Samuel Billington
His Book gad give him grace ther intodock
Peter Cochard, Jr.
May the 3 1798

Peter Cochard, Jr.
May the 3 1798

J.

J.

J.
Jacob Shew is my name
Johnstown is my Station
Christ is my Salvation
and Heaven is my Dealing
Peace and When I am Dead
and gone and all my bones
are Rotten Remember
me when this you See so
that I be not forgotten

Jacob Shew Warsborn
in the Year of our Lord
1763 and the 15 of
April
Lodwick. D. Stevens, his book god gives him grace there in to look when the bells for him doth the Lord have mercy on his son. pore. July 1794.
Lodwick. D. Stevens was born -- July 24. 1777.
Samuel Billington, his last you give him grace
there into rock and when
the Bell hath for him tolle
the Lord have mercy on
His Soul
Samuel Billington
His Book September 19
Anna 1712
Amasa Terrance 1713
His book 1st June
C.P. Stein (Bok)
1836
*Tis to the Press and Pen we Mortals owe
All we believe, and almost all we know:
All hail! ye great Preservers of those Arts,
That raise our Thoughts, and cultivate our Parts.
THE
American Instructor:

OR,

Young Man's Best Companion.

CONTAINING,

Spelling, Reading, Writing and Arithmetic, in an easier Way than any yet published; and how to qualify any Person for Business, without the Help of a Master.

Instructions to write Variety of Hands, with Copies both in Prose and Verse. How to write Letters on Business or Friendship. Forms of Indentures, Bonds, Bills of Sale, Receipts, Wills, Leaves, Releases, &c.

Also Merchant's Accompts, and a short and easy Method of Shop and Book-keeping; with a Description of the several American Colonies.

Together with the Carpenter's plain and exact Rule; shewing how to measure Carpenters, Joiners, Sawyers, Bricklayers, Plasterers, Plumbers, Masons, Glaziers, and Painter's Work. How to undertake each Work, and at what Price; the Rates of each Commodity, and the common Wages of Journeymen; with Gunter's Line, and Coggehal's Description of the Sliding Rule.

Likewise the Practical Gauger made easy; the Art of Dialing, and how to erect and fix any Dial; with Instructions for Dying and Colouring, and making Colours.

To which is added,

The Poor Planter's Physician.

With Instructions for Marking on Linen; how to Pickle and Preserve; to make divers Sorts of Wine; and many excellent Plasters and Medicines, necessary in all Families.

And also

Prudent Advice to young Tradesmen and Dealers.

The whole better adapted to these American Colonies, than any other Book of the like Kind.

By George Fisher, Accouptant.


New York:

Printed and sold by H. Gaine, at the Bible and Crown, in Hanover-Square, M,DCC,LXX.
I need say but little by way of Preface, in relation to the Usefulness of this Book, the Title Page so fully declaring its Contents: But as a Preface is usually expected, I must and cannot well avoid saying something with respect to its Utility.

As to the first Step of forming the young Man's Mind for Business, viz. The being instructed in, and acquainted with our Mother Tongue, viz. English, it must and is acknowledged by all, to be a due and principal Qualification in writing Business, and therefore it is necessary to be there-with well acquainted.

Then in the next Place, to write a good, fair, free, and commendable Hand, is as necessary in most, if not in all the Affairs of Life, and Occurrences of Business.

The next Thing touched on, is in relation to the inditing of some few Epistles or Letters in a familiar Stile, and on Jundy Subjects and Occasions: With Directions how to subscribe or conclude a Letter, and also to superscribe or direct Letters, according to the different Ranks and Qualities of the Persons to whom directed: And this cannot be deny'd but to be a Qualification fit for a young Man, and also to others of more adult Years.

The next Accomplishment for a young Man, and largely treated on in this Book, is that excellent Science of Arith-

metick,
metick, both Vulgar and Decimal: Leading him by the
Hand, and by easy Steps, through its whole Course.

Again, the young Man is next shown the ingenious Art of
Book-keeping after the Italian Manner, by way of Double
Entry; and that is an Accomplishment that capacitates him
for Business in the highest Degree: Under which Head, he
is also informed how to draw out or make various Sorts of
Accompts or Writings, relating to Mercantile Affairs; as
Bills of Loading, Invoices, Accompts of Sales, together with
authentic Examples of Bills of Exchange, with Notes con-
cerning them; likewise Bills of Parcels of divers Kinds;
also various Sorts of Receipts, &c. All which is expedient
for a young Man to know and understand, if he would be
dextrous in Business.

Next he hath a concise Account of the several American
Colonies; with a short but comprehensive Account of all the
Arts and Sciences: An historical Table of the most remark-
able Events that have happened in the World; and an Ab-

Here are also, easy, plain, and likewise curious Direc-
tions for measuring all Sorts of Planes and Solids (Arithme-
tically and Instrumentally) as the Works of Carpenters, Joi-
ners, Sawyers, Bricklayers, Masons, Plaisterers, Painters,
Glañers, &c. with the Prices of their Works.

Here is likewise shown the Methods, of extracting the
Square and Cube Roots, with some of their Uses, in relation
to Measuring, &c.

Also Practical Gauging of divers Kinds of Vessels, Tuns,
&c. Likewise Dialling in various Kinds, with the Represen-
tation of the several Sorts of Dials, and how to beautify
and adorn them.

Next are Precedents of Law Writings, as Bonds, Bills,
Indentures, Wills, Letters of Attorney, &c. in great Va-

ty, and adapted to these American Colonies.

Lastly, some Directions relating to the pleasant and de-
lightful Art of Grafting and Inoculating. To which is sub-
joined, some Instructions to young Women how to Pickle and
Preserve all Kinds of Fruits and Flowers, &c. with In-
structions for making divers Sorts of Wines of English
Growth:
Growth; and also for preparing many excellent Medicines, Plaisters, &c. with several good Prescriptions of proper Use against most Distempers: Fit for, and necessary in, all Families. Including the whole of that useful little Tract, intitled, The Poor Planter’s Physician.

To the whole is added, some prudential Advice to a young Tradesman or Dealer, which, if observ’d, may, with God’s Blessing, make his Fortune.

In the British Edition of this Book, there were many Things of little or no Use in these Parts of the World: In this Edition those Things are omitted, and in their Room many other Matters inserted, more immediately useful to us Americans. And many Errors in the Arithmetical Part are here carefully corrected.

Vale & Fruere.
INSTRUCTIONS FOR YOUTH, To Spell, Read, and Write TRUE ENGLISH.

The Use of Great and Small Letters; how to divide them into Vowels and Consonants; what Diphthongs are, their Numbers, and how pronounced and written.

The Subject Part of this Book being to instruct Young (as well as Old) People, in the general Rules of Business and Conversation thereof belonging, the first Step I shall take for forming the Mind for Business, is that most necessary Accomplishment, the Spelling and Writing good and proper English; for let a Person write never so good a Hand, yet if he be defective in Spelling, he will be ridiculed and contemptibly smiled at, notwithstanding his fair Writing; and which will, indeed, make his Orthographical Faults be more conspicuous. But to the Matter.

First, We are to take Notice, that of Letters are made Syllables, of Syllables Words, and of Words, Sentences, &c.

The Letters are in Number 24; to which if you add j and v Consonants, being of a different Shape and Sound from the rest, they make 26. As to the Letters, we are to observe their Names, their Form, and their Force: Their Names, whereby to know them; their Form, whether great or small; and their Force in Pronunciation or Utterance.
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Letters are distinguished, according to their Sound, into Vowels and Consonants: A Vowel is a Letter that foundeth by itself, and they be five in Number, viz. a, e, i, o, u, and y, the Greek Vowel; which also is a Vowel in English, when it cometh after a Consonant, and hath the Sound of i; as in by, fly, reply, &c. A Consonant is a Letter that foundeth not, except it be joined with a Vowel, for without one of the Vowels no Syllable can be made; as, b, c, d, &c. without the Aid of a Vowel, make nothing: So that Vowels and Consonants may be compared to Nouns Substantive and Nouns Adjective, each requiring the other’s Assistance. Though we have but 24 Letters, and 6 of them Vowels, yet we have 21 Consonants; for j, w, and y, when they are set before any Vowel, in the same Syllable, become Consonants; as was said before concerning y; as in Jupiter, Juno, Jill, vulgar, violent, vigour, &c. Note, That j Consonant hath the Sound of g, as in join, jangle, jingle, &c.

When two Vowels come or meet together in a Word, and are not parted in the Pronunciation, but united in one Sound, such are called Diphthongs; being 13, viz. ai, ei, oi, and ui, au, eu, ou, ee, oo, ea, oe, oa, and ei; as in maid, faith, either, join, auld, eunuch, scout, seed, feed, food, bread, health, wealth, people, seeple, boat, goat, heat, heat, feat, friend, field, &c. Note, That in the first 7 Words, both Vowels are founded; but in the other 15, one of them is scarcely heard.

There are also those that are called Triphthongs, where three Vowels meet in one Sound, as in Beauty, Beau, Lieut; and View: Likewise ay, ey, oy, wy, arw, ew, and ow become Diphthongs, at the End of Words, but are called improper Diphthongs; as in say, key, joy, saw, bow, &c.

Of Letters Great and Small, and when to be used.

FIRST Negatively, Great Letters are not to be used in the Middle or latter End of a Word, except the whole Word be so written, as JEHOVAH, LORD, or Titles of Books, &c. For it would be very absurd to write thus: To Mr. geoRgE RoGeRs In theMes StReEt.

1st, Great Letters, or Capitals, are written at the Beginning of Sentences; as, Fear God, Honour the King. Know when to speak, and when to hold your Tongue.

2dly, After every Period, or Full Stop, when new Matter begins. As, Some Time after that Accident, another fol-

lowed,
lowed, which was this, &c. London, May 16. Turin, June 12, &c.

3dly, All Proper Names of Persons, Places, Ships, Rivers, &c. are to begin with a Capital; as, George, London, the Dreadnought, Thames, Severn: All Christian Names and Surnames, both of Men and Women, must begin with a Great Letter; as, Samuel, Sharp, Mary Sweeting, &c.

4thly, The more eminent Words in a Sentence; as, Faith is the Foundation of the Christian Religion; or, any Word that we have a particular Regard or Deference for; as, God, Christ, King, Queen, &c.

5thly, At the Beginning of every Line in Poetry; as,

Improve your Time: Time passeth quickly on;

Nor doth so good succeed, as that that's gone.

6thly, All Names of Arts, and Sciences, and Trades; as, Writing, Arithmetick, Geometry, Musick, Carpenter, Smith, &c. And evermore the Personal Pronoun I, and the Interjection O, must be Capitals.

For it is ridiculous to write thus; On Monday last I came to your House, but you was not at Home; then I went, &c.

Lastly, I think I may venture to give a general Rule when Capitals are to begin Words, which is this; All Nouns Substantive may begin with a great Letter; and a Substantive may be known by the Signs either of A, An, or The, before them; as, a House, a Mill, an Ox, an Afs, the City, the River, &c. And I think the Adjective (which declares what Sort of a Thing the Substantive is) may be with a Small, and the Substantive with a Great Letter; as, the white Horse, the long Rope, brown Bread, fat Beef, &c.

Small Letters are commonly written in all other Places, as Verbs of the Active and Passive Voice, &c.

Observations concerning the Sound of Letters, and which are omitted in Pronunciation.

A is not founded in Pharoah, nor in Sabbath, but as if written Pharo and Sabbath; neither in Marriage, but as Marrige, also Parliament, as Parliment, and Chaplain, as Chaplin, &c. In some proper Names it is not founded, but drop'd in the Pronunciation; as in Aaron, Isaac, Canaan, Balaam, which are pronounced as if written, Aron, Isac, Canan, Balam; but we must except Ba-al, and Ga-al. A is founded broad like aw, in Words before ld and ll; as in bald, scald, ball, wall, fall, &c.
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B is not founded in thumb, dumb, plumb, lamb, doubt, debt, subtle, &c. but founded as if written thum, dum, plum, lam, doubt, det, settle.

C is founded hard like K, before a, o, and u, and before l and r; as in these Words, cane, came, comb, cub, clay, crane, crab; and soft in cement, city, and tendency; C lengthens its found in scene, science, and vietauors, and in verdict, likewise in indiet, indietment; also before k, as in stack, rack, thick, thick, brick.

Ch is founded like K, in Words of Foreign Extraction, and in many proper Names of the holy Scripture; as in Chorus, Chymist, Chrysofom, Christ, Chederlaomer, Baruch, Archippus, &c. Ch in French Words found like sh, as in Chevalier, pronounced as Shevalier: Machine as Mafheen. Mareschal as Marshal, Capuchin as Capusheen, Chaise as Shaze, &c.

D is not founded in Ribband, nor in Wednesday, but pronounced as Ribbin, and Wednesday; the Termination ed is shortened into t, as burned, burnt, choaked, choakt; ripped, ript; passed, past; chopped, chopt; &c.

E is not founded in heart, neither in heart, or dearth, &c. and seldom heard but in Monosyllables; as in me, he, she, ye, the, &c. where it hath the Sound of ee; but in Words, derived from the Hebrew and Greek, e hath its perfect Sound as Jefé, Jubile, Mamre, Nineve, Canlase, Cloe, Eunice; Penelopje, Salmone, Phlebe, Epitome, Catastrofe, Gethofane, and from the Latin, simile, and premunire, &c. E final, or e at the End of a Word, serves to lengthen the Sound, and to distinguish it from other Words without e, which are founded short; as in these Examples following, viz. Cane, can; baie, bat; lite, bit; fare, far; hope, hop; made, mad; mane, man; scrape, scrap; sta, sta; tune, tum; write, writ; &c. And in Words of more than one Syllable, lengthens the Sound of the last Syllable, but doth not increase the Number of Syllables; as, admire, demise, blaspheme, &c. E lengthens the Syllable in Tyre, Konite, and Shu-la-mite, E must not be made to lengthen a Syllable, when it is made short by two Consonants; as in pass, turn, black; not past, turne, blakke. Words ending in cre, gre, and tre, found the e before the r, as in these Words; acre, lucre, centre, sepulbre, tygre, mangre, mitre, lustre; which are founded as if written aker, luken, senier, sepulker, tyger, mauger, miter, and lustre. E final, when not founded, serves to soften e and
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g, as in ace, place, lace, spice, truce, oblige, huge, age, &c.

If Nouns in e final take s after them with an Apostrophe before it, it stands for his, as the Pope’s Eye, or the Eye of the Pope. If without an Apostrophe, it makes the Plural Number, as Tables. E must be joined to long i in these Words; Horse, Nurse, Purse; not Hors, Nurs, or Purs. If to e at the End of a Word, a long Vowel be added, the e is to be omitted, as in writing, loving, doing, &c. not writeing, loveing, or doeing; except the Terminations ge and ce before able, as in charge-able, peace-able, &c. E must not be written after a Diphthong, in these Words; vain, maid, gain, fear, gnaw, &c. not vaine, maide, gaine, &c.

F in Plurals is changed into v, as, strife, strifes, staff, slaves.

G is not founded in sign, reign, neither in gnaw, gnat, assign, design, signior, seragliio, phlegm, &c. but founded as if senior, seralio, flume. G is founded soft in gender, ginger, and gipsy; but hard in Gibeon, Giberab, Gilboa, Geth-femane, and hard also in these proper Names, Gibson, Gilman, and Gilbert; and likewise in these common Words; gelt, gild, gird, gimp, geese, gander, gabble, gather, gild, &c. Observe, That if G be hard with a long Vowel, we is joined and pronounced in the same Syllable; as in Plague, Prague, Hague, rogue, league, dialogue, catalogue, &c.

Gb in the End of some Words, where au or eu goes before, hath the Sound of ff, as in tough, rough, cough, laugh, founded as if tuff, ruff, coff, laff; but buff, cuff, snuff, and buff, must be fo written.—Gb is not founded in mighty, though, through, neither in daughter, or Vaughan.

H hath Place, but no found, in Chrystal, Chronick, Chrift, Ghost, John, Rhine, Schedule, and Schism. H is not founded at the End of Words, if it be alone, without t or c before it, as, snatch, watch, &c.

I is not founded in adieu, juice, venison, fruit, bruise, Salisbury; but founded like ec in oblige, Magazine, and Machine, &c. I is founded long in proper Names ending in iah, Jeremiah, Hezekiah; but short in A-ri-el and Me-ri-am.—
The tail’d j, or Consonant, hath been spoke of before.

K is nearly allied in sound with C; but to know when to use one, and when the other, Note, that C hath the Force of K only before u, e, oo, and u, and these two Consonants l and r; and therefore we must not write, care for care, hom for cow. known for crown; and the use of K is only before
before e, i, and u; wherefore we must write keep, key, knight, kill, &c. not ceep, cey, cnight, nor cil: We must write Calendar, Catherine, rather than Kalendar, or Katherine.

L is not founded in calf, half, chalk, stalk, walk; but pronounced as if cafe, kafe, chalke, stalk, wauk. Neither is l pronounced in Bristol, Holbourn, Lincoln, Salmon, or Chalron; but founded as if writ, Brislow, Hoburn, Lincoln, Sammon, and Chaudron; nor in Colonel, where the first l hath the Sound of r, — as Curnel.

M hath the Sound of m, in the Word accompt.

N is not heard in autumn, lime-kiln, solemn, linn, hymn, column, nor in condemn.

O is not founded in people, feoffe, bofon, mutton, and loft also in yoman, nason, righteous, bacon, jeopardy, and crimson. O sometimes sounds like oo, as in doing, moving, proving, &c. O is not heard in coroner, damofel, Nicholas; carrion, nor in chariet; but pronounced as if writ crownier, damofel, Nicklas, carrin, and charrit — O is sometimes founded like i; as in women and flagon, pronounced as if wimmen and flaggin. And sometimes O is founded as u, as in carduit, conjure, attorney, [and Monmouth, being heard as if writ cundit, conjure, attourney, and Munmouth.

P is written, but not founded, in empty, presumptuous, psalm, jumpter, accompt, attempt, psalter, and symptom; also in Anpsumptuous, contemptuous, receipt, and conjumptive; &c.

Ph have the sound of f, when together in one Syllable; as in philosophy, phisician, Asaph, and elephant, but we must not write philosopy, phitian, nor Asaf, or elefant. Ph, are parted in sheep-herd, up-bold, and in Clap-ham, and other such compounded Words.

Q. After Q always follows u in all Words; and in French Words it hath the Sound of k; as in risque; liquor, catholic, banquet, conquer, masquerade, chequer; pronounced as risk, likker, catholic, banquet, &c.

S is not founded in island, viscount, or isle, nor in Lisle, but pronounced as iland, vicount, ile, and Lile.

There be two Sorts of s's, the long s, thus s; and the little s, thus s; the long s in the Beginning and Middle of Words, (but never at the latter End) and the short or small s, at the latter End of Words, and sounds bard like x, in all the Words of the plural Number, and in Words of the third Person; as names, worms, be reads, she bears. S sounds bard
hard, in Words that terminate in _sin_, as in _circumcision_, _exision_, _delusion_; but after a Consonant _soft_ as in _conversion_, _commission_, _dimension_. _s_ is likewise founded hard in these Words, _raise_, _praise_, _chaise_, _cheese_, _these_, _compse_, _expose_, _bruise_, _refuse_, _applause_, _pave_, _clave_, _wisdom_, _casement_, and _damsel_. — I do not think it any very great Abuse, to have the small _s_ sometimes in the Beginning or Middle of a Word, as well as at the latter End; especially if a _t_ follow it, thus _st_.

Th sounds fine in _thin_, _think_, and _wrath_; and is founded hard in _thee_, _then_, _they_, _that_, _blythe_, _tythe_, and _sire_; also in _mother_, _brother_, _hither_, _thither_; and in _loath_, _dearth_, and _cloathier_, &c.

_Ti_ before a Vowel or Diphthong, hath the Sound of _si_; as in _patience_, _dictionary_, _gratian_, _oblation_; _notion_, _translation_; except when _j_ goes just before it, as in these Words, _questian_, _oustian_, _bastian_, _combustion_, and _celestial_, and also _hostial_, &c. In some Words of _Hebrew_ and _Greek_, _ti_ retains its natural Sound; as in _Shealatiel_, _Phaltiel_, _Shephatiah_, _Cotittia_, _Adramyttium_, and the like; and in _mightier_ and _mighliest_, _emptiest_, _emptied_; and from _pity_, we say _piti-able_.

_U_ is founded like _i_ in _bury_, _birry_, _buzie_, _bizze_; _business_, as _bizziness_.

_W_ is not founded, though written, in _answer_, _sword_, _whore_, nor in _swooning away_, neither is it heard in _wrap_, _wrath_, _wrong_, _wretch_, _wreath_, _wrangle_, _wriggle_; but pronounced as if _ford_, _hore_, _sowing_, and hath the Sound of _R_ in the last seven Words, _viz._ _rap_, _rath_, _rong_, &c.

_Wb_ belongs to Words purely _English_; as _what_, _when_, _where_ and _wheel_.

_X_ is founded as _z_, in _Xenophon_, _Xerxes_, _Xenocrates_, and _Xantippe_.

_Y_ is either a Vowel or Consonant, as hinted before. A Vowel, in _my_, _by_, _fly_, _thy_, and sometimes when a Vowel, it hath the Sound of _ee_, as in _worthily_, _christianity_, _liberty_, _formerly_, _formally_, _Normandy_ and _Dorothy_. _Y_ is a Consonant when it begins a Word, as in _yet_, _you_, _yonder_, _younger_, and _yesterday_.

_Z_ hath its proper Sound, in _Zeno_, _zeal_, _zealous_, and in _Zenobia_. It hath the Sound of _j_ in _Elizabeth_, _size_, _prize_, and _Melchizedeck_; the first of which Words hath been formerly, and sometimes now is writ with an _s_, thus _Elisabeth_. Thus
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Thus far for the sound of Letters single; and now I shall give a few Notes concerning two Letters, when they are united in one Sound, called Diphthongs; and first of

Ai and Ay. These have the sound of a, in air, fair, fair, may, stay, play; but a is lost in Calais, (a Town of France) and pronounced separately in Sinai, (a Mountain of Arabia).

Ei and Ey, are sounded in eight, eight, eight, and keyday! and are pronounced as e, in key, veil, and convoy; but eye must be excepted: And ei is sounded as a, in neighbour, and heir, being pronounced as nabor and are.

Oi and Oy have a Sound peculiar to themselves; as in oil and oyster; but make no Diphthong in going or doing.

Au and Aw commonly keep a proper Sound; as in augur, ausbre, daw, maw, saw, &c. but au is lost in aunt, and ganger, being sounded as ant and gager; likewise is not heard in Em-ma-us, and Ca-per-na-um.

Eu and Ew have an united Sound in all Words, as in feud, brew, now, and grew; but eu, is no Diphthong in Zac-che-us, or in Bar-ti-me-us.

On and Ow. On is expressed in foul, foul, proud, loud; and ow in bow, cow, and now; but ow sounds like o, in soup (a French Dish) Stroud, (a Town in Kent) and Cowper, (a Man's Name) founded as if soop, Strood, and Cooper.

Ee is no Diphthong in Be-rites, Be-er-be-ba, and in Be-el-be-bub, one of the e's is dropt in Pronunciation; neither in Words beginning with re, or pre, as re-enier, pre-e-mi-nence.

Oo is properly founded in cool, cool, pool, and tool; but hath the Sound of u in root, foot, and foot; and makes no Diphthong in Co-es, co-o-pe-rate.

Ea sounds like a, in sea, pea, seam, and theme; and hath the sound of e in bread, head, dead, search, leather, feather, heaven, and heaven; but is no Diphthong in ven-ge-ance, mis-cre-ant, or any Hebrew, Greek, or Latin Words; as in Ka-dej, Bar-ne a, Kir-jah-be-a-ram, nor in Ce-sa-re-a, i-de-a, or ce-an; neither in re-al, be-a-ti-tude, crea-tor; but except creature; nor in Words beginning with pre, as pre-amble, &c.

