blood: and Dr. Franklin very properly subjoins, that had he taken in all the consequences of the slave trade, he might have seen the sugar not merely spotted but dyed scarlet in grain. Well then might the benevolent Cowper put the following affecting interrogation into the mouth of his complaining negro:

Why did all-creating Nature
Make the plant for which we toil?
Sighs must fan it, tears must water,
Sweat of ours must dress the soil.

Think ye masters iron-hearted,
Lolling at your jovial boards,
Think how many backs have smarted
For the sweets your cane affords!

The Abbe Raynal computes that, at the time of his writing, 9,000,000 of slaves had been consumed by the Europeans. Add 1,000,000 at least since, for it is about ten years, says Mr. Cooper, who published letters on this subject in 1787. Recollecting then that for one slave procured, ten at least are slaughtered, that a fifth die in the passage, and a third in the seasoning, and the unexaggerated computation will turn out, that the infernal voracity of European avarice has been glutted with the murder of 180,000,000 of our fellow-creatures.

Letters on the Slave Trade, by T. COOPER, Esq. p. 25.

The English, it appears, not only outrage humanity on their own account, but engage in this disgraceful commerce to supply other nations.

tions. At Liverpool, the grand mart of this execrable trade, Dawson and Baker recently agreed to furnish 3,000 slaves annually to the Spanish islands, and upon this contract have received £300,000 for those they have supplied.

Journey through Spain, by Mr. TOWNSEND, vol. ii. p. 381.

Noble and generous, though hitherto unsuccessful efforts, have, however, been recently made in the British parliament, to effect an abolition of this detestable and inhuman commerce.

The island of Jamaica is said to produce annually 70,000 tons of sugar. What is their value at 19s. $4\frac{1}{2}d.$ per hundred weight? *Ans.* £1,356,250.

No. 275. GOOSE. Goose, says Dr. Johnson, is a large water fowl proverbially noted for foolishness. Tame geese are of vast longevity: an instance is mentioned of one that attained eighty years. Multitudes of tame geese are kept in the fens of Lincolnshire; a single person will keep a thousand old geese, each of which will rear seven, so that towards the end of the season he will become master of eight thousand. The geese are plucked five times in the year: the first plucking, in pursuance of this barbarous practice, is at Lady-day, for feathers and quills; and the same is renewed, for feathers only, four times more between that and Michaelmas. The produce of these feather pluckings is so great, that there are frequently sent away in one year from the town of Boston, in this county, 300 bags of feathers, each containing 168 pounds; worth to the owner 2d. per pound. Each plucking affords about a pound.

Suppose the quantity of feathers, said to have been sent from Boston, were bought at the price mentioned, conveyed to London at the expence of $1\frac{1}{2}d.$ per pound, and disposed of there at $4\frac{3}{4}d.$ per pound, what would the purchaser gain by the sale? *Ans.* £262 10s.

No. 276. PEN. A pen is an instrument to write with, made of quills, taken from the wings of ravens, turkeys, peacocks, and geese. The goose-quill pens are generally made use of among us, and in the neighbouring countries; but in some parts of the world they write with reeds to this day, particularly the Turks, Moors, and eastern people. See *Massej on the Origin of Letters, p. 68, 125.*

The same author observes, that wherever the word *pen* occurs in our English translation of the Old and New Testament, we must not understand it of a pen made of a quill, but of an *iron style*, or a *reed*, with which the ancients wrote. The former was sharp at one end like a pointed needle, to write with, and at the other end blunt, and broad, to scratch out what was written, and not approved of, to be amended.

Goose-quill pens are supposed to have been in use among us between four and five hundred years.

Allatius, keeper of the Vatican library, who died at Rome in 1669, had a very extraordinary pen, with which, and no other, he wrote Greek for 40 years; and having lost it, he was so grieved, that he could scarcely refrain from tears. It is not said of what the pen was made. See *Massej, p. 70; and the Ency. Brit. or Biog. Dict. Art. Allatius.*

Philemon Holland, a physician of Coventry, translated Pliny's Natural History into English with *one* pen, as he says himself in these lines,

With one sole pen, I wrote this book,
Made of a grey-goose quill;
A pen it was, when I it took,
A pen I leave it still.

It is humourously remarked by Mr. Howel, that the goose, the bee, and the calf rule the world; the one affording parchment, the other two sealing-wax, and quills to write with. The pen, he adds, hath a thousand virtues; it conserves empires, and preserves that noble virtue friendship, which else would perish among men for want of practice.

The pen, however, is a two-edged sword, which cuts both ways; and may, in the hand of vicious persons, do the greatest injury to society, agreeably to the observation of an excellent poet.

The sacred implement I now employ,
Might prove a mischief, or at best a toy;
A trifle, if it move but to amuse:
But, if to wrong the judgment and abuse,
Worse than a poignard in the basest hand,
It stabs at once the morals of a land.

COWPER.

Many of the quills used in England come from Hudson's-Bay, Hamburg, and Ireland.

Suppose a quill merchant should buy 20,000 quills at 3s. a thousand; pay 1s. 6d. a thousand for having them dutched; and 4s. 6d. a thousand for their being converted into pens, which he should then sell for 1s. 2d. per hundred; what would he gain by the sale? *Ans.* £2 13s. 4d.

No. 277. GLASS. "It is pleasing, as Dr. Johnson well remarks, to contemplate a manufacture rising gradually from its first mean state by the successive labours of innumerable minds; to consider the first hollow trunk of an oak, in which, perhaps, the shepherd could scarcely venture to cross a brook swelled by a shower, enlarged at last into a ship of war, attacking fortresses, terrifying nations, setting storms and billows at defiance, and visiting the remotest parts of the globe. And it might contribute to dispose us to a kinder regard for the labour of one another, if we were to consider from what unpromising beginnings the most useful productions of art have probably arisen. Who, when he saw the first sand or ashes, by a casual intenseness of heat melted into a metalline form, rugged with excrescences, and clouded with impurities, would have imagined, that in this shapeless lump lay concealed so many conveniences of life, as would in time constitute a great part of the happiness of the world. Yet by some such fortuitous liquefaction was mankind taught to procure a body at once in a high degree solid and transparent, which might admit the light of the sun, and exclude the violence of the wind; which might extend the sight of the philosopher to new ranges of existence,
and

and charm him at one time with the unbounded extent of the material creation, and at another with the endless subordination of animal life; and, what is yet of more importance, might supply the decays of nature, and succour old age with subsidiary light. Thus was the first artificer in glass employed, though without his own knowledge or expectation. He was facilitating and prolonging the enjoyment of light, enlarging the avenues of science, and conferring the most lasting pleasures; he was enabling the student to contemplate nature, and the beauty to behold herself."

Rambler, No. 9.

Glass is a transparent, solid, brittle, factitious body, produced of a species of salt* and sand, or stone, by the action of fire. The process is in part described in the following lines:

For this intent the subtle chymist feeds
Perpetual flames, whose unresisted force
O'er sand and ashes and the stubborn flint
Prevailing, turns into a fusil sea
That in his furnace bubbles funny-red:
From hence a glowing drop with hollow'd steel
He takes, and by one efficacious breath
Dilates to a surprising cube, or sphere
Or oval, and fit receptacles forms
For ev'ry liquid with his plastic lungs,
To human life subservient.

PHILIPS.

The chemists maintain, that all bodies may be vitrified; and as glass is the effect of fire, so it is the last effect of that element; all the chemist's art, and all the force of fire, not being able to carry the change of any natural body beyond its vitrification.

The discovery of glass, according to Pliny, took place by accident, in Syria, at the mouth of the river Belus, by certain merchants driven thither by the fortune of the sea. Being obliged to live there, and dress their victuals by making a fire on the ground, and plenty of the plant kali being on the spot, this herb being burnt to ashes, and the sand or stones of the place accidentally mixing with it, a vitrification was undesignedly made; from whence the hint was taken, and easily improved.

The first place, according to some authors, mentioned for the art of making glass, is Sidon in Syria, which became famous for glass, and glass-houses; but others maintain, that the first glass-houses noticed in history were erected at Tyre, which, they add, was the only staple of the manufacture for many ages. Italy had the first glass win-

* The salt is procured chiefly from a kind of ashes, called pulverine, or rochetta, brought from the Mediterranean, particularly from Alexandria and Tripoli. The ashes come from the plant kali, sometimes called glass-weed.

dows; next France, from whence they came into England, and began to be common about the year 1180. The Venetians, for many years, excelled all Europe in the fineness and size of their looking-glasses; but they are now surpassed both by the English and French.

The glass manufacture was first begun in England in 1557, in London; improved in 1635; and brought to a great degree of perfection in the reign of king William III. But the first glass plates, for looking glasses and coach windows, were made in 1673 at Lambeth.

An extensive manufactory of this elegant and valuable branch of commerce, first established in Lancashire, about the year 1773, bids fair to rival, if not excel, the most celebrated continental manufactures, both with respect to the quality, brilliancy, and size of its productions. *See the Cyclop. and Ency. Brit.*

Mr. Townsend, however, who travelled through Spain in 1786, asserts, that the glass manufacture at S. Ildefonso (a noted palace, built by Philip V. about 24 miles from the famous Escorial) is carried to a degree of perfection unknown in England. The largest mirrors are made in a brass frame, 162 inches long, 93 wide, and 6 deep, weighing nearly nine tons. These are designed wholly for the royal palaces, and for presents from the king.

Journey, vol. ii. p. 114.

If 1728 elegant wine glasses were bought for £65 2s. how must they be sold per dozen, or per glass, to gain ten guineas by the sale of the whole? *Ans.* 10s. 6d. per dozen; or $10\frac{1}{2}d.$ per glass.

No. 278. **GLOVES.** A glove is a covering for the hand and arm, used both for warmth, decency, and as a shelter from the weather. Gloves are made of various materials. Leathern gloves are made of shamoy, kid, lamb, doe, elk, buff, &c.

The chief places for the manufacture of English gloves are Worcester, Hereford, Hexham, and Yeovil.