Ou is founded as o in goat, boat, and coat; and founded broad as ou, in bread and great; but is no Diphthong in Goa, (a City in India) or in the Hebrew Words Zo-an, Ze-ar, and Gil-be-a.
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Le before a single Consonant, sounds like ee, as in brief; chief, and thief; but if before two Consonants, it sounds like e; as in friend, field; but at the End of English Words, e final is not heard, as in die, signifies, and is no Diphthong in A-bi-e-zer, Eli-e-zer, nor in the English Words di-er, car-vi-er, or cl-thi-er; and in Words derived from the Latin, ie is parted, as in cli-ent, o-ri-ent, qui-et, and sci-ence.

U is founded as u in juice, fruit, and suit; but u is lost in conduit, build, and guise, and is no Diphthong in je-sui-t, ge-nu-in, or fru-i-ti-on.

Æ and OE be no English Diphthongs, but are used in Æsop, Æneas, Ætina, Caesar, Oedipus, and Oeconomy; but in common Words they are neglected; as in equity, female, and tragedy, tho' derived of æquitas, fæmina, and tragedia.

Of Syllables, and their Division, being the Art of Spelling.

A Syllable is a taking Letters together, and uttering them in one Breath, as vir-tue; so that virtue being thus divided, or taken asunder, makes two Syllables, viz. vir and tue, which put together, form the word virtue. And many times a Vowel, or a Diphthong, of themselves, make a Sylla-

ble; as in a-bate, e-ve-ry, i-dle, o-ver, u-su-rie; so of Diphthongs, as au-ger, Eu-place, ow-ner, ai-der, ey-sier, Eaton, oa-ten: By which we may particularly note, That no Syllable can be made, be there never so many Consonants, or so few, without the Aid of a Vowel or Diphthong.

The longest Mono-syllables we have in English, are length, strength, and freights; which still would be nothing, with-out the Vowel e and i.

All Spelling may be taken in, under these four following general Rules, or Heads.

1st, When a Consonant comes between two Vowels in di-viding the Word into Syllables, the Consonant is joined to the latter Vowel; as in sta-ture, na-ture, de-li-ver, u-ni-ty, &c. except compound Words, which terminate in ed, en, eß, ets, er, ing, ets, and ous; as coasted, gield-en, know-eth, hear-er, fooling, bar-er-ous, ra-ven-ous, and pub-er-ous.

2dly, When two Consonants come together in the Middle of a Word, they are to be parted if not proper to be in a Word; as num-ber stran-ger, for-tune, &c. not num-ber, strang-er, fort-une: To this Rule is excepted, Words with as ox-en, ex-er-cise, &c. When the same Consonant is doubled in
in a Word, the first belongs to the foregoing, and the latter to the following Syllable, as in the Rule above, and in these words, Ab-ba, ac-cord, an-no, ad-der, &c.

3dly, Consonants that can begin Words, must not be parted in the Middle; as a-gree, be-low, re-frain, &c. not ag-ree, be-tow, ref-rain.— These Consonants may begin Words, viz. bl, br, ch, cr, dr, dw, fl, fr, gh, gl, gr, kn, &c. as blunt, break, chaw, cry, draw, dwell, flesh, ghost, &c. On the Contrary, Consonants that cannot begin Words, must be parted in the Middle, as in Sul-tan, and as said above.

4thly, When two Vowels come together, not making a Diphthong, they must be divided; as in vi-al, va-li-ent, Li-onel, du-el, cru-el, me-te-or, and La-o-di-ce-a.

Some particular Notes.

L is doubled in Words of one Syllable, as well, tell, swell, ball, wall, fall, will, bill, mill, &c. But in Words of more than one Syllable, the Word always terminates withingle, as angel, Babel, hurtful, dutiful, and beautiful. Neither must / be doubled in alway, alsó, although; not all-way, all-so, all-though, &c. But Words accented on the last Syllable, must be excepted from the Rule above, viz. instal, recall, inroll, rebell, and repell.

Y must be used before the Termination ing, as buying, ly-ing, carrying, marrying, paying, slaying, burying, &c.

The long/ must never be used at the End of a Word, or immediately after the shorter or small s.

X should be used instead of ơ, where it appears to have been in the Original; as reflexion, connexion, rather than reflection, or connection, &c.

Remember, that if you cannot write out the whole Word at the End of the Line, break it off at the End of a Syllable, thus— con-demn; not thus— con-demn: Again— dis-charge; not— dis-charge.

C must not be put between two Consonants; as think, not thinck; thank, not thanck; brink, not brinck; but if a Vowel goes before c, you must write c before k, as brick, stick, thick, &c.

E final must not be placed after a Syllable made long by a Diphthong, as rain, not raine; brain, not braine; re-

strain,
strain, not restraine, &c. Neither is it necessary after a double Consonant, as inn and add; not inne or adde: But we must except Anne, a Christian Name, and Donne, a Surname; and also Deale, the Name of a Town in Kent.

Ph must be retained in Words of a Foreign Original; as phancy, prophet; not fancy, prefeit.

U follows Q in all Words, as was said before.

Q is better than C, in some Words from the Latin, as oblique, antique, relque, rather than oblike, antike, or relike. Also paquet, risque, traffque, and Fabrique, from the French.

K is by some thought unnecessary in Words of Foreign Extraction, viz. arithmetic, music, logic, public, catholic, and physic; rather than arithmetick, &c.

Of S and C. Some People may easily drop into Error by mistaking S for C, as in the Beginning of the following Words, where C hath the perfect Sound of S, though C must undoubtedly be written, viz. in

Ceiling Cinnamon Cell Cerufs
Celestial Ceremony Cenfer Centre
Civet Cellar Cerurity Cinque
Certain Censure Cyprefs City
Cymbal Censor Circle Cypher
Ciftern Ceafe Circuit Citron
Centurion Celebrate Cement

But these Words must be written with S, viz.

Science Sceptre Scarcity Sciatica
Schedule Scheme Schifm Scythia

When to write ti, and when fi——viz.

with ti.

Contention Contusion
Action Occasion
Contradiction Contusion
Attention Oppression
Benediction Allusion
Apparition Ascension
Concoction Aversion
Declaration Aspersion
Ambition Commision
Contrition Comprehension
Oration Circumcision
Oblation Conclusion

These
These Words spell thus.

Passion, not passion
Fashion, not Fation
Cushion, not Cution
Gloucester, not Gloster
Worcester, not Worister

Leicelcr, not Lefter
Shrewsbury, not Shrofbury
Carlifie, not Carlile
Westminster, not Westmifter.

Another Qualification in Spelling, is rightly to distinguish Words of the same Sound, though widely different in their Sense and Signification: Such as these that follow, viz.

A Peal, of Bells
Appeal, to higher Powers
Appear, to be seen
A Peer, a Lord
Gray, good Order
Array, to cloth
A Rose, to smell to
Arose, did rise
Are, they be

Heir, to an Estate
Arrant, notorious
Errand, a Message
Arrows, to shoot
Arras, Hangings
A Scent, or Smell
Ascent, a going up
Ascent, Agreement
Assistance, Help
Assistants, Helpers

A Mifs, or Mistress
Ant, a Pismire
Aunt, a Father's Sister
Anchor, of a Ship
Anker, a Rundlet

A Bel, Cain's Brother
Able, to do a Thing
A Bell, to ring
Accidents, Chances
Accidence, a Book
Acre, of Land
Acorn, of an Oak
Achor, a Valley of that Name
Advice, Counsell
Advise, to council
Account, Esteem
Accompt, of Reckoning
Ale, a Drink
Ail, Trouble
All, every one
A威尔, for Shoemakers
Alley, a narrow Place
Ally, a Friend or Confeder ate
Allay, to give Eafe
Alloy, bafer Metal
Aliar, for Sacrifice
Alter, to change
Ale-hooof, an Herb
Aloof, at a Distance
Allow'd, approv'd
Aloud, to speak so
A Müs, wrong
A Mist, or Missrees
Ant, a Pismire
Aunt, a Father's Sister
Anchor, of a Ship
Anker, a Rundlet

Babel, the Tower
Babble, to prate
Bacon, Hog's Flesh
Baken, in the Oven
Beckon, to make a Sign
Bail, a Surety
Bale, of Goods

Bald,
The Young Man's Best Companion.

Brute, Beast
Burrow, for Coneys
Borough, a Corporation
By, near
Buy, with Money
Brews, he breweth
Brist, a Hurt
Brewis, of Fat and Bread

Cain, that kill'd his Brother
Cane, to walk with
Caen, in Normandy
Calais, in France
Chalice, a Cup
Call, by Name
Canel, or Suet
Cannon, a great Gun
Canon, a Church Rule
Capital, great or chief
Capitol, a Tower in Rome
Career, full Speed
Carrier, of Goods
Cellar, for Liquors
Seller, that felleth
Censer, for Incense
Censor, a Reformer
Censure, to judge
Centaur, an Herb
Century, an hundred Years
Centry, or Sentinel, a Soldier on Guard
Chair, to fit in
Chare, a Job of Work
Champaign, Wine of France
Champaign, a wide Field, or Summer's Expedition
Choler, Rage or Anger
Collar, of the Neck
Coller, of Beef or Brawn
Ceiling, of a Room
Sealing, with a Seal
Cittern, for Music
Citron, a Fruit

Bald, without Hair
Barb'd, cry'd out
Bawl, to play with
Bawh, to cry aloud
Barbara, a Woman's Name
Barbury, in Africa
Barberry, a Fruit
Bear, naked
Bear, a Beast, or to bear
Bays, of Bay Trees
Baize, Cloth of Colchester
Baf, Vile
Bets, in Music
Belly, Part of the Body
Bete, to speak falsely
Be, they are
Bee, that makes Honey
Beer, to drink
Bier, to carry the Dead on
Bell, to ring
Bel, an Idol
Berry, a small Fruit
Bury, the Dead
Blue, a Colour
Blew, as the Wind
Board, a Plank
Bor'd, a Hole
Boar, a Beast
Bore, to bore
Boor, a Country Fellow
Bold, Confident
Bowl'd, at the Jack
Belt, the Door
Boult, the Meal
Bow, to bend, or the Bow
Bough, of a Tree
Boy, a Lad
Bouy, of an Anchor
Bread, to eat
Bred, brought up
Breeches, to wear
Breeches, broken Places
Bruit, a Report

Clerk.
Clerk, a Clergyman
Clerk, of a Parish
Clause, Part of a Sentence
Claws, of a Beast or Bird
Coat, a Garment
Cote, for Sheep
Comb, for the Hair
Come, hither
Commit, to do
Comet, a blazing Star
Common, usual
Commune, to converse
Condemn, to Death
Contemn, to despise
Council, of the King
Counsel, Advice
Cud, or could
Cud, to chew as Beasts
Current, a passing or running
Stream
Courant, a Messenger or News Paper
Currants, Fruit
Crick, in the Neck
Creek, of the Sea or River
Cousin, a Relation
Cozen, to cheat
Cymbal, a musical Instrument
Symbol, a Mark or Sign
Cypress, a Tree
Cyprus, an Island
Cruse, for Oil
Cruize, by the Sea Coast
Cygnet, a young Swan
Signet, a Seal

D
Dane, of Denmark
Deigne, to vouchsafe
Dam, stopping Water
Damn, to condemn
Dame, a Mistress
Dear, of Price
Deer, in a Park
Deceased, dead
Diseased, sick
Decent, becoming
Defect, going down
Dissent, to disagree
Deep, low in the Earth
Diep, a Town in France
Defy, to put off
Differ, to disagree
Derbe, a City of Asia
Darby, a Town of England
Defeat, Merit
Desert, Merit
Desert, a Wilderness
Dew, a falling Mist
Due, owing
Do, to make
Doe, a female Deer
Dough, Paste
Don, a Spanish Lord
Done, acted
Dun, a Colour
Dolphin, a Fish
Dauphine, the French King’s eldest Son
Devices, Inventions
Devizes, in Wiltshire
Doer, that doeth
Door, of a House
Dragon, a Beast
Dragoon, a Soldier
Draught, of Drink
Drought, Dryness
Dolor, Grief or Pain
Dollar, a Piece of Money
Demure, Sober
Demur, a Stop or Doubt

E
Ear, of the Head
E’er, ever
Early, betimes
Yearly, every Year
Earth, the Ground
Hearth, of the Chimney
Easter, the Festival
Esther, a Woman’s Name
Enter, to go in
Inter, to bury
Elder, not the Younger
Eldern, a Tree
Eaten, or swallowed
Eton, a Town’s Name
Eminent, famous
Immenent, over Head
Enough, in Number
Enough, in Quantity
Earn, to deserve
Yarn, Woollen Thread
Yearn, to pity
Envy, or Hatred
Envoy, a Messenger
Exorcise, Labour or Practice
Exorcise, to conjure
Err, to mistake
Er, Brother to Onan, Sons
of Judah
Extant, in being
Extent, Distance
F
Fein, desirous
Feign, to dissemble
Fair, beautiful or a Market
Fare, Victuals
Faint, weary
Feint, a false March
Fourth, in Number
Forth, to go out
Feed, to eat
Fee’d, rewarded
Fir, Wood
Fur, or Hair
Felon, a Criminal
Fellow, a Whitlow
File, of Steel
Foil, put to the worst
Fly, as a Bird
Fly, or Insect
Fillip, with the Fingers
Philip, a Man’s Name
Fleaver, of the Field
Flour, Meal
Floor, of the Room
Follow, to come after
Fallow, Ground not plowed
Find, to find any thing
Find’d, amerced
Fiend, a Devil
Flea, off the Skin, and also
Vermin
Flee, to escape
Fowl, a Bird
Foul, dirty
Francis, a Man’s Name
Frances, a Woman’s Name
Frays, Quarrels
Froize, Pancake with Bacon
G
Gaul, France
Garden, of Herbs
Guardian, an Overseer
Genteel, graceful
Gentile, a Heathen
‘Gentle, mild
Gesture, Carriage
Fester, a merry Fellow
Groan, with Grief
Grown, greater
Guilt, of Sin
Gilt, with Gold
Greater, bigger
Grater, for Nutmegs
Grave, for the Dead
Greave, Armour for the Leg
Guest, to imagin
Guest, one entertain’d
Gluttonous, greedy
Glutinous, sticking as Pitch
Great, large
Grate, for Coals, &c.
The Young Man's Best Companion.

Graze, to eat
Grays, a Town
Great, Four pence
Grot, a Cave
Galleies, Ships with Oars
Gallowes, for Criminals

Har, of the Fields
Hair, of the Head
Harfe, severe
Hafh, minced Meat
Haven, a Harbour

Heaven, a large Place of Happinesse
Heart, of the Body
Hart, of the Woods, or an over-grown Buck
Herd, of Cattle
Heard, did hear
Hard, not soft, or difficult
Here, in this Place
Hear, with the Ears
High, lofty,
His, away, make haste
Him, that Man
Hymn, to sing
Hail, congeal'd Rain
Hale, the Ship
Hall, in a House
Haul, pull
Higher, taller
Hire, Wages
His, of him
Hiss, as a Snake, or to deride
Hear, Frost
Whore, a lewd Woman
Hole, or Hoilowness
Whole, intire
Ho! lo! to call
Hollow, to make deep
Holy, pious
Wholly, entirely
Home, one's House

Helm, wholy
Hoop, for a Tub
Whoop, or ho! lo!
Hugh, a Man's Name
Hue, of Colour
Hew, with an Ax

I, I myself
Eye, to see with
Idle, lazy
Idol, an Image
I'll, I will
Ile, of a Church
Isle, an Island
Oil, of Olives
Imply, in Work
Imly, to signify
In, within

Inn, for Travellers
Incite, to stir up
Insight, Knowledge
Ingenious, of quick Parts
Ingenuous, candid
Iron, Metal

Ironie, speaking by Contraries

Ketch, a Ship
Catch, to take
Kill, to slay
Kith, for Lime
Kind, good natur'd
Coin'd, Money

Knave, dishonest

Knife, of a Wheel
Knight, by Honour

Night, Darkness

Laid, placed
Lane, the Water
Lane, not a Street
Lain, did lie
Latin, a Tongue

Latten, Tin

Lattice,
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lattice, of a Window</td>
<td>one Media</td>
</tr>
<tr>
<td>Lettice, a Woman's Name</td>
<td>Mean, of low Value</td>
</tr>
<tr>
<td>Lettuce, Sallad</td>
<td>Mein, Carriage or Aspect</td>
</tr>
<tr>
<td>Leafe, of a House</td>
<td>Meat, to eat</td>
</tr>
<tr>
<td>Leaft, three</td>
<td>Mele, to measure</td>
</tr>
<tr>
<td>Lees, of Wine</td>
<td>Message, Business</td>
</tr>
<tr>
<td>Leafe, old Word for lose</td>
<td>Message, a House</td>
</tr>
<tr>
<td>Leaper, that jumpeth</td>
<td>Mews, for Hawks</td>
</tr>
<tr>
<td>Leper, one leprous</td>
<td>Myfe, to meditate</td>
</tr>
<tr>
<td>Lefen, to make less</td>
<td>Mighty, powerful</td>
</tr>
<tr>
<td>Lesson, to read</td>
<td>Moity, half</td>
</tr>
<tr>
<td>Least, smallest</td>
<td>Mile, Measure</td>
</tr>
<tr>
<td>Left, for fear</td>
<td>Mail, Labour</td>
</tr>
<tr>
<td>Letherby, Sleepiness</td>
<td>Might, Strength</td>
</tr>
<tr>
<td>Liturgy, Church service</td>
<td>Mite, in Cheese</td>
</tr>
<tr>
<td>Lier, in wait</td>
<td>Moat, a Ditch</td>
</tr>
<tr>
<td>Lyar, that tells Lies</td>
<td>Mote, in the Sun</td>
</tr>
<tr>
<td>Limb, a Member</td>
<td>More, in Quantity</td>
</tr>
<tr>
<td>Limn, to paint</td>
<td>Moor, a Black</td>
</tr>
<tr>
<td>Line, Length</td>
<td>Mower, that moweth</td>
</tr>
<tr>
<td>Loin, of Veal</td>
<td>Moore, barren Ground</td>
</tr>
<tr>
<td>Low, humble</td>
<td>Mortar, made of Lime</td>
</tr>
<tr>
<td>Lo, behold</td>
<td>Mortar, to pound in</td>
</tr>
<tr>
<td>Lose, to suffer Loss</td>
<td>Mile, Vermin</td>
</tr>
<tr>
<td>Loose, to let go</td>
<td>Mould, to cast in</td>
</tr>
<tr>
<td>Lower, to let down</td>
<td>Nay, denial</td>
</tr>
<tr>
<td>Lower, to frown</td>
<td>Neigh, as a Horse</td>
</tr>
<tr>
<td>Made, finished</td>
<td>Neither, none of the two</td>
</tr>
<tr>
<td>Maid, a young Woman</td>
<td>Nether, lower</td>
</tr>
<tr>
<td>Main, Chief</td>
<td>Naught, bad</td>
</tr>
<tr>
<td>Mane, of a Horse</td>
<td>Nought, nothing</td>
</tr>
<tr>
<td>Male, the He</td>
<td>Nigh, near,</td>
</tr>
<tr>
<td>Mail, Armour</td>
<td>Ny, a Man's Name</td>
</tr>
<tr>
<td>Manner, Custom</td>
<td>Nice, curious</td>
</tr>
<tr>
<td>Manor, a Lordship</td>
<td>Niece, a Brother's Daughter</td>
</tr>
<tr>
<td>Market, to buy or fell in</td>
<td>Not, denying</td>
</tr>
<tr>
<td>Mark, it, note it</td>
<td>Knot, to tye</td>
</tr>
<tr>
<td>Marys, low Ground</td>
<td>Note, mark</td>
</tr>
<tr>
<td>Rails, for a Horse, or of a Net</td>
<td>Note, of one's Hand</td>
</tr>
<tr>
<td>Martin, a Man's Name</td>
<td>Nose, of the Face</td>
</tr>
<tr>
<td>Tarten, a Bird</td>
<td>Noah's Ark,</td>
</tr>
</tbody>
</table>
Oar, of a Boat
Ore, crude Metal
O'er, over
Off, cast off
Of, belonging to
Our, belonging to us
Hour, of the Day
Oh! alas!
Owe, in Debt
One, in Number
Own, to acknowledge
Order, Rule
Ordure, Dung
Pair, a Couple
Pare, cut off
Pear, a Fruit
Pattin, for a Woman
Patent, a Grant
Peer, a Lord
Pier, of Dover
Peter, a Man's Name
Peter, Salt
Pail, for Water
Pale, of Countenance
Pale, a Fence
Place, Room
Plaife, a Fith
Parson, of the Parish
Person, any Man
Pole, for Hops
Poll, of the Head
Pool, of Water
Pere, with the Eyes, or of the Skin
Poor, necessitous
Palate, of the Mouth
Pallet, Bed
Pofy, a Nosegay
Pofly, Poetry
Power, mighty
Pour, as Water
Prey, a Booty
Pray, beseech
Profit, Gain
Prophet, a Foreteller
Practice, Exercise
PraCture, to exercise
Presence, being here
Presents, Gifts
Princes, the King's Sons
Princesses, the King's Daughters
Please, to content
Plea, Defences
Precedent, an Example
President, Chief
Principal, Chief
Principle, the first Rule
Quire, of Paper
Choir, of Singers
Queen, the King's Wife
Queen, an Harlot
Rack, to torment
Wreck, of a Ship
Rain, Water
Reign, of the King
Rein, of a Bridle
Rays, of the Sun
Raise, lift up
Race, to run
Rafe, to demolish
Rice, Grain
Rise, to get up
Red, in Colour
Read, the Book
Reed, of the Water
Relic, a Remainder
Relic?, a Widow
Roe, of a Fish, or a Female
Deer
Row, the Boat
Right, not wrong
Rite, a Ceremony
Write, with a Pen
Wright, a Wheelwright
Reddish, of Colour
Radij, a Root
Rear, set up
Rear, behind
Ruff, for the Neck
Rough, not smooth
Rie, Corn
Rye, in Connecticut
Wry, crooked
Ring, the Bells
Wring, the Hands
Rime, a Fog or Mist
Rhyme, Verse
Rind, of Cheese
Rode, did ride
Road, the Highway
Rote, got by Heart
Wrote, did write
Wrought, did Work
S
Savour, Taste or Smell
Savour, that savor
Sheep, a Beast
Ship, for the Sea
Sight, View
Cite, to summons
Sail, of a ship
Sale, of Goods
Sink, sink down
Cinque, Five
Slow, not quick
Sloe, Fruit
Sow, Seed
Sew, with a Needle
So, thus
Slight, neglected
Steight, of Hand
Some, a Part
Sum, of Money
Soul, or Spirit
Sail, a Fish
Sle, of a Shoe
Son, of a Father
Sun, in the Firmament
Sore, painful
Soar, aloft
Sware, did swear
Stare, to look on earnestly
Stair, a Step
Style, to get over
Style, of Writing
Sound, whole, firm; also Noise
Savoon, to faint away
Straight, not crooked
Strait, narrow
Succour, Help
Sucker, a young Sprig
Spear, a Weapon
Sphere, a Globe
Then, at that Time
Than, in Comparison
Tame, gentle, not wild
Thane, in Oxfordshire
Tear, to rent
Tear, of the Eye
Tare, an Allowance in Weight
Tare, a Vetch,
Tail, of a Beast
Tale, a Story
Tiles, for the House
Toys, Nets
Toil, to Labour
There, in that Place
Their, of them
Throne, of the King
Thrown, as a Stone
Tide, a flowing Water
Ty'd, made fast
Time, of the Day
Thyme, an Herb
Team, of Horses
† B
Stops, Marks, and Points, used in Reading and Writing, with their Places and Significations.