Suppose a glover in London should purchase 50 dozen pairs of gloves from Worcester, at 18s. 6d. per dozen, how must he sell them per pair to gain after the rate of 20 per cent by the sale? *i. e.* to gain twenty pounds by every hundred pounds which he should lay out in the same manner. *Ans.* 1s. 10d. $\frac{4}{5}\frac{8}{10}$.

No. 279. **HATS.** A hat is a covering for the head, worn by the men throughout the western part of Europe. Hats for men were invented at Paris by a Swiss, in 1404. They were first manufactured at London by Spaniards in 1510. Before that time, both men and women in England commonly wore close-knit woollen caps.

Stow's Chron.

F. Daniel relates, that when Charles II. made his public entry into Rouen, in 1449, he had on a hat lined with red velvet, and surmounted with a plume or tuft of feathers. He adds, that it is from this entry, or at least under his reign, that the use of hats and caps is to be dated, which henceforward began to take place of the chape-rons and hoods that had been worn before.

Hats

Hats are made either of wool, or the hair of divers animals, as the hare, rabbit, camel, &c. and particularly of the castor or beaver*. Hats are also made for women's wear, not only of the above materials, but of chips, straw, cane, horse-hair, filk, &c.

Suppose hats purchased at 17s. 6d. each, wholesale, were retailed at a guinea each, what would be the gain per cent? *Ans.* £20 per cent.

No. 280. SHOES. A shoe is a covering for the foot, now usually made of leather; but, in different ages and countries, shoes have been made of very various materials. They have been made of raw skins, of rushes, broom, paper, flax, filk, wood, iron, silver, and gold. Their form also has been very various, with respect to shape, colour, and ornament. They have been square, high, low, long, and quite even, cut, carved, &c. So true is the observation of Shakespeare, that

New customs,
Though they be never so ridiculous,
Nay, let 'em be unmanly, yet are followed.

The patricians, among the Romans, wore an ivory crescent on their shoes: Heliogabalus had his covered over with a very white linen, in conformity to the priests of the sun; Caligula wore his enriched with precious stones. The Indians, like the Egyptians, wore shoes made of the bark of the papyrus. The Turks always put off their shoes, and leave them at the doors of the mosque†.

In the reign of Edward IV. there was an extraordinary method of adorning shoes in England, with long peaks turning upwards from the toe, and fastened by silver chains or laces to the knees; a custom which was prohibited by a penal statute in the same monarch's reign.

A pair of shoes is shewn, among other curiosities, at Petersburg, which belonged to Peter the Great, that had been *soled* several times.

Orig. Anecd. of Peter, p. 370.

A Persian peasant, who was elevated from his hovel, to the palace of his sovereign, kept, with care, his original wooden shoes, to remind him of his first humble station.

Mr. ANDREW'S Anecd. p. 42.

* The beaver is an amphibious animal, frequent in Canada and other provinces of North America, and remarkable for his art, address, and contrivance, in building his habitation, of which so many wonderful accounts are delivered by travellers, that they would scarcely obtain credit, were they not well attested.

† In allusion to this custom, Dr. Jortin, speaking of *religious truth*, says, "He who is desirous to find religious truth must seek her in the holy scriptures, interpreted by good sense and sober criticism, and embrace no theological systems any farther than as they are found consistent with the word of God, with right reason, and with themselves. A theological system is too often a temple consecrated to implicit faith; and he who enters there to worship, instead of leaving his shoes, after the eastern manner, must leave his understanding at the door; and it will be well if he finds it when he comes out again."

The young pretender, after his defeat at Culloden, skulked about the Hebrides for many months in the greatest distress*. At Port Ree, in the island of Sky, his shoes were worn out, and a friend furnished him with a new pair, and kept the old ones till his own death, when, as the late Mr. Boswell, in his Journal, informs us, a zealous *Jacobite*† gave 20 guineas for them.

When the poet Linieres, says Menage, was reproached with always walking on foot, he replied extempore in the following epigram.

Je vois d'illustres cavaliers
Avec laquais, carolle, et pages;
Mais ils doivent leurs equipages,
Et je ne dois pas mes fouliers.

If 365 dozen pairs of shoes were bought in London for a thousand guineas, and taken to America at the expence of thirty guineas, how must they be sold per pair, in that country, for the purchaser to gain thirty per cent by the sale? *Ans.* 6s. 5d. $\frac{672}{4380}$.

No. 281. STOCKINGS. Stockings are coverings for the legs and feet.

Anciently the only stockings in use were made of cloth, or of milled stuffs sewed together; but since the invention of knitting and weaving stockings of silk, cotton, wool, thread, &c. the use of cloth stockings is quite discontinued. It is related, that queen Elizabeth being presented with a pair of black knit silk stockings in 1561, never afterwards wore any cloth ones. The same author, Dr. Howel, adds, that Henry VIII. usually wore cloth hose, except there came from Spain, by great chance, a pair of silk stockings. His son, Edward VI. was presented with a pair of long Spanish silk stockings, by Sir Thomas Gresham, and the present was then much taken notice of. Hence it should seem, that the invention of silk knit stockings originally

* See Question, 190.

† The term *Jacobite* is derived from *Jacobus*, and was a reproachful epithet bestowed on persons who disapproved of the revolution by king William, and who continued still to assert the right, and adhere to the interests of the dethroned tyrant James, and his family. It has, moreover, been applied to all such as have vindicated the execrable doctrines of passive obedience, non-resistance, and the divine right of kings, and who, consequently, hold high notions of their prerogatives. In this last sense it has much the same import with *Tory*. The epithet *Whig* is generally understood to denote a friend to civil and religious liberty; a stern advocate for the rights of the PEOPLE, but who, nevertheless, is zealous in the support of the king in all his just prerogatives, though at the same time desirous of reducing him to an incapacity of abusing his power.

Whatever, says Mr. Bellham, tends to enlarge the power of princes or of magistrates beyond the precise line or limit of the general good, whatever imposes oppressive, or even superfluous restraints upon the liberty of the people, or introduces any species of civil inequality, not founded on the basis of public utility, is of the very essence of *toryism*. On the other hand genuine *whiggism* is nothing more than good temper and good sense, or, to adopt higher and more appropriate terms of expression, benevolence and wisdom applied to the science of government.

came

came from Spain. There is a MS. letter from James VI. of Scotland to the earl of Mar, requesting the loan of a pair of silk stockings, in which the earl had appeared at court, because he was going to give audience to the French ambassador.

Mr. TOWNSEND's *Journey*, vol. iii. p. 268.

The art of weaving stockings in a frame was invented in 1589, by William Lee, M. A. of St. John's-College, in Cambridge, a native of Woodborough, near Nottingham.

A pair of coloured worsted stockings, mended in several places, formerly belonging to Peter the Great, are still exhibited at Peterburgh.

Orig. Anecd. of Peter, p. 370.

The exportation of stockings from Great-Britain forms an important article of commerce. Our principal manufacture is at Nottingham; but from Aberdeen there are, says the *Ency. Brit.* no less than 69,333 dozen pairs of stockings annually exported, worth on an average, £1 10s. per dozen.

What is the value of the whole at the above price; and supposing them retailed at 2s. 9½d. per pair, what would be gained by the sale, allowing 2000 guineas, £33 5s. 6d. for carriage, &c. *Ans.* £103,999 10s. value of the whole; and £10,000 gained by the sale.

N. B. Mr. Boswell, in his Journal, observes, that Aberdeen exports stockings to the value of £100,000 per annum in time of peace, and £170,000 in time of war.

No. 282. TOBACCO received its name from Tabaco, a province of Yucatan, New Spain, North-America; or, as some assert, from the island of Tobago, one of the Caribbees. It was not known in Europe till after the discovery of America by the Spaniards, and first imported about the year 1560. It was brought into England about 1586, in the reign of queen Elizabeth; and it is supposed, either by captain Greenfield, Sir Francis Drake, or Sir Walter Raleigh.

Our James I. wrote a treatise expressly against the use of this exotic weed. It is, says he, a custom loathsome to the eye, hateful to the brain, dangerous to the lungs, and in the black, stinking, fume thereof nearest resembling the horrible stygian smoke of the pit that is bottomless. The same royal author, as Mr. Granger observes, professed, that were he to invite the Devil to a dinner, he should have three dishes: first, a pig; second, a poll of ling and mustard; and third, a pipe of tobacco for digesture.

Biog. Hist. of England, vol. ii. p. 1.

One of our best modern poets has also expressed a pointed dislike to the use of tobacco, but for a reason much more cogent than any of those assigned by the pedantic "British Solomon."

Pernicious weed! whose scent the fair annoys,
Unfriendly to society's chief joys,
Thy worst effect is banishing for hours
The sex whose presence civilizes ours;

Thou

Thou art, indeed, the drug a gard'ner wants,
 To poison vermin that infest his plants;
 But are we so to wit and beauty blind,
 As to despise the glory of our kind,
 And show the softest minds and fairest forms,
 As little mercy as he grubs and worms?

COWPER.

Tobacco, however, has not been without its able advocates, of which number was Mr. J. Philips, who has sung its praises in all his poetical productions except "Blenheim;" and his "Splendid Shilling," says one of his biographers, owes some part of its lustre to the happy introduction of a tobacco-pipe. In his Cider we find the following eulogium on this "sovereign herb," as he elsewhere styles it.

To sage experience we owe
 The Indian weed unknown to ancient times,
 Nature's choice gift, whose acrimonious fume
 Extracts superfluous juices, and refines
 The blood distemper'd from its noxious salts;
 Friend to the spirits, which with vapours bland
 It gently mitigates; companion fit
 Of pleasantry and wine; nor to the bards
 Unfriendly, when they to the vocal shell
 Warble melodious their well-labour'd songs.

Tobacco is cultivated in several parts of America, in the West-Indies, the Levant, the coasts of Greece, the Archipelago, Malta, Italy, France, Ceylon, &c. The principal kinds of tobacco imported into England are the Maryland, called Oronooko, and the Virginia. British taste prefers that of the latter state, while the northern nations of Europe are said to like the former better. The cultivation of tobacco, says Dr. Gordon, began in Virginia in the year 1616.