These are of absolute Necessity; and great Regard ought to be had to them, to avoid Confusion and Misconstruction, and for the better Understanding of what we read and write ourselves; and are likewise of Use to others that shall hear us read, or see our Writing: They teach us, to observe proper Distances of Time, with the necessary Raising and Falling of the Tone or Voice in Reading, and the needful Stops or Marks to be used in Writing, that we may understand it ourselves, and that our Meaning may not be misunderstood or misapplied by others.
Stops, or Pauses, considered as Intervals in Reading, are indeed no more than four; though there are other Marks to be taken notice of, but to other Purposes: The Names of these four principal Stops are, viz. a Comma, Semicolon, Colon, and Period or Full Stop; and these do bear to one another a kind of progressional Proportion of Time; for the Comma signifies a Stop of leisurely telling One, the Semicolon Two, the Colon Three, and the Period Four.

And are made or mark'd thus:

Comma, (,) at the Foot of a Word.
Semicolon (;) a Point over the Comma.
Colon (:) two Points.

Period (.) a single Point at the Foot of a Word.

; Example of the Comma.) There is not any thing in the World, perhaps, that is more talk'd of, and less understood, than the Business of a happy Life.

; Example of the Semicolon.) It is not a Curse that makes way for a Blessing; the bare Wish is an Injury; the Moderation of Antigonus was remarkable.

: Example of the Colon.) A sound Mind is not to be shaken with popular Applause: But, Anger is startled at every Accident.

; Example of the Period.) It is a Shame, says Fabius, for a Commander to excuse himself, by saying, I was not aware of it. A Cruelty that was only fit for Marius to suffer, Sylla to command, and Cataline to act.

By the Examples foregoing, we may easily note, that a Comma is a Note of a short Stay, between Words in the Sentence; and therefore the Tenor of the Voice must still be kept up.—The Semicolon is a little longer, and the Tone of the Voice very little abated.—The Colon signifies perfect Sense, though not an End of the Sentence; and the Voice a little abated, or let fall.—The Period denotes perfect Sense, and the End of the Sentence.

? When the Question is asked, there is a crooked Mark made over the Period thus ? and is called a Note of Interrogation: Example, What could be happier than the State of Mankind when People lived without either Avarice or Envy? The Time of Pause for this Stop, is the same with the Semicolon.

! If a sudden Crying out, or Wondering, be expressed, then this Mark is made over the Full Stop, thus ! and called
a Note of Admiration or Exclamation. Example, Oh the astonishing Wonders that are in the elementary World!

( ) If one Sentence be within another, of which it is no Part, then 'tis placed between two Semicircles or Parenthesis, made thus ( ) Example, Pompey, on the other Side (that hardly ever spake in Public without a Blush) had a wonderful Sweetness of Nature. Again, if Authors be sure to make Choice of the best; and (as I said before) to stick close to them. Once more; Honour thy Father and Mother (which is the first Commandment with Promis) that it may be well with thee.—In reading a Parenthesis the Tone must be somewhat lower, as a Thing or Matter that comes in by the bye, breaking in as it were on the main Coherence of the Period. The Time is equal to a Comma, and ought to be read pretty quick, lest it detain the Ear too long from the Sense of the more important Matter.

Apostrophe is a Comma at the Head of Letters, signifying some Letter or Letters left out for quicker Pronunciation; as I'll for I will, wouldn't for wouldst, shan't for shall not, ne'er for never, is't for is it, 'tis for it is, 'tis for in the, o'er for over: Or to denote a Genetive Case; as, my Father's House; my Uncle's Wife, &c.

Accent is placed over a Vowel, to denote that the Stress or Sound in Pronunciation is on that Syllable.

Breve or crooked Mark over a Vowel, signifies it must be sounded short or quick.

Caret signifies something is wanting, and is placed underneath the Line, just where anything omitted, by Mistake, or Forgetfulness, &c. should be brought in.

Circumflex is of the same Shape with the Caret, but is placed over some Vowel, to shew the Syllable to be long, as Eu-phrã-tes.

Dialysis, or two Points placed over two Vowels in a Word, signifies they are to be parted, being no Diphthong.

Hyphen or Note of Connection, is a straight Line; which being set at the End of a Line, shews that the Syllables of that Word are parted, and the Remainder of it is at the Beginning of the next Line; and sometimes is used in compound Words; as Burnt-sacrifices, Heart-breaking, Soul-healing, Book-keeper, &c. N. B. That when you have not Room to write the whole Word at the End of a Line, but are obliged to finish it at the Beginning of the next, such Words must be truly divided, according to the Rules of Spelling;
Spelling; as re-strain, not—————-ref-train. When the Hyphen is placed over a Vowel, it is properly a Dash, and signifies the Omission of m or n; it is much used in old Latin Authors, and sometimes in English, especially in Law Business. Example; It is very comèdable to write a good-Hand.

Index, is a Note like a Hand, pointing to something very remarkable.

* Asterism or Star, directs to some Remark in the Margin, or at the Foot-Of the Page. Several of them together, denote something defective, or immodest, in that Passage of the Author.

† Obelisk, is a Mark like a Dagger, and refers to the Margin, as the Asterism*; And in Dictionaries, it signifies the Word to be obsolete, or old, and out of use.

|| Paragraph, denotes a Division, comprehending several Sentences under one Head.

§ Section, signifies the Beginning of a new Head of Discourse, and is used in sub-dividing a Chapter, or Book, into lesser Parts or Portions.

[ ], Brackets or Crotchets, generally include a Word or Sentence, explanatory of what went before; or Words of the same Sense, which may be used in their stead.

" Quotation, or double Comma reverse, is used at the Beginning of the Line, and shews what is quoted from an Author to be in his own Words.

Thus much for Pointing, Stops, and Marks; which, if carefully heeded and observed, will add Grace and Credit to your Writing.

Of Abbreviations.

To be ready in these, shews a Dexterity in Writing; and is very necessary for Dispatch: For by these, we expeditiously express, or set down a Word shortening it, by making some initial Letter or Letters, belonging to the Word, to express it; as in the Table following.

A. For Answer or Afternoon
A. B. Arts Bachelor
A. Bp. Archbishop
Acr. Account
A. D. Anno Domini, Year of our Lord
A. M. Anno Mundi, Year of the World
Adms. Administrators
A. M. Artium Magister, Master of Arts
Ana. of each a like Quanity
Ap. April, or Apostle
B 3
Adm.
Adm. Admiral
Ag. Against
Am. Amount
Anab. Anabaptist
Aug. August
A. R. Anno Regni, in the Year of the Reign
Aft. P. G. Astronomy Professor of Gresham College
Aust. Austin, or Austria
B. A. Batchelor of Arts
B. D. Bachelor of Divinity
B. V. Blessed Virgin
Bart. Baronet
Bp. Bishop
Char. Charles, or Chapter
Cant. Canticles, or Canterbury
Cat. Catechism
Char. Charles, or Charity
 Chap. Chapter
Cent. Centum
Ch. Church
Chanc. Chancellor
Chron. Chronicles
Capt. Captain
Clem. Clement
Col. Colossians
Cl. Clericus
Co. County
Coll. Colonel
Comrs. Commissioners
Con. Conftance or Constantine
Conf. Confessor
Cou’d, for could
Cor. Corinthians or Corollary
Cr. Creditor
C. R. Carolus Rex, or Charles the King
C. C. C. Corpus Christi College
C. S. Custos Sigili, Keeper of the Seal
C. P. S. Custos Privati Sigili, Keeper of the Privy Seal
D. Dean or Duke
Dan. Daniel
Dr. Doctor or Debtor
Dea. Deacon
Do. Ditto
D. Denarii, Pence
Dec. Or xber, or 1ober, December
Devon. Devonshire
Deut. Deuteronomy
Dec. Deceased
D. C. Dean of Christ Church
Doc. Doctrine
D. D. Doctor of Divinity
E. for Earl
Earld. Earldom
Edm. Edmund
Edw. Edward
E. gr. Exempli gratia, for Example
Engl. England
Eliz. Elizabeth
Efa. Efaiah
Eph. Ephesians
Eccl. Ecclesiastes
Ex. Exodus, or Example
Ev. Evangelist
Exp. Explanation
Expo. Exposition
E/q. Esquire
Exon. Exeter
Fr. French, or France
Feb. February
Fra. Francis
F. R. S. Fellow of the Royal Society
G. God, Great, or Gospel
Gal. Galatians
Gen. Genesis
Gen mo. Generalissimo
Geo. George

G. R.
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>G. R. Georgius Rex</td>
<td>George the King</td>
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<td>Gar. Garrison</td>
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<td>Gen. General</td>
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<td>Gent. Gentleman</td>
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<td>Gosp. Gospel</td>
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<td>Greg. Gregory</td>
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<td>Hen. Henry</td>
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<td>Hamb. Hamper</td>
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<td>Hund. Hundred</td>
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<td>Hum. Humphry</td>
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<td>Heb. Hebrews</td>
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<td>i.e. id est, that is</td>
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<td>I. H. S. Jesus Hominum Salvator</td>
<td>Jesus Saviour of Men</td>
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<td>Id. Idem, the same</td>
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<td>Inf. Instance or Instant</td>
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<td>J. James, or Jacob</td>
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<td>Jan. January</td>
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<td>Jer. Jeremiah</td>
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<td>Jef. Jesus</td>
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<td>Jr. John</td>
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<td>Jud. Judges</td>
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<td>If. Isaac</td>
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<td>I'll, I will</td>
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<td>Is't, is it</td>
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<td>I'd, I had</td>
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<td>I'm, I am</td>
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<td>J. D. Jurium Doctor</td>
<td>Doctor of Laws</td>
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<td>Jof. Johua</td>
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<td>K. King</td>
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<td>Kn. Kingdom</td>
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<td>Kn. Knight</td>
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<td>L. Lord</td>
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<td>L. Liber, a Book</td>
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<td>L. Librae, Pounds</td>
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<td>Lieu. Lieutenant</td>
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<td>Lt. Lordship</td>
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<td>Ladyship</td>
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<td>L. L. D. Legum Doctor</td>
<td>Doctor of Laws</td>
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<td>Learning</td>
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<td>Lea'tfr Learning</td>
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<td>Lr. Letter</td>
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<td>Lam. Lamentations</td>
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<td>Lev. Leviticus</td>
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<td>Let's. Let us</td>
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<td>M. Marquis, or Monday, or Morning</td>
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<td>Mar. March</td>
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<td>Mat. Matthew</td>
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<td>M. Manipulus, a Handful</td>
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<td>M. A. Master of Arts</td>
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<td>Mr. Majesty</td>
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<td>M. Madam</td>
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<td>Mons. Monsieur</td>
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<td>Math. Mathematician</td>
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<td>Mr. Master</td>
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<td>Mrs. Mistress</td>
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<tr>
<td>M. D. Medicinæ Doctor</td>
<td>Doctor of Physick</td>
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<tr>
<td>M. S. Memoriae Sacrum</td>
<td>Sacred to the Memory; also Manuscript</td>
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<td>Mich. Michael, or Michaelmas</td>
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<td>Min. Minister</td>
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<td>N. Note, or Nativity</td>
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<td>Na. Nathaniel, or Nativity</td>
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<td>N. B. Nota bene, Note, or mark well</td>
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<td>Nic. Nicholas, or Nicodemus</td>
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<td>N. S. New Stile</td>
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<td>No. Number</td>
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<td>n. l. Non liquet, it appears not</td>
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<td>Nov. or 9ber, November</td>
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<td>O. Oliver</td>
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<td>Obj. Objection</td>
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<td>Ob. Obedient</td>
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<tr>
<td>O. W. Old Word</td>
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<td>O. S. Old Stile</td>
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<td>Oct. or 8ber, October</td>
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<td>Oxon. Oxford</td>
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<td>P. Paul, Paulus, Publius, or President</td>
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<td>Pugil, a Handful</td>
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<td>Pen. Penelope</td>
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The Young Man's Best Companion.

Pd. paid
Par. Parish
f. per, or by
Pat. Patience, or Patrick
Per Ct. Per Centum, by the Hundred
Parl. Parliament
L. Peter
Phil. Philippians, or Philip
Philom. Philométres, a Lover of Learning
Phys-Math. Philo Mathematicus, a Lover of the Mathematicks
P. M. G. Professor of Music at Gresham College
Prof. Th. G. Professor of Divinity at Gresham College
Prf. Prifcilla
Ps. Psalm Pr. Priest
Q. Queen, or Question
q. quasi, as it were
q. d. quasi dicat, as if he should say
q. l. quantum libet, as much as you please
q. f. quantum sufficet, a sufficient Quantity
gr. Quarter, or a Farthing
R. Reason
R. Rex, King; or Regina, Queen
Revd. Reverend
Rev. Revelations
Rich. Richard
Robt. Robert
Reg. Roger
Ret. Return
Reg. Prof. Regius Professor, founded by K. Henry VIII.
Rom. Romans
Rt. Honble. Right Honourable
Rt. Wpl. Right Worshipful
Sr. Saint
Sam. Samuel
Sect. Section
Sept. or 7ber, September
Serj. Serjeant
Serv. Servant
Sir. Shire
Sban't, for shall not
Salop. Shropshire
Solu. Solution
Staff. Stafford
St. Spain, or Spanish
Sr. Sir
ß. Semissis, half a Pound
S. S. T. P. A Professor, or a Doctor of Philosophy
Stew. Steward
Tho. Thomas
Thef. Theflalonians
The. Theophilus
To. Tobias
V. Virgin, or Verse
U. Use
Vid. see
Ven. Venerable
Viz. Videlicet, to wit, or that is to say
Wm. William
Wp. Worship
Wpl. Worshipful
W. R. William Rex
wn. when
Xn. Christian
Xi. Christ
Xtoper. Christoper
ye. the
yn. then
yo. you
ym. them
yr. that
yr. your
Z. Zeal
&E. & et, and
&S. & cætera, and the rest.
or, and so forth.
And
And now having finished my Directions concerning Spelling, Pointing, &c. I shall proceed to give some Instructions in Relation to the most useful Art of Writing.

When any Person has thoroughly acquainted himself with Spelling, and understands good English, &c. the next Step necessary, is the Acquiring of the accomplishing Art of fair Writing, to put this Spelling in Practice: In order thereto, I shall endeavour to give such Directions, and proper Instructions, as may duly qualify any Person therein.

First, and principally, there must be a fixed Desire and Inclination imprinted in the Mind, for its Attainment: For I myself had never acquired, or arrived to any Proficiency in it, if I had not had a strong Desire and Inclination to it, rising from being convinced of its excellent Use in Trade, and all Manner of Business, according to the Verse,

Great was his Genius, most sublime his Thought,
That first fair Writing to Perfection brought, &c.

Next to the Desire, there must be added a ready Resolution to go through with it, 'till it is gained; and by a diligent and indefatigable Application, overcome all seeming Difficulties, that may arise in the Progress of its Attainment, agreeable to this Distich;

By frequent Use, Experience gains its Growth;
But Knowledge flies from Laziness and Sloth.

**Directions to Beginners.**

First, 'tis necessary to be provided with the following Implements, viz. good Pens, good and free Ink, and also good Paper when arrived to commendable Performances; likewise a flat Ruler for Sureness, and a round one for Dispatch, with a Leadem Plummet or Pencil, to rule Lines: Also Gum Sandrick Powder (or Pounce as they call it) with a little Cotton dipped therein, which rub gently over the Paper, to make it bear Ink the better; particularly when full Hands are to be written, such as Text, &c. and especially when you are obliged to scratch out a Word or Letter; for then there will be a Necessity for its Use: And rubbing the Place with the Pounce, smooth it with the Haft of the Penknife, or clean Paper, and then you may write what is proper in the same Place. These Implements are summed up in these Lines.
A Pen-knife Razor Metal, Quills good Store;  
Gum Sandrick Powder, to pounce Paper o'er;  
Ink, shining black; Paper more white than Snow  
Round and flat Rulers, on yourself bestowed,  
With willing Mind, these, and industrious Hand,  
Will make this Art your Servant at Command.

To hold the Pen.

The Pen must be held somewhat sloping, with the  
Thumb and the two Fingers next to it; the Ball of  
the Middle Finger must be placed straight, just against the  
upper Part of the Cut or Cradle, to keep the Pen steady.  
The Fore Finger lying straight on the Middle Finger; and  
the Thumb must be fixed a little higher than the End of  
the Fore Finger bending in the Joint: and the Pen be so  
placed, to be held easily without griping. The Elbow must  
be drawn pretty close to the Body, almost to touch it. You  
must support your Hand, by leaning on the Table Edge,  
resting on it, half way between your Wrist and Elbow, not  
suffering the Ball, or fleshy Part of your Hand to touch the  
Paper; but resting your Hand on the End of your Little  
Finger, that and your fourth Finger bending inwards, and  
supported on the Table as above said. So fixed, and sitting  
pretty upright, not leaning your Breast against the Table,  
proceed to the making the small o, the a, e, c, i, m, r, s, w,  
and x; which must all be made of equal Bigness and Height,  
the Distance or Width between the two Strokes of the n,  
must be the same with the Distance or Width of the three  
Strokes of the m; the same Proportion of Width must be  
observed in the u, w, and o. The Letters with Stems or  
Heads, must be of an equal Height; as the b, d, f, h, k, l,  
and s. And those with Tails, must be of equal Depth, as  
the f, g, p, q, and s. The Capitals must bear the same Pro-  
portion one to another, with respect to Bigness and Height,  
as A, B, C, D, E, F, G, H, and I, &c. —This Proportion  
of Letters, both of Small and Great, must be observed in,  
and will serve for, all Hands whatsoever. N. B. That all  
upright Strokes, and those leaning to the left Hand, must  
be fine or hair Strokes; and all downright Strokes must be  
fuller and blacker. And when you are in Joyning, where  
Letters will naturally join, without any straining, take not  
off the Pen in Writing, especially in Running or Mix'd  
Hands. Care likewise must be duly taken, that there be an  
equal
equal Distance between Letter and Letter, and also between Word and Word. The Distance between Word and Word may be the Space that the small \( m \) takes up; but between Letter and Letter, not quite so much. Sit not long at writing (that is no longer than you improve) especially at the first, lest it weary you, and you grow weary of Learning. Imitate the best Examples, and have a constant Eye at your Copy; and be not ambitious of writing fast, before you can write well: Expedition will naturally follow, after you have gained a Habit of writing fair and free; and 'tis much more commendable to be an Hour in writing six Lines well, than to be able to write sixty Lines in the same Time, which perhaps is perfect Scribble, and altogether unintelligible. And besides by a slow and fair Procedure, you will learn in half the Time; and therefore 'tis a vain Thought in a Learner, to desire to be quick before he hath acquired Experience, and a Freedom of Writing by frequent Practice. If you have Cotton in you Ink, look well that there be no Hairs at the Nib of your Pen. Never overcharge your Pen with Ink; but shake what is too much into the Ink again. When you leave off, keep your Pen or Pens in Water, till you come to your Writing again.

**How to make a Pen.**

This is gained sooner by Experience and Observation from others, that can make a Pen well, than by verbal Directions. But Note, That those Quills called *Seconds* are the best, as being hard, long and round in the Barrel: and before you begin to cut the Quill, scrape off the superfluous Scurff with the Back of your Pen-knife, and most on the Back of the Quill, that the Slit may be the finer, and without Gander's Teeth (as the Roughness of the Slit is by some called) After you have scraped the Quill as above said, cut the Quill at the End, half through, on the back Part; and then turning up the Belly, cut the other half or Part quite through, *viz.* about a quarter or almost half an Inch, at the End of the Quill, which will then appear forked: Then enter the Pen-knife a little in the back Notch; and then putting the Peg of the Pen-knife, Haft (or the End of another Quill) into the back Notch, holding your Thumb pretty hard on the Back of the Quill, (as high as you intend the Slit to be) then with a sudden or quick Twitch, force up the Slit; it must be sudden and smart, that
that the Slit may be the Clearer: Then by several Cuts of each Side, bring the Quill into equal Shape, or Form, on both Sides, and having brought it to a fine Point, place the Inside of the Nib on the Nail of your Thumb, and enter the Knife at the Extremity of the Nib, and cut it through, a little floping: Then with an almost downright Cut of the Knife, cut off the Nib; and then by other proper Cuts, finish the Pen, bringing it into handfom Shape, and proper Form: But meddle not with the Nib again; by giving it any Trimming or fine Cutts; for that causes a Roughnes and spoils it: But if you do, to bring the Nib the evener, you must nib it again, as above directed. Note, That the Breadth of the Nib must be proportioned to the Breadth of the Body, or downright black Strokes of the Letters in whatsoever Hand you write whether Small or Text. Note alfo, That in your sitting to write, you place yourself direly against a fore-right Light, or else to have it on your left Hand, (which I esteem best) but by no Means, to have the Light on your right Hand, because the Shadow of your Writing-Hand will obstruct your Sight, and therefore is very improper. And therefore, methinks, all Persons in fixing up their Accompting Houses, should have a particular Regard to their Situation, in respect to what was before mentioned.

Thus far for Direction. Now for Application. I have here set Copies of the most usual, fashionable, and commendable Hands for Business; with Alphabets of Great and Small Letters proper to each. Be sure you make your Letters well, (both Small and Great) before you proceed to joining. Be careful in Imitation, and observe the foregoing Directions, and without doubt you will gain your End. Command of Hand, or the Art of striking Letters, &c. is gained by frequent praftifing after good Examples.
N. B. 'Tis necessary for all those who would qualify themselves for Business, often to imitate this Print-Hand; to make clean Marks on Bales, or plain Directions on Parcels.
ART is gained by great Labour and Industry.
A covetous Man is always, as he fancies, in Want.
Add to your Faith Virtue, and to Virtue Knowledge.
A blind Man's Wife, they say, needs no Painting.
A comely Countenance is a silent Commendation.
A Place of ill Example may endanger a good Man.
A prudent Man values Content more than Riches.
A virtuous Mind is rather to be chosen than Promotion.
A fair Piece of Writing is a Sort of speaking Picture.
All mundane Things run a continual Round.
Authority is the main Point in Government.
All God's Commandments keep most divinely pure.
A Man's Manners oft-times forms his Fortune.
A great Lyar is seldom believed, tho' he speaks Truth.
All evil Things and vain, strive never to maintain.
A virtuous minded Youth, will ever love the Truth.
A prudent Youth and wife, will not Advice despise.
All you that write well, strive others to excel.
Abundance ruins some, but Want makes all to moan.
Amendment still should shine, in all and every Line.
A greater Loss can't be, than that of Liberty.
A good and virtuous Lad, will shun whate'er is bad.
Abundance proves a Snare, but most of Want are aware.
All Idlenefs avoid, by it most are destroy'd.
All idle lazy Boys, obstruct their Parents Joys.
A Man by Conduct may keep Misery away.
All Mishap hath been occasion'd by our Sin.
Avoid th' Occasion still, of running into ill.
A Youth that would transcend, must ever mind to mend.
A Lad that would excel, must mind his Copy well.

Bounty is commendable in some, but it ruins others.
By a commendable Deportment we gain Reputation.
By Delight, and some Care, we come to write fair.
By Diligence and Industry, we come to Preferment.
Beauty without Virtue, is but a painted Sepulchre.
Beauty commands some, but Money all Men.
By constant Amendment, we rise to Preferment.
Brave Men will do nothing unbecoming them selves.
Be wise and beware; of blotting take care.
Bounty is more commended than imitated.
By Iniquity and Sin, Misfortunes enter in.
By Idleness and Play, Youth squander Time away.
Barren are those Joys, we waste away in Toys.
Bless'd are their Joys above, who do their Time improve.
Badness brings all Sadness, therefore follow Goodness.
By trusting to To-morrow, Men plunge themselves in Sorrow.
Be wise betimes, shun darling Crimes.

Contentment is preferable to Riches and Honour.
Can they be counted wise, who Counsel do despise?
Care mixed with Delight, will bring us soon to write.
Consider the shortness of Life, and Certainty of Death.
Contentment is a Gem, beyond a Diadem.
Competency with Content, is a great Happiness.
Contention and Strife, make uneasy our Life.
Courtiers receive Presents in a Morning, and forget e'm by (Night.