Tobacco is either taken by way of snuff, as a sternutatory; or as a masticatory, by chewing it in the mouth; or by smoking it in a pipe. It is considered as a first rate narcotic or opiate; and is occasionally used medicinally.

France raises 15,000,000 pounds of tobacco annually. *Zimmerman*, p. 254. What is the value of this quantity at £7 15s. 6d. per cwt? *Ans.* £1,041,294 12s. 10¼d.

No. 283. BUTTER. Butter is an unctuous substance, made by agitating the cream of milk in a churn, till the oil separates from the wheyey, or serous parts. Some of our churns are heavy machines, and require great exertions of strength to work them; but Mr. Townsend observes, that in Spain the women churn as they walk along, or stand chatting with a neighbour, each with a leathern bag, in which they shake the cream till the butter is completely formed.

Journey, vol. i. p. 388.

In Barbary butter is made by putting the milk or cream into a goat's skin, suspended from one side of the tent to the other, and pressing it
 to

to and fro in one uniform direction; and in Bengal butter is easily made by the slight turning of a stick in milk.

SHAW'S *Trav. and Phil. Trans.*

The trade in butter in England is very considerable. Some compute, that 50,000 tons are annually consumed in London only. It is chiefly made within 40 miles round the city. Fifty thousand firkins are said to be sent yearly from Cambridge and Suffolk alone; each firkin containing 56 pounds. A considerable part of this vast quantity is, however, brought from Downham, 10 miles south of Lynn, in Norfolk, to Cambridge, and thence conveyed to London in the waggon. Uttoxeter, in Staffordshire, is a market famous for good butter, inasmuch that the London dealers have established a factory there for that article. It is bought by the pot, of a long cylindrical form, weighing 14lb. But no butter is esteemed equal to that which is made in the county of Essex, well known by the name of Epping butter: and which in almost every season of the year yields at London from a shilling to fourteen pence the pound.

It was long before the Greeks appear to have had any notion of butter: their poets make no mention of it, and yet are frequently speaking of milk and cheese. The Romans used butter no otherwise than as a medicine, never as a food. The ancient Jews, however, appear to have been acquainted with the method of preparing butter. Solomon, Isaiah, and even Moses, speak of it. The last represents it as in use in Abraham's time: *See Gen. xviii. 8. Prov. xxx. 33. and Isaiah vii. 15*; but some modern writers suppose, that by butter in these passages we are to understand cheese.

Cyclop.

Suppose the quantity of butter sent from Cambridge and Suffolk to London yearly, were purchased for $7\frac{1}{2}d.$ per pound, and the expence of conveying it to town came to $1\frac{1}{4}d.$ per pound, how much would be the gain per cent, if it were sold in London at $11d.$ per pound; what would be gained by the sale of the whole; and what would be the whole sum it sold for in London? *Ans.* £25 14s. $3\frac{1}{4}d.$ gain per cent; £26,250 gained by the sale; £128,333 6s. 8d. the sum it sold for.

No. 284. BREAD. Bread is usually made of the flour or meal of some farinaceous vegetable, chiefly corn, ground and kneaded with water and yeast. Potatoe-bread is common in Ireland; and turnip-bread is used in some parts of England. In the time of James I. the usual bread of the poor was made of barley. In Iceland dried cod-fish, beaten to powder, and made up into cakes, is eaten for bread. The same kind of bread is made among the Laplanders, whose country affords no corn; and even among the Crim Tartars. At Otaheitee, one of the new discovered islands in the South-Sea, there is a tree, described in Hawkesworth's voyages, called the bread-fruit tree. It is about the size of a middling oak; and the fruit is nearly as large, and in the shape of a child's head. It is roasted and baked before it is eaten; and has an insipid sweetish taste.

B b

Bread,

Bread, such as ours, is not only a very agreeable but a very wholesome and nutritive aliment; deemed, indeed, by some, the lightest and properest food for human bodies:

“Decaying man with strength supplying.”

Anciently each housewife was her own baker; and the learned are in great doubt about the time when baking became a particular profession, and bakers were introduced. It is, however, generally agreed, that they had their rise in the East, and passed from Greece to Italy after the war with Pyrrhus, about the year of Rome 583. See *Cyclop. and Ency. Brit. Art. Baker.*

The price of bread, in London, is regulated by the magistrates, according to the price of wheat; and a peck loaf, when well baked, is to weigh 17 lb. 6 oz. avordupoise weight, and the rest in proportion. “When we see,” says a facetious writer, “the print of *Garagantua*, that has a mouth as large as an oven, and swallows, at one meal, 1200 pounds of bread, 20 oxen, 100 sheep, 600 fowls, 1500 hares, 2000 quails, 1000 barrels of wine, 6000 peaches, &c. who does not say, *THAT* is the mouth of a *king*?”

Add 538 ounces to the quantity of bread now mentioned, find how many quartern loaves the total contains, and their value at 1s. 0½d. per loaf, its present enormous price, *July* 23, 1795. *Ans.* 284 quartern loaves; £14 15s. 8d. their value.

No. 285. **CANDLES.** Candle is a cotton or linen wick, loosely twisted, and covered with tallow, wax, or spermaceti, in a cylindrical figure; which being lighted at the end, serves to illumine a place in the absence of the sun. A tallow-candle, to be good, must be half sheep’s and half bullock’s tallow; for hog’s tallow makes the candle gutter, and always gives an offensive smell, with a thick, black smoke. The wick ought to be pure, sufficiently dry, and properly twisted; otherwise the candle will emit an inconstant vibratory flame, which is both prejudicial to the eyes, and insufficient for the distinct illumination of objects. There are two sorts of tallow-candles; the one dipped, the other moulded. The first, which are those in ordinary use, are of an old standing; the latter are said to be the invention of the *Sieur le Brez* at Paris.

Cyclop. and Ency. Brit.

There is, says Mrs. Griffiths, a beautiful allusion, made by Shakespeare, to the light of a candle; which, with the moral deduced from it, is worthy of notice.

How far this candle throws its beams!
So shines a good deed in a naughty world.

Suppose a person bought 40 dozen pounds of candles for £16 4s. and, in consequence of their being damaged in conveying them home, he should be obliged to sell them at 5½d. per pound, what would be his loss by the sale? *Ans.* £4 14s.

No. 286.

No. 286. SOAP. Soap is a kind of paste, sometimes hard and dry, and sometimes soft and liquid, much used in washing, and for various other purposes. The chief ingredients used in making green soft soap are, lees drawn from pot-ash and lime, boiled up with tallow and oil, with the addition of indigo to colour it. In white soft soap the oil is omitted. Hard soap is made with lees from ashes, and tallow. The finest of the common soaps is that called Spanish, or Castile soap, which is made with olive-oil, and the alkaline salt called soda or barilla.

Soap, both hard and soft, is applied to medical use. It is a very effectual anti-acid, and one of the best antidotes to stop quickly, and with the least inconvenience, the bad effects of acid corrosive poisons, as aqua fortis, &c.

The manufacture of soap in London first began in the year 1524; before which time this city was served with white soap from foreign countries, and with grey soap speckled with white from Bristol.

Cyclop.

It is, says Mr. Zimmerman, the inferior sort of oil which is used in making soap in France; and he adds, that in Marseilles alone there are 36 soap manufactures, *p.* 253.

What are 2 cwt. 3 qrs. 27 lbs. of soap worth at $11\frac{3}{4}d.$ per lb; and how must it be sold per lb. to gain £3 11s. $11\frac{3}{4}d.$ by the sale? *Ans.* £16 8s. $0\frac{1}{4}d.$ the value; 1s. $2\frac{1}{4}d.$ $\frac{1}{3}\frac{2}{3}$ the price it must be sold for.

No. 287. TURKEY. Turkeys are natives only of America, or the New World, and of course unknown to the ancients. This is a point which Mr. Pennant has established, by an elaborate induction of various particulars, in the history of these birds; evincing, that they are natives neither of Europe, Asia, nor Africa. Wild turkeys are now very rare in the inhabited parts of America, but are found in numbers in the distant and most unfrequented spots. They usually weigh about 30 pounds each. The Indians make a very elegant clothing of the feathers, twisting the inner webs into a strong double thread of hemp, or inner bark of the mulberry-tree, and working it like matting: it appears rich and glossy, and as fine as a silk shag. They also make fans of the tail, and the French of Louisiana were accustomed to make umbrellas by the junction of four of the tails.

Turkeys were first introduced into Europe from Mexico or Yucatan, and imported into England, probably from Spain, as early as the year 1524. Since that period they have been successfully cultivated in this kingdom, so that in 1585 they made a dish even in our rural feasts. But in France they were so rare, that the first which was eaten in that country appeared at the nuptial feast of that monster of cruelty Charles IX. in 1570.

The largest turkeys in England are reared in the county of Norfolk. Some of them weigh upwards of 30 pounds, when prepared for dressing.

Suppose a person should purchase 500 turkeys for 125 guineas, and sell 40 at 5s. 9d. each; 60 at 6s. 2d. each; 150 at 6s. 9d. each; and the remainder at 7s. 6d. each, what would he gain by the whole?

Ans. £43 2s. 6d.

No. 288. INTRODUCTION OF VEGETABLES, &c. INTO ENGLAND. One of the principal advantages, resulting to Europe from exploring distant regions, has been the introduction of some of the most useful plants and fruits that are now cultivated with so much advantage. From the discovery of America one of the most important benefits, perhaps, which we received, was the introduction of the potatoe; a root by far the most useful of all others we have among us, and which, though it now forms food for the poor, was little more than a century ago confined to the gardens of the curious, and preserved as a rarity. *See question 101.*

The pear, the peach, the apricot, and the quince, were respectively brought from Epirus, Carthage, Armenia, and Syria. They were first transplanted into Italy, and thence disseminated by the Romans through the northern and western parts of Europe. Fruit, says Mr. Andrews, seems to have been very scarce in the time of Henry VII. In an original MS. signed by himself, and kept in the remembrance office, it appears, that apples were paid for at a high rate, not less than one or two shillings a piece; that a red rose, cost two shillings; and that a man and woman had eight shillings and fourpence for strawberries.

Anecd. p. 80.

It was not till the latter end of the reign of Henry VIII. viz. about 1547, that any salads, carrots, turnips, cabbage*, or other edible roots were produced in England. The little of these vegetables that was used, was formerly imported from Holland and Flanders. Queen Catherine, when she wanted a salad, was obliged to dispatch a messenger thither on purpose†. Sundry other kinds of fruits and plants were also first cultivated in England during this reign, particularly apricots, pippins, and fine gooseberries. The latter are said to have been brought from Flanders. The currant tree is said to have been first conveyed from Zante, on the western coast of the Morea, in European Turkey, by the Venetians, to whom that island still belongs, and planted in England in the year 1533.

Asparagus, artichokes, cauliflowers, beans, and peas, were introduced about the time of Charles the II^d's restoration, viz. in 1660. The cauliflower plant, according to some, was not known here till a considerable time after the period just mentioned, though it is now to be found in no other part of the globe in equal perfection. In short, nuts, acorns, crabs, and a few wild berries, were almost all the variety of vegetable food indigenous to our island. The meanest labourer, as Dr. Aikin justly observes, now is fed with more wholesome and delicate aliments than the petty kings of the country could obtain in its uncultivated state. *See Dr. AIKIN'S Introd. to England Delineated.*

* Cabbages were introduced into Scotland by the soldiers in Cromwell's army.

† Hume, vol. iv. p. 273.

The emperor ALBINUS, who, before his advancement to this honour, had been made governor of Britain, by Commodus, had so voracious an appetite, that we are told, he sometimes devoured, for his breakfast, no less than 500 figs, 100 peaches, 10 melons, 20 lbs. of grapes, 100 small birds, and 400 oysters. Being defeated by Severus, his competitor for the imperial dignity, his head was struck off, and his body thrown into the Rhone, A. D. 198.

Valuing the figs at $2\frac{1}{4}d.$ the peaches at $5\frac{3}{4}d.$ the melons at $4s. 9\frac{3}{4}d.$ each; the grapes at $1s. 11\frac{1}{2}d.$ per lb. the birds at $6\frac{1}{2}d.$ each, and the the oysters at 3 a penny, what is the value of the whole? *Ans.* £14 16s. $3\frac{1}{4}d.$

N. B. That execrable tyrant MAXIMINUS, another Roman emperor, is said to have generally devoured 40 lbs. of meat in a day, and to have drank 18 bottles of wine in the same space of time. He was assassinated at Aquileia, A. D. 236.

No. 289. MILK. A well-known fluid, prepared by nature in the breasts of women, and the udders of other animals, for the nourishment of their young. It is the food most universally suited to all ages and states of the body, but seems chiefly designed by Providence as the aliment of infants. That there were, however, many adults among the ancients who lived chiefly, if not entirely, upon this wholesome and pleasant liquid, we learn from Homer, who mentions a class of people

Renowned for justice and for length of days,
Thrice happy race! that, innocent of blood,
From *milk*, innoxious, sought their simple food.

And travellers inform us, that in Tartary milk still makes a principal part of the diet of the inhabitants.

Mr. Foote, in his survey of the county of Middlesex, undertaken for the board of agriculture, represents, that there are kept for supplying the metropolis and its environs with milk no less than 8,500 cows. Now supposing each of these useful animals to produce daily, on an average, two gallons of this grateful beverage, and that the whole should be sold at $3d.$ per quart, what is its value? *Ans.* £310,250.

No. 290. FLANNEL. Flannel is a kind of slight, loose, woollen stuff, made originally in Wales, where it still continues to be manufactured in great perfection, particularly at Welch-Pool in Montgomeryshire.

Flannel worn next the skin greatly promotes insensible perspiration, and

“ Gives kindest warmth to weak enervate limbs,
“ When the pale blood flow rises thro’ the veins.”

Dr. Black expresses his surprise, that the custom of wearing flannel next the skin should not have prevailed more universally. He is confident, that it would prevent a number of diseases; and he thinks, that there is no greater luxury than the comfortable sensation which arises

arises from wearing it, especially after one is a little accustomed to it. It is a mistaken notion, says he, that it is too warm a clothing for summer. I have worn it, he adds, in the hottest climates, and at all seasons of the year; and never found the least inconvenience from it. It is the warm bath of a perspiration confined by a linen shirt, wet with sweat, which renders the summer heats of southern climates so insupportable; but flannel promotes perspiration, and favours its evaporation; and evaporation, as is well known, produces positive cold.

It was remarked of some Bostonians who had settled in Virginia, and whose constant custom in their own country is to wear flannel next to the skin, that they escaped an epidemic fever which attacked the inhabitants, who, profiting by this discovery, were never afterwards attacked by this disease. *Europ. Mag. for July 1794.*

If 50 pieces of flannel, each containing 48 yards, were purchased in London at 2s. 2d. per yard, and the shipping of it to America cost 10 guineas, exclusively of 12 per cent insurance; how must it be sold per yard in that country, to gain 25 per cent upon the whole sum expended? *Ans.* 3s. 1½d. $\frac{2040}{2400}$.

No. 291. ENGLAND'S GRATEFUL TRIBUTE TO THE BRAVE. Chelsea and Greenwich, two beautiful villages on the banks of the Thames, in the vicinity of London, are deservedly celebrated on account of their magnificent hospitals for old and decrepid foldiers and seamen. They are both noticed in an elegant modern poem.

Go, with old Thames, view Chelsea's glorious pile;
And ask the flatter'd hero, whence his smile?
Go, view the splendid domes of Greenwich, go;
And own what raptures from reflection flow,
Hail, noblest structures imag'd in the wave!
A nation's grateful tribute to the brave.
Hail, blest retreats from war and shipwreck, hail!
That oft arrest the wondering stranger's sail.

ROGERS'S Pleasures of Memory.

About four hundred decayed foldiers, among whom are doubtless some, who, in the vigour of their days

“Sought the bubble reputation
“Ev'n in the cannon's mouth,”

find an asylum in Chelsea-Hospital, to which, moreover, belong ten thousand out-pensioners, who receive an annuity of £7 12s. 6d. each, annually. The first projector of this superb structure was Sir Stephen Fox, grandfather to the present distinguished patriot, Mr. Charles Fox. “He could not bear,” he said, “to see the common soldiers, who had spent their strength in our service, reduced to beg*,” and to this edifice he contributed £13,000.

About two thousand old disabled seamen are maintained in Greenwich-Hospital; but there are no out-pensioners.

* Beg through realms their valour sav'd.

What is the yearly sum paid to the out-pensioners of Chelsea-Hospital? *Ans.* £76,250.

No. 292. ENGLISH CHARITY. It has been well remarked, that notwithstanding the variety of sects of Christians which are found in England, and the diversity of religious sentiment, which are the natural consequence of freedom of discussion with respect to disputed doctrines, there is no country on earth where there are more *positive* acts of religion. They do not indeed consist of rich shrines, or votive tablets consecrated to particular saints, but of efficient charity applied to every purpose of philanthropy.

The blameless poor, the nobly maim'd,
The lost to reason, the declin'd in life,
The helpless young that kiss no mother's hand,
And the grey second infancy of age,
She gives in public families to live,
A sight to gladden Heaven!

THOMSON.

England has moreover to exult in a list of illustrious names, dear to every friend of humanity, who made it the great business of their lives to cheer, to comfort, and to relieve individual wretchedness; and who could say, with Job, that they had been *eyes to the blind, feet to the lame, and fathers to the poor.*

"A favourite band, whom mercy mild
"God's best lov'd attribute adorn'd; whose gate
"Stood ever open to the stranger's call;
"Who fed the hungry; to the thirsty lip
"Reach'd out the friendly cup; whose care benign
"From the rude blast secur'd the pilgrim's side;
"Who heard the widow's tender tale; and shook
"The galling shackle from the pris'ner's feet;
"Who each endearing tie, each office knew
"Of meek-ey'd, heav'n-descended charity."

We have to boast of a FIRMIN*, a KYRLE†, a HOWARD‡, a DAY§, a THORNTON, and many others, whose fortunes were shared with the
sons

* MR. THOMAS FIRMIN was a citizen of London, eminently distinguished for the greatest activity and ardour of benevolence. His judicious and extensive charities were unequalled at the time in which he lived, and appear never to have been surpassed by any single person. In a poem, published in honour of him soon after his death, he was "compared, for his activity and zeal, to those ministering spirits, who, warmed with the divinest principle of love, are ever on the wing, and fly without ceasing to every place where distress calls for their aid, or they may be able to administer joy." Mr. Cornish says, "Mr. Firmin was always very diligent in business, but more abundantly so in acts of kindness and charity; and he justly deserved (if it be possible for a mortal to deserve) the title of a GODLIKE MAN." He died in 1697, and was interred in Christ-Church-Hospital, London, in the cloisters of which is an inscription to his memory.

British Biography, 8vo. vol. vi. p. 378—387. CORNISH's *Life of Mr. THOMAS FIRMIN*, 12mo. 1780.

† See question 142. ‡ See question 253.

§ Mr. Thomas Day was the author of many excellent political productions, which breathe the genuine spirit of disinterested patriotism and a sincere regard to the
rights

fons and daughters of affliction. Mr. Thornton, of Clapham, was one of the greatest merchants in Europe, and the half of his immense profits was, it is said, generally dedicated to the poor. He expended annually *two thousand pounds* in the distribution of religious books only, and his charities reached to the remotest part of the globe. It is with great satisfaction we add, that, according to universal report, the descendants of this truly great, because good man, are walking in the steps of their venerable father.

Supposing the books distributed by Mr. Thornton to have been bought, on an average, for $\frac{2}{3}$ of a pound sterling the half dozen, how many would have been given away yearly? *Ans.* 18,000.

No. 293. **BEEF.** Beef is the flesh of black cattle; *i. e.* of an ox, bull, or cow, prepared for food. The noblest joint of beef is universally allowed to be the loin, which, on account of its having been once actually knighted by one of our kings, in a fit of royal condescension and jocularly, is now denominated **SIR-LOIN**. This ample joint has given rise to a well-known popular ballad, styled "The roast beef of old England;" and it still continues to make a conspicuous figure at the tables of all

" Who hospitably live,
" And strangers with good cheer receive."