Caution and Care, oft baffle a Snare.
Contentment makes a Man happy without a Fortune.
Censure no Man, nor detract from any Man.

Delight not Infirmitities, nor triumph over Injuries.
Delight and some Care, will make you write fair.
Delight in Virtue's Ways, and then you'll merit Praise.
Death conquers potent Princes, and their Powers.
Delight in what you undertake to learn.
Duty, Fear, and Love, we owe to God above.
Death is before the old Man's Face, and may be at the (young One's Back.

Death only can declare, what Dust the Bodies of all Mortals (are.

Drinking is the Drowning of Cares, not the Cure of them.
Death destroys not the Soul, but an ill Life does.
Do to others as you would, that they unto you should.
Delay is the Remora to all good Success.
Deprive no Person of his lawful Due, left they should do (the same by you.

Delight and Pleasure's but a golden Dream.
Death is less fear'd by a Fool than a Philosopher.

Endless Joys have those, whose Sins are vanquish'd Foes.
Every Plant and Flower, shews to us God's Power.
Example oft doth rule, the wife Man and the Fool.
Examples oft prevail, when Arguments do fail.
Every idle Thought, to Judgment must be brought.
Every Sluggard is the Cause of his own Misfortune.
Envious Men do fret, when they see others get.
Evil Company makes the Good bad, and the Bad worse.
Experience is the best Looking-Glass of Wisdom.
Even at Head and Feet, be sure your Letters keep.
Endeavour to do well, and then you may excel.
Every Man is right, that mixes Profit with Delight.
Evil Men and fly, take Care how you come nigh.
Envy and Care, make the Body grow spare.
Every money'd Man, hath others at Command.

Fair Words commonly dress foul Deeds.
Fair Faces have sometimes foul Conditions.
Few do Good with what they have gotten ill.
Future Events must be left to Providence.
Fools are ruled by their Humour, but wise Men by Interest.
Firm keep your Mind on Things that are sublime.
Fear is a good Watchman, but a bad Defender.
Fate will still have, a kind Chance for the Brave.
Fraud in Childhood, will become Knavery in Manhood.
Fear without Hope turns to Despair.
Faith and Hope are both dead when divided.
Fortune at some Hours to all is kind.
Feign'd Looks oft hide what the false Heart doth know.
Fortune and Fame create a great Name.
Friends in Adversity are not often found.
Fools and Knaves are not Companions for honest Men.
Frugality and Industry are the Hands of Fortune.

Godliness with Contentment is great Gain.
Good Manners in a Lad, will make his Parents glad.
Great Minds and small Means ruin many Men.
Good Manners, Grace and Truth, are Ornaments in Youth.
Good Men, as well as bad, have sometimes Fortunes sad.
Great Good you sure will find, if you are well inclin'd.
Godliness hath the Promise of the Life that now is, &c.
God's Works only are perfect in their Kind.
Gluttony ranfacks Noah's Ark for the Riot of a Meal.
Grief nourish'd in your Breast, will never let you Rest.
Greater Profit doth always come of Learning than of Play.
Great Men, tho' they shou'd, are not always good.  
Good Men are safe when wicked Ones are at odds.  
Get what you get honestly, and use it frugally.  
God is Omnypresent, True, and Almighty.  

Hasty Resolutions are seldom fortunate.  
He that stumbles, and falls not, mends his Pace.  
Honour and Renown, will the Ingenious crown.  
Hypocrites first cheat the World, and at last themselves.  
Honour that is true, 'tis lawful to pursue.  
Human Life will human Frailties have.  
He that sends a Fool of an Errand, ought to follow him.  
Honours are Burthens, and Riches have Wings.  
He is a wise Security, that secures himself.  
He that sins against Conscience, sins with a Witness.  
Honour the hoary Head, that Virtue's Paths do tread.  
Happy are their Joys, who turn away from Toys.  
Hours fly swift away, improve each Moment in the Day.  
He that swims in Sin, must sink in Sorrow.  
He that fears not an Oath, will not tremble at a Lye.  
He hath his Work half done, that hath it well begun.  

Instruction, and a good Education, is a durable Portion.  
Ignorance is the greatest Enemy to Learning.  
In praising sparing be, and blame moit sparingly.  
Imaginary Toys, do please some idle Boys.  
Intemperance is attended by Diseases, and Idleness with Want.  
It is good to have a Friend, but bad to need him.  
Idleness and Sloth, decreaseth Learning's Growth.  
Innocency need not fear the Lion, or the rugged Bear.  
It is better to be unborn than untaught.  
It is too late to spare, when the Bottom is bare.  
Idleness hath no Advocate, but many Friends.  
Improvement of Parts, is by Improvement of Time.  
If you'd win a Pen of Gold, first learn well the Pen to hold.  
It is the Work of an Age, to repair the Miscarriage of an  

Keep a close Mouth, if you'd have a wise Head.  
Kings, as well as mean Men, must die.  
Kings may command, and Subjects must obey.  
Kingdoms and Crowns, must in the Dust be laid.  
Knowledge sublime, is gained by much Time.  

Keep
Keep at a Distance from Company that's ill.
Keep good Decorum in your Words and Deeds.
Keep close your Intention, for Fear of Prevention.
Kings may win Crowns, but cannot conquer Death.
Keep Faith with all Men, and have a Care of a Lie.
Keep good Company, if you'd keep a good Name.
Knowledge, if abus'd, is like a Gem ill us'd.
Kingdoms bring Care, and Crowns are heavy Things to wear.
Keep out evil Thoughts by entertaining good Ones.
Kind Actions neglected, make Friendship suspected.
Keep safe good Counsel, and entertain not ill Advice.
Kindle not Passion's Fire, it burns with dreadful Ire.

Learn to live, as you would wish to die.
Love and Honour will bear no Rivals.
Learn to unlearn what you have learnt amiss.
Learn now, in Time of Youth, to follow Grace and Truth.
Liberty is grateful to all, but destructive to many.
Lying is the Duty of none, but the Custom of many.
Learning no but love, and then you will improve.
Liberality, without Discretion, becomes Prolufeness.
Let no Jeft intrude upon good Manners.
Learn now, in youthful Prime, to husband well your Time.
Learn how to make as well as use a Pen.
Liberality should have no Object but the Poor.
Lost Opportunities are very rarely, if ever, recovered.
Let not the work of To-day be put off 'till To-morrow.
Laugh not out of Measure, nor out of Season.

Money makes honest Men and Knaves, Fools and Philo-
(sophers.

Monuments of Learning are the most durable.
Many know Good, but do not the Good they know.
Make use of Time, now whilst you're in your Prime.
Money commonly corrupts both Church and State.
Many think not of living, 'till they can live no longer.
Money pleads all Causes, and defends all Titles.
Many, when they have fill'd their Bellies, complain of weak (Stomachs.

Measure not Goodness by good Words only.
Marriage is out of Season, if we are either too Young or (too Old.
Most precious Time esteem, which no One can redeem.
Many live Beggars all their Lives, that they may not die so.
Money makes some Men mad, many merry, but few sad.
Many are led by the Ears more than by the Understanding.
Most precious Things are still possess'd with Fear.
Many are made Saints on Earth, that never reach Heaven.
Men of Intrigue commonly fail with all Winds.
Money answers all Objections, and removes all Scruples.
Money and Poverty make great Knaves and little Ones.
Misfortune is the Touchstone of Friendship.
Marriage, says some, breeds Cares and Cuckolds.
Mend your Manners, and that will mend your Fortune.
Many want Help that have not the Face to ask it.
Momentary and vain, is all earthly Gain.

Nothing is constant in this uncertain World.
Necessity is commonly the Mother of Invention.
Next to a good Conscience, prefer a good Name.
None so high can be, as no Mis-hap to see.
Nothing is so hard but Diligence may overcome.
No Talk's too hard, when Heaven's the Reward.
None can lay himself under an Obligation to do Ill.
Never lament or weep, for Loss of what you cannot keep.
Noife and Talk, without some Rule, doth indicate that
(Man a Fool.

Nature seldom changes with the Climate.
Never study to please others, and thereby ruin yourself.
Nature's oldest Law we find, is that we to ourselves be kind.

Opportunity neglected, brings severe Repentance.
On present Time depend our future State.
Opus and Ufus, as we read, are sometime Latin for our Need.
Of what gives most Delight, we soonest lose the Sight.
Omitting doing Good, is a committing Evil.
Orators are more solicitous to speak well than to do so.
Our Sand doth run apace, and soon we end our Race.
Our Inclinations get the Rein, to gain a Point we should
(restrain.

Our Minds must be cultivated, as well as our Plants.
Other People's Death should be Memento's to our own.
Our early Care should be, to live most piously.
Our Time of Life is call'd a Span, by which observe how
(frail is Man.

One false Step sometimes prevents another.
Provide against the worst, and hope for the best. 
Poor Men want many Things, but covetous Men all. 
Patience and Time run thro' the roughest Day. 
Put to your Tongue a Bridle, that it talk not idle. 
Pain, Disgrace, and Poverty, have frightful Looks. 
Prayers and Provender hinder no Man's Journey. 
Put not off the main Business of Life, to the very Article 
(often Death:)
Pain we can count, but Pleasure steals away. 
Poor Freedom is better than rich Slavery. 
Patience is the Lord of the lean Meat of Adversity. 
Passion and Partialty govern in too many Cases. 
Perfection in this World, is Virtue; and in the next, 
(Knowledge.)
Quick Promisers are commonly slow Performers. 
Quietness and Content, are Mates most Excellent. 
Qualify exorbitant Passions with Quietness and Patience. 
Quiet Men have quiet Minds, and enjoy Content. 
Quicken Learning with Alacrity and Delight. 
Quarrelsome Persons sometimes meet with their Match. 
Quot Homines tot Sententiae, so many Men, &c. 
Quills are made for Pens, and Pens for Letters. 
Quietly learn to bear a Cross, if we repine, 'tis to our Loss. 
Questions in jest, no serious Answers need. 
Quench Passion's Heat; don't suffer it to reign. 
Quantity with some is what they'd hit; but Quality prevails 
(with Men of Wit.)
Remember your Duty to God, your Neighbour and yourself. 
Repentance comes too late, when all is consumed. 
Reason should always guide, and o'er our Acts preside. 
Reputation is the Darling of human Affection. 
Rest continued long, makes Idleness grow strong. 
Rely on Virtue more than Blood, for that is what you shou'd. 
Repent To-day, To-morrow may be too late. 
Reputation is like a Glass, when cracked, it will be crazy. 
Reputation is gain'd by many Actions, and lost by one. 
Remember Death, and do not forget Judgment. 
Religion in Hypocrites, is as it were but Skin deep. 
Relations and Friends, pursue their own Ends.

Religion
Religion hath and doth give Countenance to much Wick-Riches' serve a wife Man, and rule a Fool.

Run no great Risque for 'vantage small, tho' some for Money (hazard all.)

Reason's Dictates follow still; which if you do, you'll ne'er (do I'll.

Righteous Men's Prayers shall be regarded.

Repentance is a quite forfaking Sin; but he repents not (that remains therein.

Resolve to amend, and pursue it to your End.

Review the Time that you have misspent; think upon it, (and lament.

Recreation should fit us for Business, not rob us of Time.

Sin and Sorrow are inseparable Companions.

Some are too stiff to bend, and too old to mend.

Some willinglier discharge a Reckoning, than pay a Debt.

Sin is oft certain, first Cause of Misfortune.

Study to live quiet, and to do your own Business.

Some in their Zeal are hot, but Knowledge they've not.

Set Bounds to Zeal by Discretion.

Silence is the Sanctuary of Prudence and Discretion.

Sloth is an Argument of a mean and degenerate Mind.

Short and therefore vain, is all earthly Gain.

Soft Words, sometimeters, work upon the proudest Heart.

Sleep and Idleness are Enemies to Learning.

Sin is the Cause of Shame; who love it are to blame.

Small Means, and large Minds, ruin many Men.

Short are all Extremes, whether of Good or Ill.

Spend Time in good Duties, and Treasure in good Works.

Some go fine and brave, finely to play the Knave.

Six Foot of Earth, ends all Distinctions of our Birth.

Some must die, that others may live, said the Grave-digger.

Silly People are commonly pleas'd with silly Things.

Some are full of oral Sanctity, and mental Impiety.

Small Profit comes from all ungodly Gain.

Train up a Child in the Love and Practice of good Manners.

The End of Mirth is many times the Beginning of Sorrow.

Time is so swift of Foot, that none can overtake it.

Time paffeth swift away, no Mortal can it stay.

Time paffeth swift away, improve therefore each Day.

The doing nothing, is very near doing Evil.

Thos
Those who won't mend To-day, shall have more Work
(To-morrow.
The Borrower is a Slave to the Lender; and the Security
(Slave to both.

Truth is the strongest Bands of human Society.
The Endowments of the Mind, ought not to be confined.
There's no discerning Pate, that can contend with Fate.
The Destruction of the Poor is their Poverty.
The Country cares not what the City thinks.
To do Good is the Way to find it. 1770.
'Tis just so much lost as idly spent.
There is no such Thing in Nature as Perfection.
Time, Tide, and Carriers, will for no Man stay.
The Unfortunate are insulted by every Rascal.
'Tis inhuman to sport with another's Infirmities.

V

Virtue is first to be sought for, and Money the next.
Vain and transitory, is all mundane Glory.
Virtue and Fortune work Wonders in the World.
Value more good Conscience than a great Fame.
Unwillingly go to Law, and willingly make an End.
Understanding a Thing is half doing it. 1769.
Variety is the Happines of Life. 1 2 3 4 5 6 7.
Virtuous and brave Actions gain Reputation.
Use soft Words and hard Arguments. 1 7 5 9.
Virtue is commended of all, but follow'd by few.
Unthankfulness is the Cause of the Earth's Unfruitfulness.
Vain Conceitedness is ridiculed by all. 1 2 3 4 5.
Virtue is seldom found a Match for Power.
Understand Things not by their Form, but Quality.
Virtue all commend, but few do it attend.
Union and Peace, make Discord to cease. 1 7 6 9.
Valor and Greatness, are preferr'd before Neatness.
Vain and foolish Things, Disreputation bring.
Virtuous Actions will, bring Reputation still.

What is more vain than publick Light to shun.
Who fears no Bad, stands most unarmed to ill.
What pleases God must be, none alters his Decree.
We are many Times deceived with the bare Shew of Good.
Women and Wine, tho' they smile, they make Men pine.
When Fortune knocks, be sure to ope the Door.
Wine is a Turn-coat, first a Friend, then an Enemy.
What is violent is seldom permanent. 1, 4, 10, 9.
When good Cheer is lacking, our Friends will be packing.
We dance well, while Fortune plays on the Musick.
We keep a better Account of our Money than our Time.
Wickedness in Jeal, leads us to Wickedness in Earnest.
We must not blame Fortune for our own Faults.
Where Knavery is in Credit, Honesty is put out of Countenance.

We must look to Time past, to improve what’s to come.
What is fixed in our Hearts, is seldom out of our Heads.
Wickedness comes on by Degrees, as well as Virtue.
Would you be rich, be industrious; if wise, be studious.

Xenophon was a great Captain, as well as a Philosopher.
Xerxes wept at the thoughts that his vast Army would be
(dead in 100 Years.
Xerxes whipt the Sea because it would not obey his Command.
Xenocrates, tho’ a Philosopher, was very dull and heavy.
Xenophilus liv’d without Sickness one hundred and seven Years.
’Examples of the best for ever mind, and imitate in kind.
’Xpel bad Thoughts, and what is Sin, forth of your Mind,
(and let what’s good come in.
’Xamine well how you improve, for that will be as you
(your Learning love.
’Xercise will much Improvement gain. 1 2 3 4 5 6.
’Xperience is the Mistress of all Arts and Sciences.
’Xcel in what you can, and strive to lead the Van.
’Xpress your Desire to learn by your Diligence.

Youth is full of Disorder, and Age of Infirmity.
Young Men lament, your Minutes mispent.
Your Time improve, and squander’t not away.
Your Spelling mind, and Sense of what you write.
Yield quietly to what must come unavoidably.
Young Men in Strength should provide against Age and
(Weakness.
Youth in their Prime, should manage well their Time.
Youth to the Grave do go, as well as the Aged do.
Yield yourself Servant to Righteousness and to Holiness.
Your Copy mind, write fair, and of blotting beware.
Your care should appearly writing most fair.
Your Delight and your Care will make you write fair.
Zeal, in a good Cause, commands Applause.
Zeal, mixt with Love, is harmless as the Dove.
Zealously strive, with Emulation write. 1770.
Zealously strive for an eternal Crown. 1 2 3 4 5.
Zeno was the first of the Stoic Philosophers.
Zeal without Knowledge; is but Religious Wild-fire.
Zaccheus he was low, but yet his Faith won't so.
Zeal, if not rightly directed, is very pernicious.
Zealously bend amain, fair writing to obtain.

Short Lines for Text Hand.

Abandon whatsoever's Ill —— Be Wise betimes.
Care Destroys the Body—Do the Things that are Just.
Expect to receive as you give—Frequent good Company.
Give what you give cheerfully—Have good Men in Esteem.
Imitate that which is good—Keep God's Commandments.
Learn to be wise———Money answers all Things.
Nothing get, nothing have———Observe Modesty.
Pleasures are very short—Pains are very long.
Quit all Revenge—Quiet your Passions.
Recompence a good Turn—Repent of your Sins.
Spare for to live—Sin very little.
Time will improve———Turn from your Sins.
Use moderate Pleasure—Use not bad Company.
Vain are some Pleasures—Vile are some Vulgar.
Wisdom is the principal Thing—Wise Men are scarce
Xenophon and Xenoc ates —— Zeno and Zenobia.

Double Lines in Verse.

All you that in fair writing would excell,
How much you write regard not, but how well.
Bear your Pen lightly, keep a steady Hand,
And that's the Way, fair Writing to command.
Carefully mend in each succeeding Line.
For that's the Way to reach to what is fine.
Descending Strokes are dark, but upwards small;
Even at Head and Feet keep Letters all.
From Blots keep clean your Book; and always mind,
'To have your Letters all one Way inclin'd.
Grace every Letter with perfect, full and small,
And keep a due Proportion in them all.

Hold
Hold your Pen lightly, grip it not too hard,
And with due Care your Copy well regard,
Join every Letter to its next, with Care,
And let the Stroke be admirably fair.
Keep a light Hand, and smoothly glide along,
Ascending fine, and downward Strokes are strong.
Let graceful Beauty in each Line appear,
And see the Front do not excel the Rear;
Majestic Grace, beautiful and strong,
Doth, or else ought, to every Line belong.
No rough Edges ever should be seen;
But all the Letters should be smooth and clean.
Of Care depends the Beauty of each Line,
For that alone will make your Art to shine.
Praise is deserving to the careful Hand,
But to the Unthinking, doth Correction stand.
Quit yourfelf nobly, with a prudent Care,
Of clumsy Writing, and of Blots beware.
Remember strictly, what the Art enjoins,
Equal siz'd Letters, and as equal Lines.
Small Letters must of equal Height be seen
The fame of Great; both beautifully clean.
Time and Delight will easy make the Task:
Delight, Delight's the only Thing I ask!
Vain are the Hopes of those that think to gain
This noble Treasure, without taking Pain.
Whilft idle Drones supinely dream of Fame,
The Induflrious actually do get the fame.
'Xamples of the best, with Emulation strive,
To imitate, and then your Name'll survive.
Youth is the Time for Progress in all Arts;
Then use your Youth to gain most noble Parts.
Zeal for Attainment of each Art should burn
With fervent Warmth, then to Account 'twill turn.

Since good Ink is necessary to good Writing, I shall give
a Receipt or two for making some of the best black Ink in
the World, which is as follows, \textit{viz.}

\textit{A Receipt for Black Ink.}

To fix Quarts of Rain or River Water, (but Rain Wa-
ter is the best) put one Pound and a Half of fresh blue
Galls of \textit{Aleppo} (for those of \textit{Smyrna} are not strong enough)
bruised pretty small; 8 Ounces of Copperas, clean, rocky, and green; also 8 Ounces of clean, bright, and clear Gum Arabick; and 2 Ounces of Roche Allum: Let these stand together in a large Stone Bottle, or clean Stone Pot, or earthen Pot, with a narrow Mouth to keep it free from Dust; shake, roll, or stir it well, once every Day, and you will have excellent Ink in about a Month's Time: And the older it grows, the better 'twill be for Use.

Ingredients for a Quart.

1 Quart of Water, 4 Ounces of Galls, 2 Ounces of Copperas, and 2 Ounces of Gum, mix'd and stirred as above.

If you soak the green Peeling of Walnuts (at the Time of the Year when pretty ripe) and Oak Saw-dust, or small Chips of it, in Rain Water, and stir'd pretty often for a Fortnight, and then strain'd, and the Water used with the same Ingredients as above, the Ink will still be stronger and better.

How to make Red Ink.

Take 3 Pints of Stale Beer, (rather than Vinegar) and 4 Ounces of ground Brazil Wood; simmer them together for an Hour; and then strain it thro' a Flannel, or, &c. then bottle it up (well stop'd) for Use.

Or you may dissolve half an Ounce of Gum Stennega, or Arabick, in half a Pint of Water; then put a Pennyworth of Vermillion into a small Gallipot and pour some of the Gum Water to it, and stir it well, and mix it together with a Hair-pencil, to a proper Consistency; but it will not incorporate presently, but by the next Day it will; then having a clean Pen, dip it into the Ink, having first well stirr'd it with the Pencil, and then you may use it; It is a fine and curious Red, tho' not so free as the other. And after the same Manner, you may make any other colour'd Ink, as Blue, Green, Yellow, Purple, &c. having divers Gallipots for that Use. In like Manner, you may mix the Shell Gold, for curious Occasions, pouring two or three Drops, according to Direction, into the Shell, and mix it well with a clean Hair Pencil, and with it put a little into a clean Pen, &c. The small Shells may be bought at some Fan-sellers, or Fan-painters, at two or three for Two-Pence; or the large ones (which are the best) at the Colour-stores, at Six-Pence a Piece.
To keep Ink from Freezing or Moulding.

IN hard frosty Weather, Ink will be apt to freeze; which if once it doth, it will be good for nothing; for it takes away all its Blackness and Beauty. To prevent which (if you have not the Conveniency of keeping it warm, or from the Cold) put a few Drops of Brandy, or other Spirits, into it, and it will not freeze. And to hinder its Moulding, put a little Salt therein.

Familiar Letters on several Occasions, and on divers Subjects.

BEFORE we enter upon Arithmetick, it may be proper to give some Examples of Letters on various Subjects, and upon divers Occasions; which Letters frequently read over, and sometimes copied, it may be a good Introduction, to a handsome Style of Sense, and to a commendable Manner of Writing; besides the Help and Use they may be of in noting and observing the Method of Spelling good English, and orthographically placing Great Letters, or Capitals, where they ought to be; and also an imprinting in the Mind the due Notion of Points, Stops, &c. and when and where to be made.

Letters are variously worded, and ought properly to express the Desires, Thoughts, &c. of the Writer to the Reader, that thereby the Receiver of the Letter may fully understand, and be justly inform'd of the Occasions, Wants, or Intentions of the Sender.

Letters being writ on divers Subjects, and on sundry Occasions, they may be ranked under these Denominations, or several Heads following, viz. Letters of proffered Assistance, Letters Consolatory, Letters of Thanks, Letters Congratulatory, Ditto of Reproof, Ditto of Excuse, Ditto Accusatory, Ditto of Advice or Counsel, Ditto of Recommendation, Ditto Exhortatory, Ditto of Remonstrance, and Letters of Visit, properly called Familiar Letters, Letters of Business; and lastly, Mixed Letters, that is, on various Subjects, and different Affairs.

I shall not have Room to touch upon every one of those particularly; but I shall give sundry Examples promiscuously exhibited, and are such as these that follow, viz.
A Letter from a Son to his Father.