Thomson places the sir-loin at the head of his autumnal feast.

First the fuelled chimney blazes wide;
The tankards foam; and the strong table groans
Beneath the smoking *sir-loin*, stretch'd immense
From side to side, in which, with desperate knife,
They deep incision make, and talk the while
Of England's glory, ne'er to be defac'd
While hence they borrow vigour.

rights and liberties of mankind. And his popular "History of Sandford and Merton" will ever remain an instance of the successful application of genius to form the minds of youth to *active and manly virtue*. Considered in the light of counteracting the effeminacy and imbecility of the present manners, this history seems, in merit and in effect, to rise above any other work that has been written for children, and is indeed admirably calculated

To wake the soul by tender strokes of art,
To raise the genius, and to mend the heart.

POPE.

The larger portion of Mr. Day's income was dedicated to the relief of his fellow-creatures, and he confined his own expences within the strictest bounds of moderation and œconomy; both that he might be enabled to be more liberal to others, and that he might, as far as his own example could influence, resist the opposite excess of prodigality and vanity which so generally prevails. This valuable member of society was killed by a fall from his horse on the 28th of September, 1789, in the 41st year of his age. He resided the last ten years of his life at Anningsley near Chertsey, in Surrey. See Mr. KEIR'S *Life of Mr. DAY*.

Suppose

Suppose four fir-loins of beef weighing severally $28\frac{1}{2}$ lbs. $37\frac{1}{4}$ lbs. $45\frac{1}{2}$ lbs. and $56\frac{3}{4}$ lbs. each, were purchased at $3s. 4\frac{1}{2}d.$ per stone*, and sold at $7\frac{3}{4}d.$ per lb. what would be gained by the sale of the whole?
Ans. £1 17s. $7\frac{1}{2}d.$

No. 294. MUTTON. Mutton is the common name of the flesh of a sheep after the animal has been killed, and has been frequently preferred to all the flesh of quadrupeds; and, indeed, besides its intrinsic excellence as a species of food, it has the advantage of being more generally suited to different climates: whereas beef, *e. g.* requires a very nice intermediate state, which it seems to enjoy chiefly in England; for although Scotland supplies what are esteemed excellent cattle, it is in the rich English pastures that they are brought to perfection. Now the sheep can be brought almost to the same perfection in Scotland as in the southern countries.

Thro' all the brute creation none as sheep
 To lordly man such ample tribute pay.
 For him their udders yield nectareous streams;
 For him their downy vestures they resign;
 For him they spread the feast.

DYER.

It is observed in Bacon's Natural History, that the flesh of mutton is better tasted where the sheep feed upon wild thyme and wholesome herbs. Hence the mutton fed upon the delightful downs of Banstead in Surrey, which are covered with thyme, is said to be the sweetest and best flavoured in the kingdom.

Supposing a sheep weighing $19\frac{1}{2}$ stone were bought of a carcase-butcher at $3s. 2\frac{3}{4}d.$ a stone, and retailed, on an average, at $5\frac{3}{4}d.$ per lb. what would be gained by the sale? And if the purchaser sold two sheep every *working* day throughout a year, what would be his gains at the expiration of that period? *Ans.* 11s. $9\frac{1}{2}d.$ gained by one sheep; £369 1s. 7d. by the annual sale.

No. 295. INTEREST. Interest is the premium, or money paid, for the loan or use of other money lent for a certain time, according to some certain rate. The sum lent is called the principal, because it is the sum that procreates the interest.

The rate of legal interest in this country has varied and decreased for 200 years past, according as the quantity of specie in the kingdom has increased by accessions of trade, the introduction of paper credit, and other circumstances. It has been 10, 8, 6; and, lastly, 5 per cent yearly, which is now the extremity of legal interest that can be taken.

There are some cases where it is customary to consider the time elapsed different ways. In the courts of law, interest is always computed in years, quarters, and days; which, indeed, is the only equi-

* See the table of the customary weight of goods.

table method: but in computing the interest on the public bonds of the South-Sea and India companies, and in the bank of England, &c. the time is generally taken in calendar months and days; and on exchequer bills in quarters of a year and days.

What is the interest of £230 10s. for one year at 4 per cent. per annum? *i. e.* the lender to receive 4 pounds for the loan of £100 for the space of one year; and so in proportion for any sum of money or number of years. *Ans.* £9 4s. 4½d.

No. 296. What is the interest of £547 15s. for three years at 5 per cent. per annum? *Ans.* £82 3s. 3d.

No. 297. What is the amount, *i. e.* the principal and interest added together, of £690 for three years, at 4½ per cent.? *Ans.* £777 19s. 6d.

No. 298. PUBLIC DEBT OF AMERICA. The public debt of America, says Mr. Cooper, is smaller in proportion to the present wealth and population of the United States, than the public debt of any other civilized nation. The expences of the government also are much less, in proportion to wealth and numbers, than those of any nation in Europe. Mr. Cooper's Information respecting America, p. 210. The same author, page 62, states the debt of America at £16,000,000 sterling. What is the annual interest, supposing it should be calculated at the unusual rate of 6¼ per cent. per annum? *Ans.* £1,000,000 sterling.

No. 299. ANNUAL INTEREST OF THE BRITISH PUBLIC DEBT, IN 1795. At the commencement of hostilities with America, in the year 1775, that most distinguished patriot, and friend to the great interests of mankind, the late venerable Dr. PRICE, very justly exclaimed against the insanity of involving this country in a war, when it was loaded with a debt of 150 millions sterling. The disgraceful issue, and fatal consequences of that unhappy contest, have been already adverted to*; and it might have been rationally supposed, that they would have been sufficient to have taught us wisdom, and to have deterred us from engaging hastily in another war. But unfortunately, as Mr. Morgan remarks, we seem incapable of receiving instruction, and are now involved in a warfare, which, after having been begun with a debt of 250 millions, has, in two campaigns only, increased this enormous burthen to the stupendous amount of £331,679,329!! Surely, continues Mr. M. the most zealous advocates of this *just and necessary war*, "will be forced to acknowledge, that the provocations and injuries we had sustained must have been very flagrant, to justify the waste even of so much treasure, exclusive of the more serious waste of human life, by which this war has been so remarkably distinguished." Were this inauspicious contest to be imme-

* See questions 211 and 216.

diately concluded, our ordinary expenditure would be at least 20 millions *per annum*; a sum, which is supposed to be two millions greater than the yearly rents of all the lands in the kingdom. See a small pamphlet entitled "A Review of the Finances of Great-Britain," &c. by W. MORGAN, F. R. S. Second Edition.

Out of the above-mentioned 20 millions of annual expenditure are to be deducted, according to Mr. Morgan, no less than £12,127,488 sterling for the liquidation of the interest of the national debt: What is the average rate per cent. agreeably to this statement? *Ans.* £3 13s. 1½d.

No. 300. COMMISSION. Commission is an allowance of so much per cent. to a factor, or correspondent abroad, for buying and selling goods for his employer.

What does the commission on £529 18s. 5d. come to at 2¼ per cent.? *i. e.* £2 5s. for every hundred pounds worth of goods bought or sold by the agent, or factor? *Ans.* £11 18s. 5½d.

N. B. Commission is sometimes charged at 1, 2, 3, 4, &c. and ½, ⅔, ⅘, or ⅞ per cent.; in which case the pupil has only to convert the given fraction into shillings and pence; *e. g.* ⅛ is one-eighth part of a pound, *i. e.* 2s. 6d; ⅓ are 7s. 6d; ⅕ are 12s. 6d. and ⅞ are 17s. 6d. The more common fractions are ¼, ½, or ¾; and these are severally 5s. 10s. or 15s.

No. 301. If a factor be allowed 7⅓ per cent. for commission, what will be his demand for laying out £1200. *Ans.* £91 10s.

No. 302. BROKERAGE. Brokerage is an allowance of so much per cent. to a person called a broker, for assisting merchants or factors in procuring or disposing of goods.

What is the brokerage of £610 at ¼ per cent.? *Ans.* £1 10s. 6d.

No. 303. INSURANCE. Insurance is a premium of so much per cent. given to certain persons and offices for a security of making good the loss of ships, merchandizes, houses, &c. which may happen from storms, being captured at sea in time of war, conflagration, &c. The premium on houses, &c. insured from fire, is from 2s. to 5s. per cent. according to the business, situation of the premises, &c. exclusively of the king's duty of 1s. 6d. per cent. The insurance upon ships, &c. from one port to another, varies according to the risk; and, in time of war, especially, is sometimes very high.

What is the insurance of goods valued at £900, at 10¼ per cent, from the port of London to Philadelphia in America? *Ans.* £96 15s.

No. 304. BUYING AND SELLING STOCK. Stock, as we have observed in question 211, is a general name for the capitals of our trading companies; and the purchasing and disposing of certain sums of money in those funds, is now become a general practice.

If £650 stock be purchased at 90⅓ per cent. and the broker be paid the usual sum of ⅛, or 2s. 6d. per cent. for his trouble, what does the whole amount to? *Ans.* £588 5s.

No. 305.

No. 305. **DISCOUNT.** Discount is an allowance made for the payment of any sum of money before it becomes due; and is the difference between that sum due some time hence, and its present worth.

The present worth of any sum of money, or debt, due some time hence, is such a sum as, if put to interest, would, in that time, and at the rate per cent. for which the discount is to be made, amount to the sum or debt then due: *e. g.* £100 present money would discharge a debt of £105 to be paid a year to come, discount being made at 5 per cent.

RULE. As £100 with the addition of the interest for the time given, is to that interest; so is the sum proposed in the question, to the discount required; which discount, subtracted from the given sum, leaves the present worth.

What are the discount and present worth of £573 15s. due 3 years hence, at $4\frac{1}{2}$ per cent.? *Ans.* £68 4s. 10 $\frac{1}{4}$ d. discount—£505 10s. 1 $\frac{3}{4}$ d. present worth.