Honoured Father,

WITH all dutiful Respect, I trouble you with these Lines, to enquire of the good State of your Health; (of which I shall be extreamly glad to hear) and to present you my most humble Duty, and tenders of filial, and most affectionate Service. I have not had the Favour of any Letter from you, since that from you dated the 8th of October last, which I reply’d to very next Post, and in such Particulars as you enjoin’d me. I have sent you, Sir, by Samuel Simple, the Pensy Carrier, a Spaniel Dog, which is an excellent good one of his Kind, and fit for the Sport of your Place; his Name is Tray, and is very free for the Water; and if he hath any Fault, it is being a little too eager, but he is young, and may be brought to what you please to have him. I hope my Sister Mary is well, to whom pray give my kind Love, and also be pleased to accept of my Duty to yourself, which is the Present needful from,

Sir, your most Dutiful Son,

and humble Servant,

Anthony Addlehill.

The Answer.

Pensy, 5th Dec. 1768.

Dear Tony,

I received your Letter of the 4th Instant, and I take Notice of your dutiful Respect and kind Wishes for my Health, which, I thank God, I perfectly enjoy at present, as I wish and hope you do yours.—I received your Present of the Dog; but the poor Cur was almost starved, having (as I suppose) had nothing on the Road; but he is now in good Condition, and hath been try’d as to his Mettle, and find he is a good one. I have sent you by the Carrier half a Dozen wild Ducks, which Tray fetch’d when I had shot them. Your Sister Molly remembers her kind Love to you, and hath sent you a Turkey, and a Chine of Bacon, to which I wish you (and your Friends, if you invite any) a good
good Stomach. With my Blessing and Prayers to God for you, conclude your tender and very

Loving Father,

Andrew Addlehill.

P. S. We have a great many Wild Fowl in our Level, so that you may expect another Present of that Kind in a little Time.

Note, That these few short Lines are called the Postscript, because they are writ after, when the Body of the Letter is done.

A Letter from a Young Man to his Uncle.

Honoured Uncle,

Norwich, Dec. 7, 1768.

S I R,

The many kind and courteous Things that you have done for me, oblig'd me in Point of Gratitude, as well as Duty, to return you my most humble Thanks, and to offer you my poor, but real and hearty Service, in the Affair between you and Mr. A. B. of this Place: And if you'll please but to communicate to me your Intentions, and give me your Directions therein, I shall observe and follow them with all Punctuality; and will from Time to Time give an exact Account of my Negotiations in that Affair.

So expecting to receive your Commands by the first convenient Opportunity, I rest and remain,

Sir, your most obliged Nephew,

and very humble Servant,

Brian Bing.

The Uncle's Answer.

London, 8th Dec. 1768.

Nephew,

I take your Offer of Service to me in the Business between me and Mr. A. B. of your City, very kindly, and think none fitter to adjust that Affair than yourself; but I am unwilling to go to Law, and had rather, much rather, that you would endeavour to bring him to some reasonable Accommodation; for in such Contests the Winner is a Loser at the Upshot. So if I can bring him to any reasonable Terms, I shall be very glad: You understand the Affair,
and so I shall commit it wholly to your discreet and good Management, being persuaded that you'll do for me as for yourself: So I remain your Loving,

And Affectionate Uncle.
Bazil Bing.

A Letter from a Niece to her Aunt.

London, 9th Dec. 1768.

Madam,

The Trouble I have already given you, puts me to the Blush, when I think of intruding again on your Goodness; but Necessity, that frequently puts us upon what we have not always a Mind to, and forces us against our Inclinations, is now the Motive that induces me to be thus troublesome. Pray dear Madam, excuse me, if I once more beg your Assistance in this Time of my unlucky Misfortune, and I shall ever have a grateful Remembrance of your Goodness to me; and I hope I shall be one Time or other in a Capacity of making some Returns of the many Obligations your Goodness hath conferred upon me, your most respectful Niece,

And humble Servant,
Penelope Pinch.

A Letter of proffer'd Assistance to a Friend.

Dear Friend,

Should be false to true Friendship, if I should neglect or cast off my Friend in Adversity; I hearing that you are under some Misfortune, and, at present somewhat pinch'd with Want, I send you these Lines for your Consolation, desiring you to bear up against your ill Luck with as much Presence of Mind as you can; for assure yourself I shall suddenly follow this Epistle in Person, and come, I hope, opportunely enough to your Assistance; 'till which Time, take Courage, and be assured that you shall not be disappointed of timely Help, from dear Friend,

Your's, in Reality,
Timothy Timely.
A Brother
Dear Sister,

THE great Distance and long Absence of me from you (tho' I have not wanted good company) makes me very solicitous concerning your Welfare. Natural Affection inclines me strongly to have you in Remembrance, tendering your Health and Welfare in every Respect as dear as my own; and there is nothing at my Command, but, if you request, it shall be freely yours. Notwithstanding the Distance, I purpose (God willing) to make you a Visit very shortly, and had done it before now, but an urgent Occasion interpos'd, the Particulars of which being too long for a Letter, I shall acquaint you of when I see you. Pray give my due Respects to all Friends, particularly to honest Mr. S. T. and so in a hopeful Expectation of finding you all well at my Arrival, I conclude, and remain,

Dear Sister,
Your affectionate Brother,
and humble Servant,
James Canter.

A Letter from a Youth at School to his Parents.

London, 10th Dec. 1768.

Honoured Father and Mother,

I Received your kind Letter of the 4th of November past, and also the several Things therein mentioned, by the Chichester Carrier, for which I return you my most humble and hearty Thanks; they coming very seasonably to the Relief of my Occasions.—I begin to make pretty good Improvement in my Learning now (tho' at the first it seem'd a-like irksome, and hard) and I hope to gain the Point at last, for which you sent me hither. Pray, dear Parents, accept of my most humble Duty to yourselves, and kind Love pray remember to my Brothers, and Sistars, and to my quondam Play-fellows, particularly to Jacky Rattlebrains, and tell him I hope by this Time he begins to be a little serious.—This being all at present from,

Honoured Parents,
Your dutiful Son, and humble Servant,
Nathaniel Serious.

From
The Young Man's Best Companion.
From an Apprentice to his Friends.

Honoured Father and Mother,

By these I let you know, that by your good Care and Conduct I am well settled, and am very well pleased with my Station, and could not but in Duty return you my hearty Thanks in a grateful Acknowledgment of your Love and tender Care of me; I will endeavour to go thro' my Business cheerfully; and having begun well, I hope I shall persevere so to do to the End, and that I may be a Comfort to you hereafter, and in some Measure make a Return of your Love and Kindness to me, who am,

Your most dutiful and obedient
Son, and Servant,
Daniel Diligent.

A Letter of Recommendation.

Sir,

The Bearer hereof Francis Faithful, I send to you as one whose Honesty you may rely on, and my Experience of his Conduct and Fidelity gives me a certain kind of Confidence, in recommending him to you; but you know me, Sir, and I believe you cannot in the least think that I would recommend any one to you, that I had the least Umbrage of Suspicion or Doubt concerning their Probity. I am with due Respect,

Sir, your real Friend,
and humble Servant,
George Generous.

A Daughter to a Mother, in Relation to Marriage.

Honoured Mother,

With all Duty, Humility and Respect, I address myself to you in these Lines, hoping they will find you in perfect Health both of Body and Mind, for which I am never wanting in my Prayer to implore. As I would act nothing that is very material, without your Knowledge, Consent, and Approbation, I thought it my Duty to acquaint you of a Matter of the greatest Weight and Importance, pardon me, if I blush to name it, viz. that of my Marriage; the Person (as I think) is well deserving of me,
or one much better; it is Mr. A. B. of C. You know both him and his Character, viz. one sober, diligent and good humour’d; but however I shall submit to your good Pleasure and Guidance in an Affair of such momentous Concern, and remain,

Honoured Mother,
Your dutiful Daughter,
and very humble Servant,
Mary Modesty.

To a Country Chapman.

London, 11th Dec. 1768.

Mr. Francis Fairdealer,

YOU and I have formerly had Trading together, and it is not my Fault that we do not continue so to do; for assure yourself, I have a great Value and Respect for you, and on that Account none shall be more ready to oblige you in what I may; and pray let us once more re-assume our Dealings together; and you shall find, that for any Goods you have Occasion for in my Way, none shall use you more kindly than,

Sir,
Your real Friend, and humble Servant,
Titus Tradewell.

A Letter of Congratulation.

Sir,
If you were but sensible how much I am affected with the good and most acceptable News that I hear of your good Fortune, you would conclude that the Joy that surprises me for the same, is equal to yours that enjoy so happy a Turn of Providence: I could express myself further on this Theme, and enlarge exceedingly on so pleasing a Subject; but let this at present suffice, till I have a more favourable Opportunity of expressing my Joy to you personally: In the Interim, I am truly,

Sir,
Your sincere Friend,
and very humble Servant,
Ralph Real.

C 5
A Letter of Enquiry of Health.

Hammersmith, 12th Dec. 1768.

S I R,

Not hearing from you in such a Length of Time as from the 11th of June last to this Time, I am therefore under a great Concern for you, lest some Misfortune of Sickness, or some other Accident, hath happened to you, or to some one of your Family; my Uneasiness thereon, occasions my giving you the Trouble of these Lines, which I wish may find Things with you better than my Fears suggest; however to put me out of Pain, be pleas'd to let me know the Certainty with what convenient Speed you can; and thereby you'll very much oblige,

Sir,

Your cordial and real Friend,
and very humble Servant,
Peter Pitiful.

A Letter by Way of Petition to a Friend.

Honoured Sir,

I am uncertain whether my late Misfortunes have come to your Knowledge; however, I most humbly presume on your good Nature, being assured by sundry Examples of your Compassion, that you will think of, and take Pity on the Distressed; therefore, as an Object truly deserving Compassion, I most humbly implore, and petition you to consider the many Losses and Disappointments that I have met with in my unlucky and wayward Fortune, which have reduced me to such necessitous Circumstances, that I cannot possibly proceed in my Affairs: You was pleased once to file me your Friend, and so I was indeed; and so I would most certainly be now, and shew it by a signal Proof of Kindness, if our Circumstances were changed, by standing between you and Misfortune, and screening you from the malevolent and inauspicious Influences of crofs-grain'd Stars. I doubt not, Sir, but your Generosity and Goodness is as great; and I hope, with all Humility, you will be pleased to interpose your good Offices, &c. between unlucky Fortune, and,

Sir,
Your very humble Servant,
Lawrence Lucklesfs. 

A Letter
A Letter of Friendship.

Dear Friend,

It is now a long time (as I account it) since you and I have had any mutual converse by letter, which to me is a great unhappiness; and really, if distance did not somewhat excuse, I should be apt to tax you with unkindness; but, however, perhaps you may not have the same convenience of writing at your place (for want of postage) as we have at ours, and on that account, I shall not insist on your infringement of friendship; but the chief purport of these is to enquire of your welfare, and to have an answer given to,

Sir,

Your real friend,
and very humble servant,
Kendrick Kindly.

A Letter of Correspondence.

Sir,

Your humble servant,

John Innocent.

It is as proper to know how to subscribe, and how to direct, as it is how to write a letter.

Subscriptions.

To his most excellent Majesty, or, to his most Sacred Majesty, &c.
To the Queen's most excellent Majesty, &c.
To the Prince, To his Royal Highness, &c.
To the Princess, To her Royal Highness, &c.
To Spiritual Lords.
To his Grace the Lord Archbishop of Canterbury, or,
To the most Reverend Father in God, &c.
To other Bishops,
To the Right Reverend Father in God, &c.
To the Inferior Clergy,
To the Reverend Mr. A. &c. or, To the Reverend Doctor, &c.
To Temporal Lords,
To his Grace the Duke of, &c. to the Right Honourable the Marquis of Halifax. To the Right Honourable the Earl of
Of Sufle. To the Right Honourable Lord Viscount Ashburnham.

Sons of Nobility,

Must be dignified (tho' not immediate Heirs) with the Title of Honourable, as being their Due by Birth.

To a Baronet, Honourable, by Virtue of his Patent, or Right Worshipful; and also to a Knight, Right Worshipful. To an Esquire, Worshipful.—Every Privy Counsellor, tho' not a Nobleman, hath the Title of Right Honourable. All Embassadors have the Stile of Excellency; as hath also the Lord Lieutenant of Ireland, and the Captain General of His Majesty's Forces. The Lord Mayor of London, during his Mayoralty, hath the Title of Right Honourable. And the Sheriffs, during that Office, have the Title of Right Worshipful. All Mayors of Corporations have the Title of Esquires, during their Office.

For the Beginning of Letters.

To the King; Sir, or May it please your Majesty.
To the Queen; Madam, or May it please your Majesty.
To the Prince; Sir, or May it please your Royal Highness.
To the Princess; Madam, or May it please your Royal Highness.
To a Duke; My Lord, or May it please your Grace.
To a Dutchess; Madam, or May it please your Grace.
To a Marquis; My Lord, or May it please your Lordship.
To a Marchioness; Madam, or May it please your Ladyship.
To an Earl, Viscount, or Baron; Right Honourable, or May it please your Lordship.
To their Consorts; Madam, or May it please your Ladyship.
To a Knight; Sir, or Right Worshipful.
To his Lady; Madam, or May it please your Ladyship.
To a Mayor, Justice of the Peace, Esquires, &c. Sir, or May it please your Worship.

At subscribing your Name, conclude with the same Title you begun with; as My Lord, your Lordship, &c.

Of Secret Writing.

Here it may not be improper to say something of Secret Writing; to which Bishop Wilkins, in his Book of Mathematical Magick, speaks largely; but it is principally concerning Writing in Cypher, which requires great Pains, and an uncommon Share of Ingenuity, both in Wri-
ters, and Readers. But however I shall shew two or three particular Ways, that are very pretty and amusing, and also very easy both as to Cost and Pains. And,

First, If you dip your Pen in the Juice of a Lemon, or of an Onion, or in your own Urine, or in Spirits of Vitriol, and write on clean Paper whatever you intend, it shall not be discerned till you hold it to the Fire, and then it will appear legible. And if with any of the aforementioned, you write on your Skin, as on your Arm, the Back of your Hand, &c. it shall not be seen till you burn a Piece of Paper, and with the Ashes rub on the Place, and then it will appear very plain. And this I have experienced and try'd, and therefore can say, Probatum est.

Another Way is, When you write a Letter that you intend shall not be discovered, but to those you think fit; is first to write your Thoughts on one Side of your Letter with black Ink, as usual (but it ought to be on thin Paper) and then on the contrary Side, go over the said Matter that you would have secret, with a clean Pen dipp'd in Milk; and that Writing shall not be read without holding it to the Fire, as mentioned above, and then it will appear legible, in a bluish Colour.

A third Method, is to have two Pieces of Paper of equal Size, and the uppermost cut in chequered Holes or Squares, big enough to contain any Word of six or seven Syllables, and in these Squares write your Mind in regular Sense; and then take of the said chequered Paper, and fill up the Vacancies with Words of any Kind, which will render it perfect Nonsense, and not capable of being read, to any Purpose of Intelligence. And transmit and send the said uppermost, or chequered Paper, or another exactly of the same Form, to your Correspondent; whereby he shall by laying it nicely on your said Letter, read your intended Sense, without being perplexed with the Words of Amusement intermixed, which makes it altogether unintelligible.

Or again, you may write to your Friend in proper Sense, with common Ink, and let the Lines be at so commodious a Distance, that what you intend to be secret, my be written between them with Water, wherein Galls have been steeped a little Time (but not long enough to tincture the Water) and when dry, nothing of the Writing between the said Lines can be seen; but when it is to be read, you must, with a fine Hair Pencil, dipp'd in Coperas Water, go between the said
Of ARITHMETICK.

After writing, the next necessary step towards qualifying a person for business, is the understanding that truly laudable and most excellent accomplishment, the noble science of arithmetick; a knowledge so necessary in all the parts of life and business, that scarce any thing is done without it.

In my directions for its attainment, I shall proceed with such plainness of method and familiarity of stile, as shall render it easy to be understood, and conspicuous to the meanest capacity.

And first of notation and numeration.

In notation, we must note or observe that all numbers are expressed by, or composed of, these ten figures or characters following, viz.

One, Two, Three, Four, Five, Six, Seven, Eight, Nine, Cypher.

Nine of these are called significant figures, to distinguish them from the cypher, which of itself signifies nothing; but as it is placed (in whole numbers) serves to increase the value of the next figure or figures that stand before it; as 3 is but three; but before the cypher, thus, 30, the 3 becomes thirty, &c. But in decimal fractions, the (0) decreases the value of the figure behind it; for therein, 3 is three tenths of any thing; but by placing 0 before it, thus, 03, it is decreased from 3 tenth parts, to three hundredth parts of any thing, &c.—We are to note, That every one, or any of the abovementioned nine figures, or digits, have two values; one certain, and another uncertain; the certain value is, when it stands alone by itself; the uncertain is, when joined or placed with other figures or cyphers; for when any one of these figures stands alone, they signify no more than their own simple value; as 5 is but five, 4 but four, 6 but six, and 3 no more than three &c. And this is the certain value of a figure: But when another figure or cypher is annexed, they then are increased in their value.
The Young Man's Best Companion.

Value ten times; as 5, or 5 Units, or Ones, to 5 Tens or Fifty, 4 to 4 Tens or Forty, 6 to 6 Tens or Sixty, and 3 to 3 Tens or Thirty; as thus 51, Fifty-one; 42, Forty-two; 63, Sixty-three; 34, Thirty-four, &c. Again, if any of the said Figures stand in the third Place towards the Left-hand, they signify so many Hundreds as they expressed Units or Ones; as 500 is Five Hundreds, 400 Four Hundreds, 600 Six Hundreds, and 300 Three Hundreds, &c.

If any of them possess the 4th Place towards the Left-hand, they are so many Thousands as they contain Units. And so any, or every Figure, increases by a Ten-fold Proportion from the Right-hand to the Left, according to the Place it is found or stands in; so that 5 may be but Five, or Fifty; Five Hundred, or Five Thousand. In the first Place 5; in the second 50; in the third 500; in the fourth Place 5000, &c. And therefore, this is the uncertain Value of a Figure. But the true Value of Figures in Conjunction, may be fully learnt and understood by the following Table.

The Numeration Table.

<table>
<thead>
<tr>
<th>Hund. Thou. of Mil.</th>
<th>Mil.</th>
<th>Hund. of Thousands</th>
<th>Thousands</th>
<th>Hundreds</th>
<th>Tens</th>
<th>Units</th>
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<td>901</td>
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<td>901</td>
<td>123</td>
<td>456</td>
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<td>123,456</td>
<td>789</td>
<td>012</td>
<td>123,456</td>
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<td>1234,567</td>
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<td>2345,678</td>
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<td>12345,678</td>
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<td>1234,567</td>
<td>123,456</td>
<td>789</td>
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<td>456</td>
</tr>
</tbody>
</table>

For the easier Reading of any Number, first get the Words at the Head of the Table by Heart; as Units, Tens, Hundreds,
dreds, Thousands, &c. and appply'd thus, 75, five Units, 
vie, and 7 Tens, Seventy, that is Seventy-five. Again, 
678; 8 Units, Eight; 7 Tens, Seventy; and 6 Hundreds, 
six hundred; that is, Six hundred seventy-eight. Once more 
3456; 6 Units, six; five Tens, fifty; 4 Hundreds, four 
Hundred; 3 Thoufands, three Thoufand; together, Three 
thousand four hundred fifty-six. Read the 4th Line of the 
Table downwards, viz. 123456789; here the Valuation of 
the Figures is from the Right-hand to the Left, as 1 in the 
ninth Place is Hundreds of Millions; but to be read from 
the Left-hand to the Right; thus, One hundred twenty 
three Millions, four hundred and fifty-six thoufand, seven 
hundred eighty-nine. But any Number may yet be read 
more intelligibly, viz. by Stops, thus, Make a Comma 
after every third Figure or Cypher, beginning at the Right-
hand, and so on towards the Left, making a Stop after 
every third Figure or Cypher, as abovefaid; thereby dif-
tinguifliing every third Place into Hundreds, as Hundreds 
of Units, Hundreds of Thoufands, Hundreds of Millions, 
and Hundred Thoufands of Millions, &c. And for Trial, 
let's read the first Line of the Table; the last Place in Va-
luation is Hundred Thoufands of Millions, and to be point-
ed into Periods thus, 123,456,789,012; and read thus; 
One hundred twenty-three thoufand, four hundred fifty-six 
Millions, seven hundred eighty-nine thoufand, and twelve; 
that is, no hundreds but twelve. Again, read the follow-
ing Number, viz. 276,245,678,921,460; here the first 
Point or Period is between 4 and 1, and the last between 
2 and 6, and to be read thus; 276 Millions of Millions, 
245 Thoufands of Millions, 678 Millions, 921 Thoufands, 
460 Units, or Ones. And thus may any Number be read 
with ease, though a large one: And thus are large 
Numbers or Sums exprefied, or fet out in the Exchequer, 
Bank, Lottery Tickets, &c. as thus No. 224, 156—19, 
478—and 420,000, &c. The foregoing Table of Nume-
ration is on the Right-hand diﬃanced out into Periods, 
for the easier Reading thereof.
Numbers to be read or written, viz.

96, Ninety-six.
242, Two hundred forty-two.
7924, Seven thousand nine hundred twenty-four.
54006, Fifty-four thousand and six.
524707, Five hundred twenty-four thousand seven hundred.
4706240, Four millions seven hundred twenty-four thousand.
62700472, Sixty-two millions seven hundred forty-seven thousand.
474960204, Four hundred seventy-four million six hundred two thousand.
4214007042, Forty-two million fourteen thousand seventy.
44214800240, Forty-four million two hundred fourteen thousand eight hundred twenty-four.

Of Numerical Letters.

Sometimes Numbers are expressed by Letters; and it is necessary to understand them, for the reader Reading the Dates of Years, frequently used at the Foot of Title Pages of Books, and on Funeral Monuments, and in Roman History, &c.

I signifies One.
V Five.
X Ten.
L Fifty.
C An hundred.
CC Two hundred.
D or I0 Five hundred.
M or CCI A Thousand.
I000 Five Thousand.
CC100 Ten Thousand.
I000 Fifty Thousand.
CCCCC1000 A Hundred Thousand.

IOOO Five Hundred Thousand.
CCCCCIOOOO Ten Hundred Thousand, or a Million.
MDCCLXIX, expresses this present Date of 1769, M being One Thousand, D Five Hundred, CC Two Hundred, and LXIX, Sixty-nine; together, One Thousand Seven Hundred and Sixty-nine.

Addition

is the putting together two or more Numbers or Sums, so as their total Value may be discovered, or known.

Herein we must always observe to set the Numbers to be added, orderly one under the other; that is, Units under Units, Tens under Tens, Hundreds under Hundreds, &c. as in the subsequent Examples.
Addition of Numbers of one Denomination.

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| 2 8 6 | 3 5 6 2 | 2 4 7 4 8 4 |

In Addition of simple Numbers, whether it be Yards, Gallons, Pounds, or any Thing else, remember to carry 1 for every 10 that you find in the first Row or Rank of Figures, being Units, to the next Row of Tens; and the like from the Rank of Tens to the Row of Hundreds, &c. and what ever it makes in the last, you must set it down, amount to what it will.

The Numbers above are set down in order, as before directed; that is, Units under Units, Tens under Tens, &c. as may be plainly understood, by being indicated at the Head of each Row, or Rank with Units, Tens, Hundreds, &c. Then in casting up each Example, to know its Total, I begin at the Right-hand, or Unit's Rank, of the first Example, and say, 2 and 4 is 6, and 4 is 10, and 6 is 12, and 8 is 20, and 2 is 22, and 4 is 26; in which Row there are two Tens and 6 over; wherefore I set down 6 just under its own Rank, and carry 2 to the next or last Row, and say, 2 that I carry and 4 makes 6, and 2 is 8, and 8 is 16, and 6 is 22, and 4 is 26, and 2 is 28; and it being the last Row I set down the Amount, viz. 28; so that the Total Number of Yards is found to be (by this Method) at the Bottom 286. And the next or second Example, is found by the same Method to be 3562 Gallons. And in the third and last Example, the Total Number of Pounds is found by the same Way to be 247484. And so the Total of any other Example of the same kind, viz. simple Numbers of one Denomination, may be found. Note, That when any of the Ranks amount to just 10, 20, 30, 40, 50, &c. then you must set down the 0, under its proper Rank, and carry either
either 1, 2, 3, 4, or 5, according to the Number of Tens that you find, to the next Row; and so you will always do, when it so happens, whether in the first, second, or third Row; or in any other, except the last, where what it amounts to must be set down, without any Reserve or Carriage in the Mind, because there is no other Row or Rank to carry to, as was hinted before.

And so much for Addition of Numbers of one Denomination, which never varies from what has been said above; serving strictly to keep the critical, and nicely setting down in perpendicular Order your several Numbers that Units may precisely and directly stand under Units, Tens under Tens, &c. as hath fully been declared before. The next in Order of Course, is Addition of Numbers of several Denominations, or Addition of Money.

As we in England, or Great-Britain, keep our Accounts in Pounds, Shillings, and Pence, and Parts of a Penny; so you are to note, That

4 Farthings make 1 Penny,
12 Pence 1 Shilling, and
20 Shillings 1 Pound.

And here also you are strictly to observe, and with the same Punctuality to mind, that Pounds be set directly under Pounds, Shillings under Shillings, Pence under Pence, and Farthings under Farthings; as in the Examples hereafter following.

But before you proceed, it will be necessary to have the following Tables by Heart, for the readier Knowledge how many Shillings there are in so many Pence, and apprehending how many Pounds are contained in so many Shillings, &c.

<table>
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<tr>
<th>Pence</th>
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</table>
The Use of these Tables is this; whenever you are calling up any Example, or Sum of Money, you begin at the Right-hand (as before in Sums of one Denomination) the Place of Pence, and suppose the Rank, Row, or Denomination of Pence amounts, from the Bottom to the Top, to 56; then your Table of Pence tells you, that 50d. is 4s. and 2d. 6 over is 4s. 8d. If to 92d. the Table tells you that 90d. is 7s. 6d. and 2d. over is 7s. 8d. And if to 81d. the Table shows that 80d. is 6s. 8d. and 1d. more makes 6s. 9d. &c.

The Shillings Table serves to lead you to a quick Recollection how many Pounds there are in so many Shillings; as, admit the Rank of Shillings arise to 157.1. The Table says that 50½. is 2l. 10s. and 7s. over makes 2l. 17s. If to 84½. the Table declares that 80½. is just 4l. and 4s. over makes 4l. 4s. If to 112½. the Table tells you that 100½. is 5l. and 12s. more makes 5l. 12s. &c.

Addition of Money.

Money Owning, and Money Received, as follows.

<table>
<thead>
<tr>
<th>Money Owning</th>
<th>Money Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 12 6d.</td>
<td>Tobacco 46 10 9</td>
</tr>
<tr>
<td>7 06 9d.</td>
<td>Sugar 79 16 0</td>
</tr>
<tr>
<td>4 12 0d.</td>
<td>Indigo 42 18 3</td>
</tr>
<tr>
<td>6 17 7d.</td>
<td>Broad Cloth 66 12 4</td>
</tr>
<tr>
<td>5 06 6d.</td>
<td>Canary 90 16 0</td>
</tr>
<tr>
<td>4 12 3d.</td>
<td>Port Wine 84 07 6</td>
</tr>
<tr>
<td>6 00 0d.</td>
<td>Rice 24 12 0</td>
</tr>
<tr>
<td>5 15 4d.</td>
<td>Logwood 60 10 0</td>
</tr>
</tbody>
</table>

Note, That l. stands for Pounds, s. for Shillings, d. for Pence, and qr. for Farthings; in regard that Libra signifies a Pound, Solidus a Shilling, Denarius a Penny, and Quadrans a Farthing.

I begin with the first Example of Money Owning, and say, 4 and 3 is 7, and 6 is 13, and 7 is 20, and 9 is 29, and 6 make 35 Pence; now 30 Pence, according to the Table, is 2s. and 6d. and 5d. makes 2s. and 1½. I set down 1½ exactly under the Rank of Pence, and say 2 Shillings that I carry (which I do to the Rank of Shillings) and 5 is 7, and
and 2 is 9, (for I only take the Units Rank of Shillings) and 6 is 15, and 7 makes 22, and 2 is 24, and 6 is 30, and 2 makes 32; and now being come to the Top of the Sum, and it making 32, I come down with the Tens of Shillings, saying 32 and 10 is 42, and 10 is 52, and 10 is 62, and 10 is 72, and 10 makes 82 Shillings; and the Table telling me that 80 Shillings is 4 Pounds, I know therefore 82s. is 4l. 2s. wherefore I set down the odd 2s. just under the Row of Shillings, and carry 4 Pounds to the Pounds; saying, 4 that I carry and 5 is 9, and 6 is 15, and 4 is 19, and 5 is 24, and 6 is 30, and 4 is 34, and 7 is 41, and 4 makes 45 Pounds; so that the Total of those several Sums of Money, due to those several Persons, amounts to 45l. 2s. 11d. as in the Example.

In the second Example of Money received, I begin at the Right-hand (as in all Additions, Subtractions, and Multiplications, we do, and ought so to do, working from the Right-hand to the Left; but in Division you begin the Operation at the Left, and work towards the Right) and say, 6 and 4 is 10, and 3 is 13, and 9 makes 22; and 22 Pence being 1s. and 10d. I set down 10d. and carry 1s. to the Shillings; saying 1 that I carry, and 2 is 3, and 7 is 10, and 6 is 16, and 2 is 18, and 8 is 26, and 6 makes 32; then I come down with the Tens, saying 32 and 10 makes 42, &c. and find at the Bottom it comes to 102 Shillings; which making 5l. 2s. I set down 2s. and carry 5l. to the Pounds; saying, 5 that I carry, and 4 is 9, &c. I find that at the Top it amounts to 36, wherefore I set down 6 exactly under its own Rank, viz. the Rank of Units of Pounds, and carry 3 for the 3 Tens that are in 30; for at all Times in the first Denomination of Addition, whether of Money, Weight, or Measure, that is in the Denomination of Pounds, 'l uns or Yards, you must cast them up as Sums of one Denomination; that is, for every 'len carry One to the next, &c. saying, 3 that I carry and 6 is 9, and 2 is 11, and 8 is 19, &c. and find that at the Top it comes to 49; wherefore I set down 49 before the 6, and the total Amount of the Money received for those particular Goods or Wares sold, is 496l. 2s. 10d.
More Examples for Practice.

<table>
<thead>
<tr>
<th>Money in from</th>
<th>l.</th>
<th>s.</th>
<th>d.</th>
<th>l.</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Money</td>
<td>17</td>
<td>12</td>
<td>6½</td>
<td>146</td>
<td>12</td>
<td>3½</td>
</tr>
<tr>
<td>Mr. Gant</td>
<td>26</td>
<td>10</td>
<td>2</td>
<td>278</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Mr. Hern</td>
<td>50</td>
<td>00</td>
<td>0</td>
<td>46</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>Mr. James</td>
<td>44</td>
<td>12</td>
<td>8½</td>
<td>100</td>
<td>00</td>
<td>0</td>
</tr>
<tr>
<td>Mr. King</td>
<td>60</td>
<td>14</td>
<td>0</td>
<td>72</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Mr. Smith</td>
<td>29</td>
<td>16</td>
<td>6½</td>
<td>69</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>Mr. Monk</td>
<td>16</td>
<td>10</td>
<td>0</td>
<td>460</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Mr. Napper</td>
<td>20</td>
<td>00</td>
<td>0</td>
<td>49</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Mr. Oliver</td>
<td>27</td>
<td>11</td>
<td>4½</td>
<td>7</td>
<td>12</td>
<td>4½</td>
</tr>
<tr>
<td>Mr. Perkins</td>
<td>17</td>
<td>04</td>
<td>0</td>
<td>22</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Mr. Quinton</td>
<td>20</td>
<td>10</td>
<td>3</td>
<td>164</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Mr. Roper</td>
<td>46</td>
<td>16</td>
<td>8</td>
<td>75</td>
<td>10</td>
<td>6</td>
</tr>
</tbody>
</table>

Total, 377 18 3 = 1494 16 6 ¼ - 18 00 4

Over the middle Example there are Numbers set, to denote what you must stop at, if you cannot cast it up without.

Addition of Avoir-du-pois Weight.

By this Weight are weighed all Kinds of Grocery Goods or Wares, or Goods subject to waste; as Tobacco, Sugars, Fruit and Drugs; as also Butter, Cheese, Allom, Tallow, Flesh, Iron, Brass, Copper, Lead, Tin, or Pewter, Pitch, Tar, Rosin, Hemp, Flax, Soap, Salt, and all Kind of Garbled Goods; that is, those Goods that have Dust, Drofs, or Waife.

A Table of this Weight is as follows, viz.

<table>
<thead>
<tr>
<th>Quarters</th>
<th>Drams</th>
<th>Ounces</th>
<th>Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>16</td>
<td>28</td>
</tr>
<tr>
<td>28</td>
<td>1</td>
<td>112</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Marked.

<table>
<thead>
<tr>
<th>dr.</th>
<th>oz.</th>
<th>lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>16</td>
<td>16</td>
<td>28</td>
</tr>
<tr>
<td>28</td>
<td>112</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

qrs. Quarters
C. Hundreds
T. Tens
### Small Weight

<table>
<thead>
<tr>
<th>C. qrs. lb.</th>
<th>C. qrs. lb.</th>
<th>C. qrs. lb.</th>
<th>lb. oz. dr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 + 28</td>
<td>28</td>
<td>28</td>
<td>10 + 16 + 16</td>
</tr>
<tr>
<td>5 - 1 - 16</td>
<td>24 - 1 - 12</td>
<td>9 - 1 - 16</td>
<td>24 - 11 - 12</td>
</tr>
<tr>
<td>4 - 2 - 24</td>
<td>42 - 2 - 00</td>
<td>4 - 3 - 26</td>
<td>42 - 14 - 15</td>
</tr>
<tr>
<td>6 - 3 - 00</td>
<td>16 - 1 - 12</td>
<td>7 - 1 - 00</td>
<td>64 - 10 - 11</td>
</tr>
<tr>
<td>7 - 0 - 12</td>
<td>25 - 3 - 24</td>
<td>5 - 3 - 27</td>
<td>29 - 09 - 10</td>
</tr>
<tr>
<td>9 - 1 - 20</td>
<td>19 - 0 - 20</td>
<td>4 - 3 - 00</td>
<td>10 - 12 - 13</td>
</tr>
<tr>
<td>0 - 2 - 00</td>
<td>26 - 1 - 22</td>
<td>2 - 2 - 02</td>
<td>27 - 13 - 14</td>
</tr>
</tbody>
</table>

In the first of these Examples I begin at the Right-hand, to wit, at the Denomination of Pounds, and flop at every 28, so many Pounds making a Quarter; that is, at every 28 I make a Speck on my Nail (not in the Sum, for that Way is not proper or handsome) and I find two 28's, and 22 lb. over; wherefore I set down 22, and carry 2 qrs. to the Quarters, and adding them up find them 11, which is 2 Hundred and 3 qrs. over; wherefore I set down 3 and carry 2 to the Hundreds; which also added up, make 39; so that the Total Weight is 39 C. 3 qrs. and 22 lb. &c.

And for the Example of Small Weight, there I flop at 16 and 16, and at 10 in the Pounds, and find the Total 206 lb. 9 oz. and 11 Drams. There's no Occasion for flopping, but only at 28 in the Great Weight, and at 16 and 16 in the Small.

---

**Note,** That in weighing at the Water-side, or elsewhere, they do not weigh by the Ton in Great Weight, though some Goods are sold by it, as Iron, Logwood, Cheese, &c. but by Hundreds, Quarters, and Pounds, and afterwards computed by Tons, &c.

### Addition of Troy Weight

By this Weight are weighed Jewels, Gold, Silver, Pearl, Echanturies, and Liquors; a Pint of Water, Wine, &c. being a Pound, and the usual Denominations are Pounds, Ounces, Penny-weights and Grains, as in the following Table, viz.

\[
\begin{align*}
24 \text{ Grains} & \text{ make 1 Penny-weight,} \\
20 \text{ Penny-weights} & \text{ 1 Ounce, and,} \\
12 \text{ Ounces} & \text{ 1 Pound, Troy.}
\end{align*}
\]

**Note,**
Note also, That 25 lb. is a Quarter of a Hundred by this Weight, 100 lb. is one hundred Weight, and 20 hundred one Ton of Gold or Silver.

Examples of Troy Weight.

<table>
<thead>
<tr>
<th>No.</th>
<th>l. oz. prw. gr.</th>
<th>lb. oz. prw. gr.</th>
<th>oz. prw. gr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Wt.</td>
<td>4 05 12 10</td>
<td>14 06 10 11</td>
<td>20 01 05 10</td>
</tr>
<tr>
<td>2</td>
<td>5 04 16 17</td>
<td>24 10 11 12</td>
<td>96 07 17</td>
</tr>
<tr>
<td>3</td>
<td>3 11 19 20</td>
<td>21 06 07 17</td>
<td>100 11 12</td>
</tr>
<tr>
<td>4</td>
<td>4 06 07 12</td>
<td>21 10 12 14</td>
<td>56 16 20</td>
</tr>
<tr>
<td>5</td>
<td>5 01 11 12</td>
<td>16 11 12 13</td>
<td>212 10 23</td>
</tr>
<tr>
<td>6</td>
<td>4 11 12 13</td>
<td>21 07 06 17</td>
<td>96 19 12</td>
</tr>
</tbody>
</table>

| 28 06 00 12 —— 121 05 01 12 —— 767 17 02 |

In the Denomination of Grains I stop at 24, and find it to amount to 3 Penny-weights and 12 Grains over; wherefore I set down 12 Grains and carry three Pennyweights to the Pennyweights; then I say, 3 that I carried and 2 is 5, and 1 is 6, and 7 is 13, and 9 is 22, and 6 is 28, and 2 is 30; and then coming down with the Tens, I say, 30 and 10 is 40 and 10 is 50; &c. just as I do in Addition of Money; (for as there 20s. make a Pound, so here 20 Pennyweights make an Ounce) and find it to come just to 80; now in 80 there are just 4 Twenties, or 4 Ounces; wherefore I set down 00, and carry 4 to the Ounces, and find them to amount to 42; which makes 3 Pounds and 6 Ounces over; wherefore I set down 6, and carry 3 to the Pounds; saying, 3 I carry to 4 is 7, and 5 is 12, &c. and find they come to 28; so the Total is 28 l. 06 oz. 00 prw. 12 gr. and so of the Rest.

How to prove Addition.

In all Additions, whether of simple Numbers, that is, Numbers of one Denomination; or in Examples compound, that is, of diverse Denominations, as Pounds, Shilling, Pence and Farthings; or, Tuns, Hundreds, Quarters, and Casks, Great Weight; or Pounds, Ounces and Drams, Small Weight; Pounds, Ounces, Penny-weights and Grains, Troy Weight; I say, in any of the Examples above-mentioned, the truest and best Method of Proof is to cast the same downwards (beginning at the Top) as you did the same upwards; beginning at the Bottom, and if it proves the
the same Total, the Work is infallibly right, and beyond any Contradiction; and is much better, and more sensible than the common Method used in Schools, of making two Totals, by omitting the upper Line in the Second, which is altogether impracticable in real Business. I might here also give the several Examples of other Additions, such as Apothecaries Weight, Cloth, Liquid, Dry, and Long Measures, Time, &c. but the Method serves for any of them, having respect to the several Tables of Quantity belonging to those several Denominations of Addition above mentioned, which are as follows, viz.

A Table of the Parts of Apothecaries Weight.

<table>
<thead>
<tr>
<th>Marks</th>
<th>20 Grains, 1 Scruple</th>
<th>3 a Scruple</th>
<th>3 a Dram.</th>
<th>3 an Ounce.</th>
<th>16 a Pound.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 qrs. or 36 Inches, 1 Yard</td>
<td>4 qrs. or 45 Inches, 1 Ell English</td>
<td>3 qrs. or 27 Inches, 1 Ell Flemish</td>
<td>6 qrs. or 54 Inches, 1 French Ell</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

By these Weights they compound their Medicines; but they buy and sell their Drugs by Avoirdupois Weight.

Cloth Measure.

- 4 Nails, or 9 Inches, 1 qr. of a Yard.
- 4 qrs. or 36 Inches, 1 Yard.
- 5 qrs. or 45 Inches, 1 Ell English.
- 3 qrs. or 27 Inches, 1 Ell Flemish.
- 6 qrs. or 54 Inches, 1 French Ell.

A Table of Wool Weight.

Note, That 7 lb. makes 1 Clove; 2 Cloves, or 14 lb. 1 Stone; 2 Stones or 28 lb. 1 Tod; 6 Tod and a Half 1 Wey, or 182 lb. 2 Weys, or 364 lb. 1 Sack; and 12 Sacks 1 Last, or 4368 lb. 240 lb. 1 Pack of Wool.

Note, That 1 lb. 2 oz. 12 dw. Troy, is equal to a Pound Avoirdupois. And a Pound Troy is about 13 oz. 2 Drams and a Half Avoirdupois.

<table>
<thead>
<tr>
<th>l.</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
<td>3/2</td>
</tr>
</tbody>
</table>

A Pound of Weight Troy of Silver is worth

<table>
<thead>
<tr>
<th>L. 100</th>
<th>in Gold</th>
<th>weighs</th>
<th>Avoirdp. Wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/2</td>
<td>26 04</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A Pound Avoirdupois is heavier than a Pound Troy: But an Ounce Troy is heavier than an Ounce Avoirdupois.
## A Table of Liquid Measure.

Liquid Measure is of two Sorts, viz. One for Wine, Brandy, &c. and the other for Beer and Ale.

### Wine, &c.

<table>
<thead>
<tr>
<th>8 Pints one Gallon</th>
<th>2 Hogheads 1 Pipe or Butt, 68 Gallons 1 Tierce</th>
<th>2 Pipes or Buts 1 Tun, or 252 63 Gallons 1 Hoghead, 84 Gallons 1 Puncheon</th>
</tr>
</thead>
</table>

*Note, That sweet Oyl hath 236 Gallons to the Tun: But Oyl from Greenland hath 252 Gallons to the Tun.*

*Note, The Wine Gallon contains 231 Cubic or solid Inches, by which all Liquids are measured, except Beer and Ale.*

### Beer Measure.

<table>
<thead>
<tr>
<th>8 Pints 1 Gallon</th>
<th>2 Kilderkins 1 Barrel, or 36 9 Gallons 1 Firkin, 2 Firkins 1 Kilderkin</th>
</tr>
</thead>
</table>

*Note, The Beer and Ale Gallon are the same, viz. 282 solid Inches; but with this Difference, i. e. the Barrel of Beer contains 1228 Cubic Inches, or 4 Gallons more than the Barrel of Ale.*

### Ale Measure.

<table>
<thead>
<tr>
<th>8 Pints 1 Gallon</th>
<th>2 Kilderkins 1 Barrel, or 32 8 Gallons 1 Firkin of Ale, Soap or Herrings, 2 Firkins 1 Kilderkin</th>
</tr>
</thead>
</table>

### In a Tun of Wine are

- 2 Pipes or Butts,
- 6 Tierces,
- 252 Gallons,
- 504 Pottles,
- 1008 Quarts,
- 2016 Pints.

### In a Pipe or Butt are

- 2 Hogheads,
- 3 Tierces,
- 126 Gallons,
- 252 Pottles,
- 504 Quarts,
- 1008 Pints.

### In a Puncheon are

- 84 Gallons,
- 168 Pottles,
- 336 Quarts,
- 672 Pints.

### In a Hoghead are

- 63 Gallons,
- 126 Pottles,
- 252 Quarts,
- 504 Pints.

### In a Barrel of Beer are

- 2 Kilderkins,
- 4 Firkins,
- 36 Gallons.
72 Pottles, 144 Quarts, 288 Pints.

In a Barrel of Ale are 128 Quarts, 256 Pints.

Dry Measure.

2 Pints 1 Quart, 2 Quarts 1 Pottle, 2 Pottles 1 Gallon, 2 Gallons 1 Peck, 4 Pecks 1 Bushel Land Measure,

Sea Coal are heaped or else there are 5 Pecks to the Bushel.

In the Last are

2 Weys, 10 Quarters, 80 Bushels, 320 Pecks, 1280 Pottles, 2560 Quarts, 5120 Pints.

In a Wey are

5 Quarters, 40 Bushels, 160 Pecks, 320 Gallons, 640 Pottles,

accounted a Score in the 1280 Quarts, River of Thames; Salt and 2560 Pints.

Note, By an Act Anno 1712, the Bushel is 2178 Cubic Inches, and a Gallon of this Measure is 272 Cubic Inches.

Long Measure.

3 Barley-Corns 1 Inch, 40 Poles, or 220 Yards, 1 Furlong,

12 Inches 1 Foot, 8 Furlongs one Mile, or 1760 Yards,

3 Feet 1 Yard, 3 M Miles one League,

3 Feet 9 Inches 1 Ell Engl., 20 Leagues, or 60 Miles 1 Degree; and 360 Degrees

5 Feet a Geometrical Pace, the supposed Circumference of the Earth and Sea.

5 Yards and Half, 1 Pole, Perch, or Rod,

6 Feet 1 Fathom, or 2 Yards, 6

In a Mile are

8 Furlongs, 5280 Feet,

320 Poles, 63360 Inches,

1760 Yards, 190080 Barley Corns.

Land
The Young Man's Best Companion.

Land Measure.
5 Yards and Half, 1 Pole, Perch or Rod.
40 Poles make 1 Rod, or quarter of an Acre.
160 Poles in Length, and 1 in Breadth, is 1 Acre.
80 Poles in Length, and 2 in Breadth, 1 Acre; and,
40 Poles in Length, and 4 in Breadth, 1 Acre.
4 Poles in Length make 1 Chain.
10 Chains in Length, and 1 in Breadth, make 1 Acre.

Time.
60 Seconds 1 Minute,
60 Minutes 1 Hour,
24 Hours 1 Day natural,
7 Days 1 Week,
4 Weeks 1 Month,
13 Months, 1 Day, and 6

In a Year are
31557600 Seconds,
525960 Minutes,
8766 Hours,
365 Days, 6 Hours.

Note, The Year is also divided into 12 Calendar Months, which contain 365 Days, according to this good old Verse, viz.

Thirty Days hath September, April, June and November,
February hath 28 alone, and all the Rest Thirty and One.

Subtraction.

The next Rule in Arithmetic is Subtraction (or commonly called Subtraction) and this Rule teaches to take a lesser Number, or Sum, out of a greater, and sheweth the Remainder, Rest, Excess, or Difference.

Note always to place the lesser Number under the greater (with the same Care and Order as in Addition) so the Units may stand under Units, Tens under Tens, &c. and the Remainder under the Line is the Difference sought: And such Difference being added again to the lesser Number, shall make the greater Number, and is a certain Proof of the said Rule.

A General Rule.
Whatever you used to flop at in Addition (whether of one Denomination or of several) the same you must borrow in Subtraction, when need requires: Remembering to pay, or carry 1 to the next Place towards the Left-Hand. Example: Suppose Mr. Andrews owes to Mr. Baker 323 l. whereof Mr. A. hath paid to Mr. B. the Sum of 146 l. in Part; what remains due to Mr. Baker?