No. 306. **BARTER, STARCH, and CURRANTS.** Barter is the exchanging of one commodity for another, and directs traders so to proportion their goods, that neither party may sustain loss.

STARCH is a sediment found at the bottom of vessels wherein wheat has been steeped in water. The best sort is white, soft, and friable; easily broken into powder. It is used to stiffen and clear linen, with stone blue, and its powder is employed to powder the hair.

CURRANTS, in commerce, are a small dried grape, properly, says Dr. Johnson, written *corinths*, from Corinth, in Greece, where they were first propagated; but this place now produces no more, the plantations having been long neglected. They are, at present, brought chiefly from the island of Zante*. They do not grow on bushes, but on vines, like other grapes.

How much starch at $11\frac{1}{2}$ d. per lb. must be given in barter for 20 cwt. of currants, at 8d. per lb.? *Ans.* 3 cwt. 1 qr. 25 lbs. 9 oz. $\frac{2}{6}$.

THE RULE OF THREE INVERSE

TEACHES, by having three numbers given, to find a fourth, that shall have the same proportion to the second as the third has to the first, in an inverted order.

R U L E.

State and reduce the terms as in the preceding rule: multiply the first and second terms together, and divide their product by the third; the quotient will be the answer to the question in the same denomination as that in which the second term was left.

* See question 288.

EXAMPLES.

No. 307. If 36 men can perform a piece of work in 12 days, how many days would 27 men require to complete the same? *Ans.* 16 days.

No. 308. SHALLOON. A flight woollen stuff, supposed to have received its name from Chalons-sur-Marne, in the department of Marne, France, where it still continues to be manufactured. What quantity of shalloon, 3 quarters of a yard wide, will line $7\frac{1}{2}$ yards of cloth that is $1\frac{1}{2}$ yard wide? *Ans.* 15 yards.

No. 309. If 100 workmen can finish a piece of work in 24 days, how many are sufficient to do the same in 6 days? *Ans.* 400.

No. 310. How many yards of linen, ell-wide, are equal to 19 yards of linen which is yard-wide? *Ans.* 15 yards. 0 qrs. 3 n. $\frac{1}{3}$.

No. 311. If a person lend another the sum of £200 for 12 months, how many months should the latter lend the former £150, to requite the obligation? *Ans.* 16 months.

No. 312. How many yards of stuff, 3 qrs. broad, will line a cloak that is $5\frac{1}{2}$ yards in length and $1\frac{1}{4}$ yard broad? *Ans.* 9 yards, 0 qrs. 2 nails $\frac{2}{3}$.

No. 313. How many yards of matting, 2 feet 6 inches wide, will cover a floor that is 27 feet long and 20 feet broad? *Ans.* 72 yards.

No. 314. CARPETS. The carpet manufacture is said to have been introduced into France from Persia, in the reign of Henry IV. The art was brought to London in 1750, by two men who quitted France in disgust, and came here to procure employment. This they obtained from the late Mr. Moore*, who, by risking a very considerable expence, succeeded in establishing this important and useful manufacture, and by whose ingenuity and perseverance it has been brought to a very high degree of perfection. We have also manufactories for carpets that are much esteemed at Axminster, Wilton, Kidderminster, and other places. How many yards of carpeting, 3 qrs. broad, will cover a room which is 3 yards in length and 4 in breadth? *Ans.* 16 yards.

* Mr. Moore built Moore-Place, which now forms the western side of Finsbury-Square, where he resided many years.

THE DOUBLE RULE OF THREE:

OR,

COMPOUND PROPORTION

TEACHES to resolve such questions as require two or more statings by simple proportion; and that whether they are direct or inverse. It is composed of five terms, or numbers, which are given to find a sixth.

RULE. Put the principal cause of loss or gain, increase or diminution, in the first place; that which denotes time, distance of place, &c. in the second; and the number immediately connected with these two in the third place. Place the two remaining terms under their like in the supposition. If the blank fall under the third term, multiply the first and second terms together for a divisor, and the other three for a dividend. But if it fall under the first or second term, multiply the third and fourth terms for a divisor, and the other three for a dividend, and in either case the quotient will be the answer.

EXAMPLES.

No. 315. **CONSTANTIA WINE.** This is a very rich sort of wine, brought from the Cape of Good Hope, a Dutch settlement at the southern extremity of Africa, and hence sometimes called Cape wine. The course to the East-Indies by this Cape was discovered in the year 1497, by Vasco de Gama, a celebrated Portuguese navigator. Previously to this æra the commercial intercourse between Europe and Asia was carried on by means of the Mediterranean sea, the isthmus of Suez, the Red Sea, &c.

If eight men were to drink 40 pints of Constantia in seven days, how many gallons would 24 men drink in 28 days, observing the same proportion. *Ans.* 60 gallons.

No. 316. **DIFFERENT SIZES AND SHAPES OF BOOKS.** A folio volume has the pages formed by a sheet of paper once doubled, making two leaves; a quarto has the sheet doubled twice, making four leaves; an octavo has the sheet folded into eight leaves; and a duodecimo into twelve leaves, &c. A pamphlet is a small book; properly a book fold unbound, only stitched. The first books were in the form of blocks and tables*; but as pliant materials came to be used, it was found more convenient to make them in the form of rolls, which appear to have been in use among the Jews, Grecians, and Romans, till some centuries after Christ. The shape which now obtains among us, though little known to the ancients, was invented by Attalus, king of Pergamos, to whom some ascribe the manner of preparing parchment†. It was one Philatius, a learned man at Athens, who first taught the use of a kind of glue, to fasten the several leaves together; on which account a statue was erected to him.

* See question 269. † See question 99.

If 1500 pamphlets, each containing 10 sheets of paper, consume 30 reams of paper in printing, how many reams will the same number of pamphlets require, each containing 12 sheets $\frac{1}{2}$? *Ans.* $37\frac{1}{2}$ reams.

No. 317. CINNAMON. An agreeable aromatic spice, growing only, at least till very lately, in the island of Ceylon, in the S. W. part of the bay of Bengal, Asia. The chief virtue of the cinnamon tree is in its bark. Its qualities are to heat and dry, to fortify the spirits, and to help digestion: but its chief use, in medicine, is as an astringent; with which intention it is prescribed in diarrhoeas, and weaknesses of the stomach. The whole commerce of cinnamon has been hitherto in the hands of the Dutch, to whom Ceylon appertains; but this valuable spice has been lately cultivated in Jamaica with such success, that it is expected, that, in a few years, we shall be supplied with a sufficient quantity from our West-India islands.

If 8 men in 14 days could prepare and plant 112 perches of ground with cinnamon trees, how many men must there be to plant 2000 perches in 10 days? *Ans.* 200 men.

PRACTICE

IS a contraction of the Rule of Three Direct, when the first term happens to be an unit, and has its name from its daily use among those concerned in trade; being an easy and concise method of working most questions that occur in business. An aliquot part of any number is that which being taken a certain number of times, does exactly make that number.

CASE I.

When the price is less than a penny, divide by the aliquot parts of a penny, and then by 12 and by 20, and it will give the answer required.

EXAMPLES.

3,456, at $\frac{1}{4}$? *Ans.* £3 12s. 347, at $\frac{1}{2}$? *Ans.* 14s. $5\frac{1}{2}d$.
846, at $\frac{3}{4}$? *Ans.* £2 12s. $10\frac{1}{2}d$. 810, at $\frac{1}{4}$? *Ans.* £2 10s. $7\frac{1}{2}d$.

CASE II.

When the price is an aliquot part of a shilling, divide the given number by the aliquot part, and the quotient will be the answer in shillings, which reduce into pounds as before.

EXAMPLES.

437, at 1d.? *Ans.* £1 16s. 5d. 352, at $1\frac{1}{2}d$? *Ans.* £2 4s.
5275, at 2d.? *Ans.* £43 19s. 2d. 1776, at 3d.? *Ans.* £22 4s.
6771, at 4d.? *Ans.* £112 17s. 899, at 6d.? *Ans.* £22 9s. 6d.

C A S E III.

When the price is pence and farthings, and those not an aliquot part of a shilling, divide the given number by some aliquot part of a shilling, and then consider what part of the said aliquot part the rest of the price is, and divide the quotient thereby: add the several quotients together, and their sum will be the answer in shillings, which reduce into pounds.

E X A M P L E S.

372, at $1\frac{3}{4}d.$? *Ans.* £2 14s. 3d. 325, at $2\frac{1}{4}d.$? *Ans.* £3 0s. 11 $\frac{1}{4}d.$
 827, at $4\frac{1}{2}d.$? *Ans.* £15 10s. 1 $\frac{1}{2}d.$ 2700, at $7\frac{1}{4}d.$? *Ans.* £81 11s. 3d.
 2150, at $9\frac{1}{4}d.$? *Ans.* 87 6s. 10 $\frac{1}{2}d.$ 1720, at $11\frac{1}{2}d.$? *Ans.* £82 8s. 4d.

C A S E IV.

When the price is any even number of shillings under 20, multiply the given number by half of it, doubling the first figure to the right-hand for shillings, and the other figures are pounds.

When the price is an odd number, multiply the given quantity by the price, and divide by 20, the product will be the answer.

E X A M P L E S.

2757, at 1s.? *Ans.* £137 17s. 2643, at 2s.? *Ans.* £264 6s.
 3275, at 5s.? *Ans.* £818 15s. 872, at 8s.? *Ans.* £348 16s.
 372, at 11s.? *Ans.* £204 12s. 5271, at 14s.? *Ans.* £3689 14s.
 3142, at 17s.? *Ans.* £2670 14s. 264, at 19s.? *Ans.* £250 16s.

C A S E V.

When the price is shillings and pence, which make some aliquot part of a pound, divide the given quantity by the aliquot part, and the quotient will be the answer in pounds.

E X A M P L E S.

7150, at 1s. 8d.? *Ans.* £595 16s. 8d.
 3150, at 3s. 4d.? *Ans.* £525.
 2715, at 2s. 6d.? *Ans.* £339 7s. 6d.
 2710, at 6s. 8d.? *Ans.* £903 6s. 8d.