Answer 177 l.
Here the lefier Number 146, stands under the greater 323; and to find the Remainder or Sum refting due, I say, 6 from 3 I cannot; but 6 from 13 (for you must always borrow 10 of the next Figure in the fame under Line, and put it to the Figure or Cypher that stands directly over the Figure you subtract) and there remains 7; then 1 that I borrow and 4 is 5, for as I borrowed 10 (or 1) out of 4, so I must pay the said 1 or 10 (for so it really is, because of the Decuple Proportion of Increase from the Right-hand to the Left) to the said Figure 4 again, as above hinted: I say, 5 from 2 I cannot; but 5 from 12 (borrowing 10, and putting it to the over Figure 2, as above directed) and there remains 7; then 1 that I borrowed and 1 is 2, from 3 the over Figure, and there rests 1, and so the Example is done; and by it is shewn that A. still owes B. 177 Pounds, as appears in the Work; and for Proof of its Verity, add 177 the Remainder, to 146 the lefier of the two given Numbers, and it will make 323, being the fame with the great Number, or Sum of Money first due; and therefore, a sure Proof of the Truth and Certainty of the Rule. And as Subtraction is proved by Addition, fo may Addition be proved by Subtraction; for if the twoeforefald Numbers, viz. 323 and 146, are added, their Total is 469, from which if you deduct 146, the Remainder will be the great Number; or if you subtract 323 from the said 469, the Remainder will be 146, the lefier Number.

All Examples or Sums in Subtraction of one Denomination, are performed as above, they varying not at all: But however, once more for the better Explanation. Admit, a great Sheep-Master hath in all 6904 Sheep, and takes out of them 2490 to dispose of at Market; how many doth he leave behind? To know this, set them down thus:

From—6904 the Greater Number,
Take—2490 the Lefer Number.

Answer 4414 the Remainder.

Here I say, 0 from 4, and there remains 4; then 9 from nothing (or 0) I cannot; but 9 from 10 (putting or making the 0 10) and there remains 1; then 1 that I borrow and 4 make 5; and 5 from 9, and there rest 4; and lastly, 2 from 6, and there remains also 4, (for I borrowed none, and therefore there's no Occasion of paying) so that he leaves behind him just 4414; which put to the Number he takes
The Young Man's Best Companion.

to Market, makes the Number he first had, viz. 6904, and shows the Deduction to be true, and the Answer right.

More Examples for Practice.

<table>
<thead>
<tr>
<th>1.</th>
<th>Yards</th>
<th>Gallons</th>
<th>Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>From 4796</td>
<td>3700</td>
<td>47200</td>
<td>479672</td>
</tr>
<tr>
<td>Take 2929</td>
<td>1976</td>
<td>31976</td>
<td>97694</td>
</tr>
<tr>
<td>Rem. 1867</td>
<td>1724</td>
<td>15224</td>
<td>381978</td>
</tr>
<tr>
<td>Proof 4796</td>
<td>3700</td>
<td>47200</td>
<td>479672</td>
</tr>
</tbody>
</table>

Any Distance of Time that is from any particular Date of a Year, may be known by subtracting that Date from the present Date of the Year.

Example.

I. — 1770
1666 the Fire of London.

Since 104

II.—1770
1588 the Spanish Invasion.

Since 182

III.—1770
1605 Gun-powder Treason.

Since 165

Subtraction in divers Denominations.

Of Money.

<table>
<thead>
<tr>
<th>l.</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due</td>
<td>9-02-6</td>
<td></td>
</tr>
<tr>
<td>Paid</td>
<td>6-16-4</td>
<td></td>
</tr>
<tr>
<td>Rests due</td>
<td>2-06-2</td>
<td></td>
</tr>
</tbody>
</table>

Suppose Mr. Campion owes Mr. Darnell 9 l. 2 s. 6 d. and Mr. C. hath paid Mr. D. in Part 6 l. 16 s. 4 d. what remains due to Mr. Darnell? Answer, Due to Mr. Darnell 2 l. 6 s. 2 d. as by this Example.
Again, Mr. Edwards falls to Mr. Francis, Spanish Wool to the Value of 242 l. 16 s. 3 d. and pays present Money, and by a Note on Mr. Goodwin, the Sum of 174 l. 12 s. 6 d.; what Money remains unpaid from Mr. Francis? Answer, 68 l. 3 s. 9 d. ½.

In the first of these Examples I say, 4d. from 6d. and there remains 2d. then 16s. from 2s. I cannot, but borrowing one Integer of the next Denomination, or 1 Pound which is 20s. I say 16 from 20, and there rests 4, and taking the over Number 2, and putting it to the Remainder 4 makes 6; wherefore I put down 6 in the Place of Shillings, and say, 1 that I borrow and 6 is 7; now 7l. from 9l. there remains 2l. so the Money resting due to Mr. Darnell, is 2l. 6s. 2d. as in the Example.

In the second Example I say, 2 Farthings (or a Half-penny) from 3 Farthings, and there remains 1 or ½, which I set down in its proper Place, viz. under the Denomination of Farthings; then 6 from 3 I cannot, but 6 from 12, (as marked over the Denomination) and there remains 6, and 3d. over it make 9d. which I place under the Line in its right Place, viz. of Pence; then 1 that I borrowed (that is 1 Shilling) and 12 is 13; 13s. from 16s. and there rests 3, which I likewise set down under its own Rank; then 4 from 2 I cannot, but 4 from 12 (borrowing 10, as in Addition, I carry 1 for every 10) and there rests 8; then 1 that I borrow and 7 makes 8, 8 from 4 I cannot, but 8 from 14, and there remains 6; so that the Sum remaining due is 68 l. 3 s. 9 d. ½ as in the Work. And for its Proof you must add the Remainder, 68 l. 3 s. 9 d. ½ to the lesser, or under Sum, 174 l. 12 s. 6 d. ½, and it makes 242 l. 16s. 3 d. ½, the Sum first due, and is a Proof of the Work's being right. See the Example above.
More Examples for Practice.

<table>
<thead>
<tr>
<th></th>
<th>10</th>
<th>20</th>
<th>12</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>l. s. d.</td>
<td>l. s. d.</td>
<td>l. s. d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Due</strong></td>
<td>174-16-6</td>
<td>74-10-4</td>
<td>2471-07-0</td>
<td></td>
</tr>
<tr>
<td><strong>Paid</strong></td>
<td>97-12-4</td>
<td>29-12-9</td>
<td>1976-16-6</td>
<td></td>
</tr>
<tr>
<td><strong>Remain</strong></td>
<td>77-04-1</td>
<td>44-17-7</td>
<td>494-10-5</td>
<td></td>
</tr>
<tr>
<td><strong>Proof</strong></td>
<td>174-16-6</td>
<td>74-10-4</td>
<td>2471-07-0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>10</th>
<th>20</th>
<th>12</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>l. s. d.</td>
<td>l. s. d.</td>
<td>l. s. d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2 <strong>Due</strong></td>
<td>74-00-00</td>
<td>274-16-6</td>
<td>796-00-0</td>
<td></td>
</tr>
<tr>
<td><strong>Paid</strong></td>
<td>46-12-10</td>
<td>197-19-4</td>
<td>279-11-7</td>
<td></td>
</tr>
<tr>
<td><strong>Balance</strong></td>
<td>27-07-02</td>
<td>76-17-2</td>
<td>516-08-5</td>
<td></td>
</tr>
<tr>
<td><strong>Proof</strong></td>
<td>74-00-00</td>
<td>274-16-6</td>
<td>796-00-0</td>
<td></td>
</tr>
</tbody>
</table>

Sometimes a Sum owing may be paid at several Times; then the several Payments must be added together, and their Total deducted from the Sum first due, as in this and the Examples following.

Owing — 2667.

<table>
<thead>
<tr>
<th></th>
<th>20</th>
<th>15</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paid at Times</strong></td>
<td>90</td>
<td>17</td>
<td>24</td>
</tr>
<tr>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Paid in all 256 deducted

Rests due 10

Proof 266
The Young Man's Best Companion.

<table>
<thead>
<tr>
<th>l.</th>
<th>s.</th>
<th>d.</th>
<th>l.</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>More due</td>
<td>249</td>
<td>12</td>
<td>0</td>
<td>Received</td>
<td>100</td>
</tr>
<tr>
<td>Received at several Times,</td>
<td></td>
<td></td>
<td>24</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>14</td>
<td>9</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>00</td>
<td>0</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Paid to several Persons,</td>
<td>16</td>
<td>16</td>
<td>6</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>10</td>
<td>2</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>12</td>
<td>6</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>16</td>
<td>4</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Received in all</td>
<td>115</td>
<td>02</td>
<td>9</td>
<td>Paid in all</td>
<td>67</td>
</tr>
<tr>
<td>Rests due</td>
<td>134</td>
<td>09</td>
<td>3</td>
<td>Remains in the Bag.</td>
<td>33</td>
</tr>
<tr>
<td>Proof</td>
<td>249</td>
<td>12</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Avoir-du-pois Weight.

<table>
<thead>
<tr>
<th>Tuns.</th>
<th>C. qrs. lb.</th>
<th>C. qrs. lb.</th>
<th>lb. ex. dr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>From</td>
<td>44</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Take</td>
<td>39</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Proof</td>
<td>44</td>
<td>12</td>
<td>1</td>
</tr>
</tbody>
</table>

Troy Weight.

<table>
<thead>
<tr>
<th>lb.</th>
<th>oz.</th>
<th>pwt. gr.</th>
<th>oz.</th>
<th>pwt. gr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>From</td>
<td>462</td>
<td>04</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Take</td>
<td>196</td>
<td>09</td>
<td>06</td>
<td>16</td>
</tr>
<tr>
<td>Remain</td>
<td>265</td>
<td>07</td>
<td>03</td>
<td>19</td>
</tr>
<tr>
<td>Proof</td>
<td>462</td>
<td>04</td>
<td>10</td>
<td>11</td>
</tr>
</tbody>
</table>

And so much for Subtraction; which Method will serve for any Denomination whatever, having respect to the several Tables of Quantity, as before hinted in Addition.
MULTIPLICATION.

The next Rule in order is Multiplication, and perhaps the most serviceable Rule in Business, for its quick Dispatch, of all others in Arithmetick, and I shall endeavour to shew, by its Nature, Quality and Use, that it is so. And,

1. Multiplication is a Rule that by two Numbers given, teacheth to find out a third, which shall contain either of the two as many Times as the other containeth Units.

2. In some Cases Multiplication is also a compendious Working of Addition.

3. It serves likewise to bring great Denominations into small, as Pounds into Shillings, Pence, or Farthings.

4. Having the Length and Breadth of a plain Superficies, we find its Contents in Square Measure.

5. By Multiplication we find by having the Value of one Thing, or the Wages of one Person, how to know the Value of many Things, or the Wages of many Persons.

In Multiplication we are particularly to take Notice of these three Terms, viz.

\[
\begin{align*}
\text{Multiplicand,} \\
\text{Multiplier,} \\
\text{Product.}
\end{align*}
\]

1. The Multiplicand (generally the greater of the two Numbers) is the Number to be multiplied.

2. The Multiplier, generally the lesser of the two Numbers) is the Number to multiply with.

3. The Product, or Result of the Work, being the Answer.

But before any Procedure can be made in this Rule, it is necessary to have the following Table by Heart, and that very perfectly.
This Table is so plain and easy, that there is no need of Direction; for 'tis but guiding the Eye from the Side Column to the Head, and in its opposite Angle or Square you have the Answer; and contrariwise, by directing the Eye from the Head and Side, you have the same; as 6 times 9 is 54, and 9 times 6 is 54; so 7 times 8 is 56, and 8 times 7 is 56, &c. And so it ought to be got by heart for the more dexterous Readiness in multiplying.

Now for Application.

Example 1. How many is 3 times 472? Which must be set down as in the Margin; and then say, 3 times 2 is 6; which place under 3 the Multiplier; then 3 times 7 is 21; set down 1 under 7, and carry 2 for the two Tens; as in Addition of one Deno-
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... then 3 times 4 is 12, and 2 is 14; which set down, and the Product 1416; that is, 3 times 472 makes so much; and may be proved by Addition, by setting down 472 three times, in additional Order, and calling it up, which makes the Assertion good in the second Definition, that this Rule compendiously performs the Office of Addition. Likewise the foregoing Example agrees with the first Definition; for as 3 times 472 makes 1416, so doth 472 times 3 make the same, viz. 1416.

Example 2. Again how many makes 742 multiplied by 4?

Here I say, 4 times 2 is 8, and 4 times 4 is 16, 6, and carry 1; and 4 times 7 is 28, and 1 is 29, which set down; so the whole Product is 2968, as per Example.

More Examples of one Figure in the Multiplier, are these. viz.

| Multiplicat. | 7420 | 4444 | 7460 | 90704 | 56789 |
| Multiplier | 5 | 6 | 7 | 8 | 9 |
| Product | 37100 | 26664 | 52220 | 725632 | 511101 |

Compound Multiplication.

Is when the Multiplier consists of two, three, four or more Figures, or Figures and Cyphers.

And here you must begin with that Figure which is in the Place of Units of the Multiplier, and go through the whole Multiplicand, by multiplying each Figure of it first by that said Unit Figure, then, by the next, to wit, by the Figure in the Place of Tens of the Multiplier, then with the third, &c. to the last; always remembering to place the first Figure of every Product or Line, (for you will ever have as many as you have significant Figures in the Multiplier) I say remember to place the first Figure of each Line exactly and perpendicularly under the Figure you multiply by; and then add the several Lines or Products together, which so collected gives the total Product required, as in the Examples following; viz.
How many is, or are, 23 times 7426? first I begin with the Unit Figure 3 in the Multiplier, saying 3 times 6 is 18; 8 (which I set directly under 3 by which I multiply) and carry 1; then 3 times 2 is 6, and 1 is 7; then 3 times 4 is 12; 2 and carry 1; then 3 times 7 is 21, and 1 is 22: And so I have done with the first Figure of the Multiplier, viz. 3. Then I go to the next, that is 2, and twice 6 is 12; 2 and carry 1, (which 2 is placed in a direct Line under 2, the Multiplying Figure) then twice 2 is 4, and 1 is 5, then twice 4 is 8; and lastly, twice 7 is 14, which I set down: Then I add the two Products together, saying 8 is 8, &c. and the Total is the right and proper Product, or Result of the Multiplication, viz. 170798. Again,

Example 2.

What is the Result or total Product of 527527 Multiplied by 285

It will appear too prolix, and altogether unnecessary, to give more verbal Directions, nay, indeed nauseous Tautology, since those given above are sufficient; and therefore the Learner is referred to the Observation of the Example, as also to those two that follow, viz.

\[
\begin{array}{c}
527535 \\
15728 \\
4220280 \\
1055070 \\
3692745 \\
2637675 \\
527535 \\
8297070480 \\
5440687575
\end{array}
\]

When Cyphers are intermixed with Figures in the Multiplier, then multiply by the Figures as above; and when you come to a Cypher in the Multiplier, then set down another Cypher exactly and perpendicularly under it, then begin the Multiplicand again with the next Figure to the Cypher in the Multi-
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Multiplier, and go through it in the same Line, placing the first Figure of that Product next to the Cypher towards the Left-hand, but then heed must be taken that the next Figure or Cypher of the next Line must be set down one Degree farther towards the Left-hand, and not immediately under the last Figure set down next to the Cypher: As in the following Examples may be fully understood.

<table>
<thead>
<tr>
<th>24393</th>
<th>7864371</th>
<th>327586</th>
</tr>
</thead>
<tbody>
<tr>
<td>402</td>
<td>23604</td>
<td>6030</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>48786</th>
<th>31457484</th>
<th>9827580</th>
</tr>
</thead>
<tbody>
<tr>
<td>975720</td>
<td>471862260</td>
<td>19655160</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9805986</th>
<th>15728742</th>
<th>1975343580</th>
</tr>
</thead>
</table>

185630613084

When you have a Cypher or Cyphers in the Multiplier, at the Beginning towards the Right-hand, then set it, or them, backwards from the Place of Units towards the Right-hand; and when you have multiplied by the Figure or Figures, annex the Cypher or Cyphers: As in these Examples.

<table>
<thead>
<tr>
<th>4762</th>
<th>47962</th>
<th>4632</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>400</td>
<td>2600</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>333340</th>
<th>19184800</th>
<th>27792</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>9264</td>
</tr>
</tbody>
</table>

12043200

If you have Cyphers both in the Multiplicand and Multiplier, then neglect the Cyphers in both, and multiply by the Figures, and annex the Cyphers at last: As in these Examples.

<table>
<thead>
<tr>
<th>42600</th>
<th>42300</th>
<th>376400</th>
</tr>
</thead>
<tbody>
<tr>
<td>220</td>
<td>12000</td>
<td>2400</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>852</th>
<th>846</th>
<th>15056</th>
</tr>
</thead>
<tbody>
<tr>
<td>852</td>
<td>423</td>
<td>7528</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9372000</th>
<th>507600000</th>
<th>903360000</th>
</tr>
</thead>
</table>

When
When you are to multiply by 10, 100, 1000, or 10000, it is only adding or annexing so many Cyphers to the Multiplicand, that is, either 1, 2, 3, or 4 Cyphers, and the Work is done. Example, Suppose I am to multiply 375 by the Numbers above; if I multiply it by 10, then I join 0 to 375, and then it makes, or the Product is 3750: If by 100, then I annex 00, and then it makes 37500: If by 1000, I put it 000, and then it produces 375000. And lastly, if by 10000, I then add 0000, and then it makes 3750000 &c. And thus may any Number be multiplied, when the Multiplier consists of a Unit with any Number of Cyphers, and done by Inspection only, without any formal setting down the Multiplicand, with a Line drawn under it, &c.

Thus far for Direction in the Manner how to multiply; the next will be to shew the Uses of Multiplication in real Business, and how to apply it on proper Occasions, viz.

1. Suppose you want to know how many Half Crowns there are in 246/. you know that 8 Half Crowns make 1/. wherefore set them down thus.

Multiply by. 246 l.
Answer 8 1968

Again, in 1968 Half Crowns, how many Pence &c. 30 Pence in Half a Crown.

59040 Pence the Answer.

And this serves to make out, that great Denominations are brought into smaller by this Rule, according to the third Definition.

2. Admit you wanted to know the Contents of a large Shuffle board Table, 34 Feet long, and 4 Feet wide; multiply 34 the Length, by 4 the Breadth, and the Answer will be 136 Square Feet for the true Contents of such a Table. And this agrees with the 4th Definition of this Rule.

3. If I know the Value of a Yard of Broadcloth to be 12 Shillings, what is the Value of 220 Yards of the said Cloth in Shillings?
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220
Multiply by 12

440
220

2640 Shillings, or 132 Pounds.

If the Wages of 1 Seaman be 23 Shillings a Month, what is the Wages of 250 Seamen for the same Time?
Multiply by 23

750
500

Answer 5750 Shillings, or 287l. 10s.

And these two Examples accord with the fifth Definition, or Use of this Rule.

And thus much for plain Multiplication.

I shall, in the next Place, say some small Matter concerning Multiplication of Money, and a little of its Use, and so conclude this Rule.

Multiplication of Money.

Multiplication of Money (what most would learn above any Thing) hath great Affinity with Addition of Money; the same Method being taken in carrying from one Denomination to the next, viz. from Farthings to Pence, from Pence to Shillings, and from Shillings to Pounds. And as in Addition (and other Multiplications) you begin at the Right-hand, and proceed towards the Left; so here you begin at the least Denomination, which is also at the Right-hand.

This Method of accounting, is the most apt and expeditious of all others, for small Quantities; and therefore extremely necessary in making Bills of Parcels, &c.; and is, beyond all Contradiction, as sure and certain as any way whatsoever.

The General Rule.

Is always to multiply the Price by the Quantity.
The first Step is, for Quantities from 2 to 12; and this is done by one Multiplier; as in the Examples following.

Example
Example 1.  

Multiply \[7 - 12 - 6\]
(or 6 Pieces of Cloth at \(l. 7 - 12 - 6\) per Piece) by \(6\)

\[45 - 15 - 0\]

Here I say 6 times 6 is 36 Pence, which is just 3s. I set down 0 in the Place of Pence, and carry 3s. to the Place of Shillings, (exactly the same as in Addition of Money) then 6 times 12 is 72, and 3 is 75s. or 3l. 15s. wherefore I set down 15 in the Place of Shillings, and carry 3 to the Pounds; then 6 times 7 is 42 and 3 is 45l. So the whole Amount of the 6 Cloths, at \(7 - 12 - 6\) per Cloth, is 45l. 15s. as in the Work, and very concise.

Example 2.

Again, how much is 9 times 13s. 4d. or what is the Amount of 9 Marks?

In this Example I say, 9 times 4 is 36d. or 3s. I set down 0, and carry 3; then 9 times 3 is 27, and 3 makes 30; I set down 00 and carry 3 (as in Multiplication of simple Numbers); then 9 times 1 is 9, and 3 is 12, which being the Tens of Shillings, consequently they are Angels; which being halved, make just 6l. and so much is the Value of 9 Marks, or any thing else at that Price, viz. 13s. 4d.

Example 3.

Once more, What comes 12 Gallons of Wine at 5s. 4d. per Gallon?

Here I say, 12 times 4 is 48; 0 and carry 4; then 12 times 5 is 60 and 4 is 64s. or 3l. 4s.

The next Degree or Step of Advance in this Way of Reckoning, is of Quantities exceeding 12, even to 12 times 12, or 144; all which as far as 144, are found in that excellent Table, the Table of Multiplication; which is a ready Help to all Purposes of Reckoning, and particularly in this Way; and that you may proceed with Dexterity, you must be very ready in the said Table, that you may be immediately apprehensive what component Parts hit your Quantity proposed, or pretty near it, (for any Quantity below 12 needs
needs no Recollection at all, as in two of the Examples foregoing) and then work accordingly; as 15 Yards at, &c. I readily know that 3 and 5, or 5 and 3, are to be my Multipliers. If to 21, then 3 and 7, or 7 and 3, as above. If to 30 then 5 and 6, or 6 and 5, also 3 and 10, or 10 and 3. If to 45, 48, 56, 66, 72, 96, &c. then 5 and 9, 6 and 8, 7 and 8, 6 and 11, 6 and 12, and 8 and 12, &c. are to be Multipliers, and exactly hit their several Quantities of which there are component Parts; and Examples of this Kind have two Multiplications for their Solution.

When the Quantity proposed is a Number irregular, or such a Number that no two Numbers in the Table can be found to answer it, then we must multiply by two such Numbers as come pretty near it, as is said above; and for the Number wanting, to make up the Number or Quantity proposed, multiply the given Price of one by the Number that is wanting; which will make three Products by three Multiplications; which last Product must be added to the foregoing Products resulting from two Multiplications, and the Total will be the Answer.

And first, I shall shew Examples of the second Step, viz. of regular Quantities that exceed 12, and are precisely answered at two Multiplications, such as mentioned above, viz.

What comes 15 Yards of Muslin to, at 3—5—

per Yard

Here 3 times 5 is 15d. or 1s. and 3d. 3 and carry 1s. then 3 times 3 is 9, and 10—3

1 is 10s. so the first Product is 10s. 3d. 5

which I multiply by 5, saying, 5 times 3 is 15d. or 1s. 3d. 3 and carry 1; then 2—11—3—

5 times 10 is 50, and 1 is 51s. or 2l. 11s. So the whole Amount of 15 Yards, at 3s. 5d. per Yard, is 2l. 11s. 3d. And demonstrable thus, viz. If 10s. 3d. be the Value of three times 3s. 5d. then 5 times the Value of 10s. 3d. must of Necessity be 15 times the Value of 3s. 3d. because 5 times 3 is 15: And its Truth may be proved by Additions and Multiplication, thus; set down 3s. 5d. three times in additional Order, and put the three Lines together, and the Total of them multiply by 5, as before, and the Answer will be the same. Or set down 17s. 1d. (the Product of 3s. 5d. multiplied by 5) three times also, and
and add them together, and the total will be exactly the same with the Result by Multiplication; as in the following Specimen of Work.