C A S E VI.

When the price is shillings and pence, which make no aliquot part of a pound, bring out the answer the shortest way that can be done, either by working for an even number of shillings and other aliquot parts; or by dividing the price into several parts, either of the given number, or of one another; but when this method would occasion much work, it will be better to multiply the quantity by the shillings, and take parts for the pence, which added together will give the answer in shillings.

EXAMPLES.

E X A M P L E S.

7211, at	1s. 3d.?	<i>Anf.</i> £450	13s. 9d.
801, at	10s. 9d.?	<i>Anf.</i> £430	10s. 9d.
807, at	16s. 5d.?	<i>Anf.</i> £662	8s. 3d.
2710, at	3s. 2d.?	<i>Anf.</i> £429	1s. 8d.
841, at	13s. 2d.?	<i>Anf.</i> £553	13s. 2d.
969, at	19s. 11d.?	<i>Anf.</i> £964	19s. 3d.

C A S E VII.

When the price is shillings, pence, and farthings, divide the price into aliquot parts of a pound, or of one another, and the sum of the quotients will be the answer.

E X A M P L E S.

875, at	1s. 4 $\frac{1}{4}$ d.?	<i>Anf.</i> £61	1s. 4 $\frac{1}{4}$ d.
3715, at	9s. 4 $\frac{1}{2}$ d.?	<i>Anf.</i> £1741	8s. 1 $\frac{1}{2}$ d.
1603, at	16s. 10 $\frac{1}{2}$ d.?	<i>Anf.</i> £1352	10s. 7 $\frac{1}{2}$ d.
7524, at	3s. 5 $\frac{1}{2}$ d.?	<i>Anf.</i> £1301	0s. 6d.
2572, at	13s. 7 $\frac{1}{2}$ d.?	<i>Anf.</i> £1752	3s. 6d.
2710, at	19s. 2 $\frac{1}{2}$ d.?	<i>Anf.</i> £2602	14s. 7d.

C A S E VIII.

When the price is pounds, shillings, pence, and farthings, multiply the given number by the pounds, and work for the rest the shortest way pointed out in the foregoing rules.

E X A M P L E S.

137, at	£ 1 17s. 6 $\frac{1}{4}$ d.?	<i>Anf.</i> £257	0s. 4 $\frac{1}{4}$ d.
947, at	£ 4 15s. 10 $\frac{1}{4}$ d.?	<i>Anf.</i> £4538	13s. 10 $\frac{1}{4}$ d.
457, at	£14 17s. 9 $\frac{1}{2}$ d.?	<i>Anf.</i> £6804	10s. 9 $\frac{1}{2}$ d.

C A S E IX.

When the quantity whose price is required is of several denominations, multiply the price by the number in the highest denomination, and take the same parts of the price for the rest as they are of an unit in the highest number: adding these together will give the answer.

E X A M P L E S.

37 cwt. 2 qrs. 14 lb. at	£7 10s. 9d. per cwt.	<i>Anf.</i> £283	11s. 11 $\frac{1}{2}$ d.
17 cwt. 1 qr. 12 lb. at	£1 19s. 8d. per cwt.	<i>Anf.</i> £34	8s. 6d.
23 cwt. 3 qrs. 8 lb. at	£3 19s. 11d. per cwt.	<i>Anf.</i> £95	3s. 8 $\frac{3}{4}$ d.
39 cwt. 0 qr. 10 lb. at	£1 17s. 10d. per cwt.	<i>Anf.</i> £73	18s. 10 $\frac{3}{4}$ d.

ARITHMETICAL TABLES.

NUMERATION.

9	8	7	6	5	4	3	2	1
C. Millions . . .	X. Millions . . .	Millions	C. Thousands . . .	X. Thousands . . .	Thousands	Hundreds	Tens	Units
187,432,965,315,123,648,987,312,894,432.								
Quadrillions . .	Trillions	Billions	Millions	Units				

Farthings.		Pence.			Shillings.		
Qrs.	D.	D.	S.	D.	S.	£	S.
4 1		12 0			20 0		
5 1 $\frac{1}{4}$		18 6			30 10		
6 1 $\frac{1}{2}$		20 8			40 2 0		
7 1 $\frac{3}{4}$		24 2 0			50 2 10		
8 2		30 2 6			60 3 0		
9 2 $\frac{1}{4}$		36 3 0			70 3 10		
10 2 $\frac{1}{2}$		40 3 4			80 4 0		
11 2 $\frac{3}{4}$		48 4 0			90 4 10		
12 3		50 4 2			100 5 0		
13 3 $\frac{1}{4}$		60 5 0			110 5 10		
14 3 $\frac{1}{2}$		70 5 10			120 6 0		
15 3 $\frac{3}{4}$		72 6 0			130 6 10		
16 4		80 6 8			140 7 0		
17 4 $\frac{1}{4}$		84 7 0			150 7 10		
18 4 $\frac{1}{2}$		90 7 6			160 8 0		
19 4 $\frac{3}{4}$		96 8 0			170 8 10		
20 5		100 8 4			180 9 0		
21 5 $\frac{1}{4}$		108 9 0			190 9 10		
22 5 $\frac{1}{2}$		110 9 2			200 10 0		
23 5 $\frac{3}{4}$		120 10 0			L. Libræ Pounds		
24 6		130 10 10			S. Solidi Shillings		
$\frac{1}{4}$ a Farthing		132 11 0			D. Denarii Pence		
$\frac{1}{2}$ two Farthings		140 11 8			Qrs. Quadrantes Frs.		
$\frac{3}{4}$ three Farthings		144 12 0					
		150 12 6					

M U L T I P L I C A T I O N.											
1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42	49	56	63	70	77	84
8	16	24	32	40	48	56	64	72	80	88	96
9	18	27	36	45	54	63	72	81	90	99	108
10	20	30	40	50	60	70	80	90	100	110	120
11	22	33	44	55	66	77	88	99	110	121	132
12	24	36	48	60	72	84	96	108	120	132	144

O B S E R V A T I O N S

O N

W E I G H T S A N D M E A S U R E S.

BY the 27th chapter of MAGNA CHARTA, the weights are to be the same all over England; but for different commodities there are two different sorts, viz. *Troy Weight*, and *Avoirdupois Weight*. The origin, from which they are both derived, is the grain of wheat, gathered in the middle of the ear: 32 of these well dried made one penny-weight, 20 penny weights 1 oz. and 12 oz. 1 lb. troy. Stat. 51. Hen. III. 31 Edw. I. 12. Hen. VII.

A learned writer has shewn, that by the laws of assize, from William the Norman to the reign of Henry VII. the legal pound weight contained a pound of 12 ounces raised from 32 grains of wheat; and the legal gallon measure invariably contained 8 of these pounds of wheat; and eight such bushels made a quarter.

Henry

Henry VII. altered the old English weight, and introduced a pound, under the name of Troy, which exceeded the old Saxon pound by $\frac{3}{4}$ ths of an ounce. This troy pound, now in use, consisting of 12 ounces, contains 5760 troy grains; and the ounce therefore contains 480.

Although formerly 32 grains made a penny-weight, it has in later times been thought sufficient to divide the penny-weight into 24 equal parts called grains, being the least weights now in use.

The first statute, which directs the use of the *avoirdupois weight*, is that of 24 Henry VIII. which plainly implies that it was no legal weight till that gave it a legal sanction; and the particular use, to which the said weight is thus directed, is simply for weighing butcher's meat in the market. How or when it came into private use is not certainly known. The act which enacted that beef, pork, mutton, and veal, should be sold by avoirdupois weight, passed A. D. 1533.

Rapin, vol. vi. p. 368.

The moneyers, jewellers, &c. have a particular class of weights, for gold, and precious stones, viz. carat, and grain; and for silver, the penny-weight and grain.

Cyclopædia.

MEASURES. Measure in a legal, commercial, and popular sense, denotes a certain quantity or proportion of any thing, bought, sold, valued, or the like.

The regulation of WEIGHTS and MEASURES ought to be universally the same throughout the kingdom; and should, therefore, be reduced to some fixed rule or standard; the prerogative of fixing which was vested, by our ancient law, in the crown. This standard was originally kept at Winchester: and we find, in the laws of king Edgar, cap. viii. nearly a century before the conquest, an injunction, that the one measure, which was kept at Winchester, should be observed throughout the realm. With respect to measures of length, our ancient historians inform us, that a new standard of longitudinal measure was ascertained by Henry I. who commanded that the ulna, or ancient ell, which answers to the modern yard, should be made of the exact length of his own arm: and one standard of measures of length being once gained, all others are easily derived from hence; those of greater length by multiplying, those of less by subdividing the original standard. Upon these principles the standards were first made; which, being originally so fixed by the crown, their subsequent regulations have been generally made by the king in parliament. Thus, under Richard I. in his parliament holden at Westminster, A. D. 1197, it was ordained, that there should be only one weight and one measure throughout the kingdom, and that the custody of the assize, or standard of weights and measures, should be committed to certain persons, in every city and borough. In king John's time, this ordinance was frequently dispensed with for money; which occasioned a provision to be made for enforcing it, in the great charters of king John and his son.

The

The statute of Magna Charta, cap. 25, ordains, that there shall be but one measure throughout England, according to the standard of the Exchequer. By 17 Car. I. cap. 19, there is to be one weight and measure, and one yard; and whosoever shall keep any other weight or measure, whereby any thing is bought or sold, shall forfeit for every offence 5s. And by 22 Car. II. cap. 8, water measure, as to corn and grain, or salt, is declared to be within the statute 17 Car. I. And if any sell grain or salt, &c. by any other bushel, or measure, than what is agreeable to the standard in the Exchequer, commonly called Winchester measure, he shall forfeit 40s. &c. Notwithstanding these statutes, in many parts of the kingdom there are different measures of corn and grain; and the bushel in one place is larger than in another: but the lawfulness of it is not well to be accounted for, since custom or prescription is not allowed to be good against a statute. Selling by false measure being an offence by common law, may be punished by fine, &c. upon an indictment at common law, as well as by statute.

Measures are various, according to the various kinds and dimensions of the things measured. Hence arise

Measures, lineal or longitudinal, for lines or lengths; measures, square, for areas or superficies; and measures, solid or cubic, for bodies and their capacities. All which again are very different in different countries, and in different ages, and even many of them for different commodities.

Cyclopædia.

Scales and measures are said to have been invented by Phidon 869 years before the birth of our Saviour.

Chron. Tab. Ency. Brit.

Phidon was king of Argos, an ancient kingdom in Greece, and brother to Caranus the first king of the Macedonians. An author, cited by Eusebius, attributes to this Phidon the invention of weights and measures.

Dict. de Moreri.

TABLES OF WEIGHTS AND MEASURES.

T R O Y Weight.

24 grains make	.....	1 penny weight
20 penny weights	....	1 ounce
12 ounces	.....	1 pound

By this weight are weighed jewels, gold, silver, silk, and all liquors.

We may here observe, that a troy pound of gold is worth 46l. 14s. 6d. for 44 guineas are coined from each pound of the mint. A troy ounce is worth 3l. 17s. 10d $\frac{1}{2}$. in coinage standard.

The troy pound of silver, coinage standard, is worth 3l. 2s. an ounce is worth 5s. 2d. a penny weight is worth 3d. and 4-10th parts of a farthing; and a grain is worth about half a farthing.

Cyclopædia.

N. B. 14 ounces, 11 penny weights, and 16 grains troy, are equal to a pound avoirdupois; or the proportion of a pound troy to a pound avoirdupois is as 14 to 17; the former pound containing 5760 grains, and the latter 7000.

A V O I R D U P O I S Weight.

16 drams make	.....	1 ounce
16 ounces	.....	1 pound
28 pounds	.....	1 quarter
4 quarters	.....	1 cwt.
20 hundred weight	.....	1 ton

By this weight are weighed all coarse and heavy goods, as pitch, tar, rosin, tallow, &c. copper, tin, &c. flesh, butter, &c. and also bread by 31 Geo. II. and all grocery wares: and Dr. Ward supposes, that, from this use of it, it was first introduced; as it was customary to allow larger weight of such goods than the law had expressly enjoined; and this, he says, happened to be about a sixth part more.

N. B. An avoirdupois pound contains 1 lb. 2 oz. 11 dwts. 16 grs. troy.

A P O T H E C A R I E S Weight.

20 grains make	.....	1 scruple
3 scruples	.....	1 dram
8 drams	.....	1 ounce
12 ounces	.....	1 pound

Apothecaries use this weight in compounding their medicines, but they buy their drugs by avoirdupois weight.

The pound and ounce of the apothecaries, and the pound and ounce troy, are the same, only differently divided and subdivided.

C L O T H Measure.

2 $\frac{1}{4}$ inches make	.....	1 nail
4 nails	.....	1 quarter
4 quarters	.....	1 yard
3 quarters	.....	1 ell Flemish
5 quarters	.....	1 ell English
6 quarters	.....	1 ell French

The yard is used in measuring all sorts of woollen cloths, wrought silks, most linens, tapes, &c. The ell English is employed in measuring some particular linens, called hollands; and the ell Flemish in measuring tapestry.

L O N G Measure.

3 barley corns in } length make }	.....	1 inch
4 inches	.....	1 hand's-breadth
12 inches	.....	1 foot
3 feet	.....	1 yard
6 feet	.....	1 fathom
5 $\frac{1}{2}$ yards	.....	1 pole
40 poles	.....	1 furlong
8 furlongs	.....	1 mile
3 miles	.....	1 league
60 geographical miles, or 69 $\frac{1}{2}$ statute miles }	.....	1 degree
360 degrees the circumference of the earth	.....	

Long measure is used to measure the distance of places, or any thing else where length is considered without regard to breadth.

CUBIC

C U B I C Measure.

1728 cubic inches make 1 cubic foot
27 cubic feet..... 1 cubic yard

SQUARE or LAND Measure.

144 square inches make	1 square foot
9 square feet.....	1 square yard
30 $\frac{1}{4}$ square yards.....	{ 1 square pole, or perch.
40 square poles.....	
4 square roods.....	1 square acre

Land measure is used to measure ground in order to find the contents in acres, &c.

D R Y Measure.

2	pints make.....	1	quart
2	quarts.....	1	pottle
2	pottles.....	1	gallon
2	gallons.....	1	peck
4	pecks.....	1	busheľ
8	busheľs.....	1	quarter
5	quarters.....	1	wey or load
4	busheľs.....	1	coomb
5	pecks (water measure)	1	busheľ
10	coombs.....	1	wey
2	weys.....	1	last
36	busheľs.....	1	chaldron

By this measure, coals, salt, lead-ore, oysters, corn, feeds, fruits, roots, and other dry goods are measured.

W I N E Measure.

2 pints make.....	1 quart
4 quarts.....	1 gallon
10 gallons.....	1 anker of brandy
42 gallons.....	1 tierce
63 gallons.....	1 hoghead
84 gallons.....	1 puncheon
2 hogheads.....	1 pipe or butt
2 pipes.....	1 tun

By this measure, spirits, perry, cyder, mead, vinegar, oil, &c. are measured. Milk is also retailed by this standard, not by law, but custom only.

A L E and B E E R Measure.

2 pints make.....	1 quart
4 quarts.....	1 gallon
8 gallons.....	1 firkin of ale
9 gallons.....	1 firkin of beer
2 firkins.....	1 kilderkin
2 kilderkins.....	1 barrel
3 kilderkins.....	1 hogshead
3 barrels.....	1 butt

N. B. 48 gallons of ale, or 54 gallons of beer, make an hogshead.

T I M E.

60 seconds make.....	1 minute
60 minutes.....	1 hour
24 hours.....	1 day
7 days.....	1 week
4 weeks.....	1 month
52 weeks, 1 day.....	1 year
12 calendar months.....	1 year
13 lunar months, 1 day..	1 year

N. B. The calendar months, by which we reckon time, are unequally of 30 or 31 days, excepting February, which is of 28, and in leap-year of 29 days.

The addition of a day in the month of February is made every fourth year, to recover the six hours which the sun spends in his course each year, beyond the 365 days ordinarily allowed for it.

Cyclop. Art. Biff. xtile.

The year, in which the above-mentioned intercalation takes place, is called leap-year, because a day of the week is missed; as, if on one year the first of March be on Monday, it will on the next year be on Tuesday, but on *leap-year* it will *leap* to Wednesday.

A lunar month contains 28 days, being the time which the moon takes in revolving round the earth.

A solar month is the space of time in which the sun passes through a sign of the zodiack.

A solar year, according to the usual computation, contains 365 days 6 hours: but the exact time, in which the earth performs its annual revolution round the sun, is 365 days, 5 hours, 48 minutes, and $45\frac{1}{2}$ seconds.

W O O L Weight.

7 lbs. make.....	1 clove
2 cloves.....	1 stone
2 stones.....	1 tod
6½ tods.....	1 wey
2 weys.....	1 fack
12 facks.....	1 last

B R E A D.

	lb.	oz.	dr.
A peck loaf weighs.....	17	6	i
A half peck loaf.....	8	12	0
A quartern loaf.....	4	5	8

N. B. Avoirdupois.

PRAC-

PRACTICE TABLE.

The aliquot Parts of a Pound.		
s.	d.	
10	0	are the..... half
6	8	 third
5	0	 fourth
4	0	 fifth
3	4	 sixth
2	6	 eighth
2	0	 tenth
1	8	 twelfth
The aliquot Parts of a Shilling.		
d.		
6		are the..... half
4		 third
3		 fourth
2		 fifth
1½		 eighth
1		is the..... twelfth
The aliquot Parts of a Ton.		
cwt.		
10		are the..... half
5		 fourth
4		 fifth
2½		 eighth
2		 tenth.
The aliquot Parts of an Hundred.		
grs.	lbs.	
2	or 56	are the..... half
1	or 28	 fourth
14		 eighth
The aliquot Parts of a Quarter.		
lbs.		
14		are the..... half
7		 fourth
4		 seventh
3½		 eighth

N. B. Aliquot parts are parts of any number or quantity, such as will exactly measure it without any remainder: as 3 is an aliquot part of 12, because, being taken 4 times, it will just measure it.

JOHNSON'S *Dict.*

The Weight of Current Coins as coined.

G O L D.

	dwt.	grs.
A guinea	5	9½
Half a guinea.....	2	16½
Quarter ditto	1	8½
The standard for gold coin is 22 carats of fine gold and 2 carats of copper melted together.		

S I L V E R.

	dwt.	grs.
A crown	19	8½
Half ditto	9	16½
A shilling.....	3	21
A sixpence	1	22½
The standard for silver is 12 ounces 2 pennyweights of fine silver and 18 pennyweights of copper.		
WEIGHTS CURRENT.		
A guinea.....	5	8
Half a guinea.....	2	16
Quarter ditto	1	8

A T A B L E.

Of the customary Weight of Goods.

	lbs.
A firkin of butter is.....	56
A firkin of soap.....	64
A barrel of pot ashes.....	200
A barrel of anchovies.....	30
A barrel of candles.....	120
A barrel of soap	256
A barrel of butter.....	224
A fother of lead is 19 cwt. and a half	
A stone of iron.....	14
A stone of butcher's meat.....	8
A gallon of train oil	7½
A faggot of steel	120
A stone of glass.....	5
A seam of glass is 24 stone, or....	
	120

H A Y.

56 lbs. of old hay....	} make a truss
60 lbs. of new hay ..	
36 trusses.....	make a load

C O A L Measure.

4 Pecks make.....	1 bushel
9 bushels.....	1 vat or strike
36 bushels.....	1 chaldron
21 chaldrons.....	1 score

The NUMBER of DAYS in each MONTH, says Dr. Watts*, are engraven on the memory of thousands by these four lines:

*Thirty days have September,
June and April and November;
February twenty-eight alone,
And all the rest have thirty-one.*

* Improvement of the Mind.

I N D E X

O F

PERSONS, PLACES, AND THINGS,

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