<table>
<thead>
<tr>
<th></th>
<th>(1) s. d.</th>
<th>(2) s. d.</th>
<th>(3) s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>3-5</td>
<td>3-5</td>
<td>17-1</td>
</tr>
<tr>
<td>(2)</td>
<td>3-5</td>
<td>5</td>
<td>17-1</td>
</tr>
<tr>
<td>(3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10-3</td>
<td>17-1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2-11-3</td>
<td></td>
</tr>
</tbody>
</table>

Here the first of these two Proofs is worked by Addition and Multiplication, and the second by Multiplication (as per Margin) and Addition. Also,

By this we see, that in all Examples under this Head, we are to pitch on two Numbers (for Multipliers) in the Table; which multiplied together, make the Quantity proposed; and then we are to multiply the Price by one of the Numbers (it matters not by which first) and then that Product is to be multiplied by the other Number, and the second or last Product will be the Answer.

**Example 2.**

Again, what is the Value of 21 Gallons of Brandy?

<table>
<thead>
<tr>
<th></th>
<th>s. d.</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>7-9</td>
<td>times 9 is 63d. or 5s. 3d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2)</td>
<td>7 and 3</td>
<td>I set down 3 and carry 5;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>then 7 times 3 is 49, and 5 is 54s. or 2l. 14s. So the first Product is 2l. 14s. 3d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>which I multiply by 3, and that produces the last Product or Answer, viz. 8l. 2s. 9d.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Now follow a few more Examples of this Sort, without any verbal Directions, because I think those already given to be sufficient.
Example 3. What comes 30 Ells of Holland to s. d.

<table>
<thead>
<tr>
<th></th>
<th>3—7 per Ell</th>
<th>10 and 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1—15—10</td>
<td>3</td>
</tr>
</tbody>
</table>

Answer 5—07—6

Example 5. 56 Bushels of Wheat to s. d.

<table>
<thead>
<tr>
<th></th>
<th>4—9</th>
<th>7 and 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1—13—3</td>
<td>8</td>
</tr>
</tbody>
</table>

Answer 13—06—0

Example 4. 72 Broad Pcs. at 23—6 each to 12 and 6

<table>
<thead>
<tr>
<th></th>
<th>14—02—0</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>

84—12—0

In the first Product the half of 28 Angels is 14s. &c.

Example 6. 45 Pound of Raw Silk to s. d.

<table>
<thead>
<tr>
<th></th>
<th>15—6 per lb.</th>
<th>5 and 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3—17—6</td>
<td>9</td>
</tr>
</tbody>
</table>

Answer 34—17—6

Example 7. 108 lb. of Indigo Lahore, at 7s.—8d.

<table>
<thead>
<tr>
<th></th>
<th>3—9—0</th>
<th>12</th>
</tr>
</thead>
</table>

Answer 41—8—0

Example 8. 96 C. of Currants, at 2—13—6 per C.

<table>
<thead>
<tr>
<th></th>
<th>21—08—0</th>
<th>12</th>
</tr>
</thead>
</table>

Answer 256—16—0

The
The next Gradation of Advance, is of Quantities irregular, or of Numbers that are not to be answered precisely at two Multiplications: In this Case, there ariseth no Increase of Difficulty, but it is as easy as the Examples foregoing; only here you will have an Addition of one Line more, occasioned by bringing down the Price of one to be added to the last Product, or else a Line more made by multiplying the Price by what is defective or wanting in the Number by two Multiplications to make up the proposed Quantity compleat; as it may be of 2, 3, 4, 5, &c. as by the subsequent Examples may be seen and understood.

Example 1. What is the Product of 2l. 13s. 6d. multiplied by 39?

Here I find that 6 multiplied by 6, makes 36; which is within 3 of the Quantity proposed; wherefore I multiply by 6, and that Product again by the other 6; the last Product is 96l. 6s. which is the Value of 36, but we want to know the Value of 39; wherefore I multiply the Price of one, viz. 2l. 13s. 6d. by 3 that is defective or wanting to make up 36 to 39, saying 3 times 6 is 18d. &c. And find that 3 times 2l. 13s. 6d. is 8l. 0os. 6d. which added to 96l. 6s. od. the Total gives the compleat Value of 39; for 36 and 3 makes 39. See the Work.

Example 2. What comes 79 C. wt. of Cheefe to, at 28s. per C. weight?

In this Example I say, 7 times 0 is 0; then 7 times 8 is 56; 6 and carry 5; and 7 times 2 is 14, and 5 is 19; the Half of which is 9 and half, or 9l. 10s. 0d. So the first Product is 9 l. 16 s. 0 d. which multiplied by 11, produces 107 l. 16 s. 0 d. or the Value of 77; then for 2 wanting I multiply the
The Price by it, and that gives 2l. 16s. 0d. which added to 107 l. 16s. 0d. which makes the whole Value of 79, viz. 110l. 12s. 0d. as in the Work. Or, as there are no Pence in the Price, you may multiply 28s. by 79 without bringing it into Pounds as you work it, but omit it till the last, and then cut off or separate the last Figure or Cypher of the Product towards the Right-hand, and halve those towards the Left, which Half will be Pounds, and the Figure cut off Shillings, as in this Example.

The Half of 2, is 1, and the Half of 1 is 0, which joined to the 2 fevered from 221, makes 12; so the Answer is 110l. 12s. as before.

**Example 3.** 112 Pound of Sugar as 5½ per lb. set down thus:

<table>
<thead>
<tr>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5½ per Pound</td>
<td></td>
</tr>
<tr>
<td>10 and 10</td>
<td></td>
</tr>
</tbody>
</table>

\[ 4-07 \]
\[ 10 \]
\[ 2-05-10 \]
\[ 05-06 \] the Product of 5d. ½ by 12 defective.
\[ 2-11-04 \] the Answer.

Here after I have multiplied by 10 and 10, the Parts of 100, there wants 12; wherefore I multiplied 5d. ½ by 12, and it gives 5s. 6d. for 12 lb. at 5d. ½, which added to 2l. 5s. 10d. of the Value of 100, makes 2l. 11s. 4d. the true Value of 112 lb. at 5d. ½ per Pound.
Example 4. 94 Stone of Beef, at 22d. or 1s. 10d. per Stone.

\[
\begin{align*}
\text{1s.} & \quad \text{10d.} \\
10\ and\ 9 & \quad \hline
18\ -\ 04 & \\
9 & \quad \hline
8\ -\ 05\ -\ 00 & \\
7\ -\ 04 & \quad \hline
8\ -\ 12\ -\ 04 & \text{Answer.}
\end{align*}
\]

Here what is wanting after the two Multiplications, is 4; wherefore I multiply 1s. 10d. (the Price) by 4, which produces 7s. 4d. to be added, &c.

Example 5. 97 C. \(\frac{1}{2}\) of Raisins.

\[
\begin{align*}
s. & \quad d. \\
25\ -\ 06\ \text{per C.} & \quad \hline
9\ and\ 10 & \\
11\ -\ 09\ -\ 06 & \\
10 & \quad \hline
114\ -\ 15\ -\ 00 & \\
8\ -\ 18\ -\ 06 & \\
12\ -\ 09 & \text{for the} \ \frac{1}{2} \ \text{C.} \\
\hline
124\ -\ 06\ -\ 03
\end{align*}
\]

After I have multiplied by 9 and 10, I multiply the Price 25s. 6d. by the Quantity wanting, and it produces 8l. 18s. 6d. then for the Half C. I take Half of the Price, which is 12s. 9d. and then collect the three Lines, the Total of which is 124l. 6s. 3d. for the Answer.

Note. From the last Example may be observed, that there is no need of too much Solicitude concerning coming so very near by two Multiplications, for there 7 is wanting to make up the true Quantity; nay, if the two Multiplications be short by 20 or 12, it is near enough; for 'tis as easy to multiply the Price by 10 or 12, as by 2 or 3, and the Addition is the same.
Example 6. Once more; What comes \( \frac{110}{4} \) of Hops to, at 4l. 10s. 6d. per C.

\[
\begin{array}{ccc}
\text{l.} & \text{s.} & \text{d.} \\
4 & 10 & 6 \\
45 & 10 & 0 \\
45 & 05 & 00 \\
2 & 05 & 03 \\
1 & 02 & 07\frac{1}{2} \\
\hline \\
501 & 02 & 10\frac{1}{2}
\end{array}
\]

After I have multiplied by 10 and 10, which makes 100, I multiply the Price, 4l. 10s. 6d. by 10 that is wanting, which gives the same with the first Product, viz. 45 l. 5 s. 0 d. which stands under the Product by 100; and for the \( \frac{3}{4} \) of a C. I take \( \frac{1}{2} \) of the Price, viz. first the Half, and then the Half of that Half, which is 2l. 5s. 3d. and 1l. 2s. 7d. \( \frac{1}{2} \); which four Lines added together, make \( 501 l. 2 s. 10 d. \frac{1}{2} \) for the Answer.

To prove Multiplication.

Whether of Simple Numbers, or of Money; it is most surely done by Division; but before that is known, take this Method, viz. As you multiplied the Multiplicand by the Multiplier, so contrariwise multiply the Multiplier by the Multiplicand; and if the Products are alike, the Work is right; or otherwise one of them is wrong, and must be gone over again till they do agree.

Example 1.

365 Days in a Year.
24 Hours in a Day.

\[
\begin{array}{c}
1460 \\
730 \\
\hline \\
8760
\end{array}
\]

Here (reversly) I say, 5 times 4 is 20; 0 and carry 2; 6 times 4 is 24, and 2 is 26; 6 and carry 2, and 3 times 4 is 12, and 2 is 14. Then 5 times 2 is 10; 0 and carry 1; 6 times 2 is 12, and 1 is 13; 3 and carry 1; and 3 times 2 is 6, and 1 is 7. Which Products added together make 8760, the Hours in a Year, without taking in the odd 6 Hours, which the Year doth consist of more than 365 Days.

Example
Example 2.

I say here, twice 7 is 14; 2 and carry 1; and 3 times 7 is 21, and 1 is 22s. or 1l. 2s. Again, twice 8 is 16d. 4 and carry 1s. & twice 8 is 16 and 1 is 17s. 17 and carry 0; and once 8 is 8l. Thus both these examples are the same in consequence as if you proceeded in the common and regular Method of Multiplication and shews the Truth of the Operation.

The next Rule in Order of Course, is

**DIVISION.**

This Rule, though accounted the hardest Lesson in Arithmetick, yet I shall make it easy and intelligible to the meanest Capacity.

The Use of this Rule is to know how many times one Number or Sum is contained in another; as if it were ask'd how often is 9 contained in 54; the Answer is 6 times; or how many times 12 is there in 144? Answer 12 times.

As by Multiplication great Names or Denominations are brought into small; so contrarily by Division, small Names are brought into greater; as Farthings (from one Gradation to another) into Pounds, Pounds Weight into Tuns Weight, and Gallons Liquid into Tuns Liquid, &c.

In this Rule we are to take particular Notice of these three certain Terms following, viz.

1. 
2. 
3. 
4. The Remainder; which is an uncertain Branch of this Rule, because there is sometimes a Remainder, and sometimes not. And you must particularly note, That the Remainder is ever of the same Name with the Dividend, and is always less than the Divisor; for if it be more, or equal to the Divisor, the Work is wrong.

Division is either Single or Compound; Single, when the Divisor consisteth of a single Figure, and the Dividend of two
two at most. Any of this sort is answered by the Multiplication Table; as if 63 were to be divided by 7, the Answer will be 9 times. Here 63 is the Dividend, 7 the Divisor, and 9 the Quotient or Answer.

Compound Division is when the Dividend hath many, or more Figures or Cyphers than two, and the Divisor one or more Figures or Cyphers, &c.

Example.

How many times 7 is there contained in 365? Or, how many Weeks in a Year?

\[7) 365 \quad (52 \, 35)\]

A general Rule for Working

1. Seek,
2. Multiply,

Note

\[
\begin{align*}
15 & \quad 14 \\
(1) & \\
\end{align*}
\]

Having set down the Example with two crooked Lines or half Parenthesis, one for the Divisor, and the other for the Quotient, I begin according to the afore-mentioned general Rule for Working, by seeking or asking how often I can take 7, the Divisor, out of 36 the two first Figures of the Dividend (for I cannot take 7 out of 3, the Quotient, being never to begin with 0) and the Answer is 5 times; wherefore I place 5 in the Quotient, and multiply the Divisor 7, by it (as directed in the General Rule) saying 5 times 7 is 35, which I place under 36; and then thirdly, according to the said Rule, I subtract 35 from 36, and there remains 1; to which I bring down the next, or last Figure of the Dividend, viz. 5, and then there is 15 for a new Dividend, or Dividual, to work upon; then I ask or seek again, how oft 7 may be taken in 15? and the Answer is 2 times; wherefore I put 2 in the Quotient next to the 5; by which 2 I also multiply the Divisor 7, saying twice 7 is 14; which I set down under 15, and subtract and there remains 1, which I place between two Semicircles thus, (1) as it stands in the Work; where observe, That 365 is the Dividend, 7 the Divisor, 52 the Quotient, or Answer, and 1 the Remainder. The Quotient declares that 7 is contained in 365, 52 times, and 1 over or remaining; which I set over the Divisor, thus, \[\frac{1}{7}\], and signifies that there is one Seventh of a Week, or 1 Day, more than just 52 Weeks in a Year, or 365 Days; which is easily to be found by collecting
collecting the Days of each Calender Month as they stand in the Almanack.

You may note, That the said \( \frac{1}{2} \) is properly what is called a Fraction, or a Piece or Segment of the Dividend; but of this hereafter.

Note also, That if there had been more Figures or Cyphers in the Dividend, they must have all been brought down, one by one at a time (and never but one at a time) and (after Substraction) set to the Remainder; and if there remains 0, you must still bring down but one Figure or Cypher at a time, and for every Figure or so brought down, there must be a Figure or 0 placed in the Quotient, according to the times you can take the Divisor out of the several Dividends you make, by drawing down a Figure or Cypher at a Time out of the Dividend, till all be brought down, and the Work ended.

For a Specimen, let us divide 8060 Pounds of Tobacco equally among 8 Men.

Here I say the Eights in 8 once; which I put in the Quotient, then the Eights in 0, 0 times; which I likewise put in the Quotient; then the Eights in 6, 0 times again; which is also placed in the Quotient, and there remains 6; to which I bring down 0, the last of the Dividend, and it makes 60; lastly, the Eights in 60 7 times, and 7 times 8 is 56, from 60, and there remains 4; so the Quotient shews that each Person must have 1007 Pounds of Tobacco for his Share in the Dividend 8060, and there remains 4 Pounds over and above, which makes Half a Pound more due to each Man, because 4 the Remainder is Half of 8 the Divisor; and so the Work is done, the Quotient giving to each Man 1007 Pounds and a Half for his equal Share.

Note, That in the Operation, every time that you bring down a Figure or Cypher, you are to make a Point under it in the Dividend, to signify that such a Figure or Cypher hath been brought down and done with, as may be observed in the foregoing Example.

Though this Way of Working is plain, and easy to be understood, yet it is somewhat tedious; and therefore I shew a quicker Way for Dispatch when the Divisor is a single Figure;
The Young Man's Best Companion.

Figure; as shall be made conspicuous in these Examples following, viz.

<table>
<thead>
<tr>
<th>I.</th>
<th>II.</th>
<th>III.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4) 78906</td>
<td>5) 34567</td>
<td>6) 29702</td>
</tr>
<tr>
<td>Quotient 19726 (2)</td>
<td>6913 (2)</td>
<td>4950 (2)</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Proof</td>
<td>78906</td>
<td>34567</td>
</tr>
<tr>
<td></td>
<td>29702</td>
<td></td>
</tr>
</tbody>
</table>

In the first of these Examples I say, the 4's in 7, once, and there remains 3, which makes 8, the next Figure in the Dividend 38; then the 4's in 38, 9 times; 9 times 4 is 36, from 38, and there remains 2; which makes 9 the next Figure in the Dividend, 29; then the 4's in 29, 7 times; 7 times 4 is 28, from 29, and there rests 1, which makes 10 the next of the Dividend, 10, and the 4's in 10 twice; twice 4 is 8, from 10, and there remains 2; which makes 6 the last of the Dividend, 26; lastly, the 4's in 26, 6 times; and 6 times 4 is 24, from 26, and there rests 2 the Remainder; and so for the other two Examples. And for Proof of the Work, (or of any other Example) multiply the Quotient by the Divisor, and take in the Remainder in the first Place, or Place of Units; and if the Product be the same with the Dividend, the Division is right; for I say, 4 times 6 is 24, and 2 the Remainder makes 26; 6 and go 2, &c.

More Examples by a single Figure.

<table>
<thead>
<tr>
<th>3) 54321</th>
<th>7) 279060</th>
<th>9) 234567</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quotient  18107 (0)</td>
<td>39865 (5)</td>
<td>26063 (0)</td>
</tr>
<tr>
<td>Proof</td>
<td>54321</td>
<td>279060</td>
</tr>
<tr>
<td></td>
<td></td>
<td>234567</td>
</tr>
</tbody>
</table>

This is the shortest Way of Division that can be by a single Figure.

As it is necessary for Expedition to multiply by 11 and 12 as by a single Figure, to have the Product in one Line; so divide as in these Examples, viz.
The Young Man's Best Companion.

In the first of these Examples, I say, the 11's in 72, answer 6 times, &c. In the second, I say, the 12's in 76, answer 6 times, &c. In the third, the 11's in 47, 4 times, 4 times 11 is 44, from 47, and there rests 3, &c. In the fourth, I say, the 12's in 42, 3 times; 3 times 12 is 36, from 42, and there remains 6, &c.

By being ready and dextrous in the Examples above, you may expeditiously divide by these Numbers, viz. 110, 120, 1100, or 1200, &c. for it is but cutting off, or separating the Cyphers from 11 and 12, (when these Numbers happen to be Divisors) and cutting off and separating the like Numbers of Figures or Cyphers from the Right-hand of the Dividend, and then divide the other Figures or Cyphers towards the Left-hand, by 11 or 12, as it shall happen; as in the Examples following, viz.

Divide 34567 by 110, and 890123 by 120, and 98765 by 1100, and 678901 by 1200.

\[
\begin{array}{c@{}c@{}c@{}c@{}c@{}c}
11,0 | 3456,7 & 12,0 | 89012,3 \\
\hline
\text{Quotient } 314 \frac{2}{11} & \text{or } 2 \frac{27}{11} & 7417 \frac{8}{12} & \text{or } 8 \frac{3}{12} \\
\hline
11,00 | 987,65 & 12,00 | 6789,01 \\
\hline
\text{Quotient } 89 \frac{3}{11} & \text{or } 8 \frac{3}{11} & 565 \frac{9}{12} & \text{or } 9 \frac{0}{12} \\
\end{array}
\]

When you divide by 10, 100, 1000, or 10000, &c. you have nothing more to do than to cut off, or to separate so many Figures or Cyphers of the Dividend, towards the Right Hand, as you have Cyphers in the Divisor, and those Figures towards
The Young Man's Best Companion.

towards the Left make your Quotient; and those cut off
towards the Right, is the Remainder.

Examples.

Divide 123456789 by 10, 100, or 1000, 10000.
By 10 the Quotient is 1234567, and the Remainder 9,
By 100 the Quotient is 123456, 7, and Remainder 89,
By 1000 the Quotient is 12345, 6, and Remainder 789.
By 10000 the Quotient is 1234, 5, and Remainder 6789.

When the Divisor consists of several Figures, then
there ariseth a little more Difficulty, in the Work, but if the
following Directions are heedfully attended to, the seeming
Difficulty is easily overcome; as in the succeeding Examples,

\[ \text{Divisor } 32 \) \ 78901 \ (\ldots ) \text{ Quotient.} \]

The Example thus set out, I begin at the Left-hand, seeking
how often I can take 32 out of 78; or more easy, how
many times 3 there is in 7, and the Answer is two times;
which I place in the Quotient thus 32) 78901 (2, and then
according to the General Rule of Working, I multiply the
Divisor 32, by the two placed in the Quotient, saying,
twice 2 is 4, and twice 3 is 6; so there is 64 to be taken
out of 78, and stands thus:

\[ \begin{array}{c}
32) 78901 \\
\hline
64.
\end{array} \]

Then I make a Point under 9, the third Figure of the
Dividend, and bring it down to the Remainder 14, and then
the Work appears thus:

\[ \begin{array}{c}
32) 78901 \\
\hline
64. \\
149
\end{array} \]

Then I seek again, asking how many times 32 in 149?
which is not readily to be answered; but how many times 3,
the first Figure of the Divisor, is there in 14, the two first
Figures of the Dividual 149, and the Answer is 4 times;
wherefore, after placing 4 in the Quotient, I multiply, (as
directed in the General Rule) the Divisor 32 by the said 4,
saying, 4 times 2 is 8, placing it under 9 in the Dividual:

\[ \begin{array}{c}
32) 78901 \\
\hline
64. \\
149
\end{array} \]
then 4 times 3 is 12, and set down under 14; so there is 128 to be taken out of 149, and then the Work appears thus:

32) 78901 (24
   64

And after Subtraction there remains 21;

then I make a Point under 0 in the Dividend, and bring it down to the Right of the Remainder 21; and then there is 128 for a new Dividual; then as the general Rule directs, I seek again, saying, how many times 32, the Divisor, is there in 210, the Dividual? or easier, how many times 3 in 21? For observe well, That when ever you have a Place more in the Dividual than in the Divisor, then always seek how oft you can take the first Figure of the Divisor out of the two first of the Dividual) and the Answer is 7 times; but it will not bear 7 times, for 7 times 32 is 224, and you cannot take 224 out of 210; or rather you cannot take 22 out of 21; wherefore try in your Mind before you set down the Answer, or Figure in the Quotient, whether it will go to the Number of Times as is most easily suggested as here the Question or Demand is readily answered 7 times; and so many times 3 may be taken in 21; but when you come to multiply the whole Divisor by the times you place in the Quotient, you begin at the Right-hand, and go towards the Left, carrying the Tens that arise to the next Place, which increases the Product so, that sometimes Subtraction cannot be made, because the under Line is greater than the upper, or that which you should subtract from; wherefore first try in your Mind as above said; and since it will not bear 7 times, try if it will go 6 times; saying, 6 times 2 is 12, 2 and carry 1, and 6 times 3 is 18; and 1 is 19; and 19 may be taken out of 21, therefore set down 6 in the Quotient next to the 4, and multiply the Divisor 32 by it, and the Work will stand thus:

32) 78901 (246
   64

Here the Divisor 32 multiplied by 6, gives 192 to be taken out of 210, and the Remainder is 18; to which, after a Point made under it, I bring down the 1, the last Figure of the Dividend, and then there is 181 for a new Dividual; then according to the Rule, I seek again (for you are to note, That the aforesaid General Rule for working must be as often repeated as you bring down a Figure
Figure or Cypher from the Dividend, to make a new Dividual; and also, that for every Figure or Cypher brought down, there must likewise be a Figure or Cypher placed in the Quotient, how many times 32 the Divisor may be taken out of 181 the Dividual; or how many times 3 in 18, and the ready Answer is 6 times, but on the Trial I find it will not go 6 times, wherefore I try a time less by 1, viz. 5 times and find it will bear it; and setting 5 in the Quotient next to the 6, I multiply the Divisor 32 by it; and it produces 160; which subtracted from 181, the last Remainder is 21, and the Quotient or Answer is 2465; and shews that 32 is contained in 78901, 2465 times and 21 over, as per.

Work.

(21)

Again, admit a Nobleman hath 30,000 l. per Annum, what is his daily Income?

If you divide 30000 by 365 (the Days in a Year) the Quotient will be the Answer. Set it down for working thus.

365) 30000

First, seek how many times 365 can be taken in 300, (an equal Number of Places with the Divisor) answer 0 times; wherefore I go a Place farther to the Right-hand in the Dividend (for 0 must never begin the Quotient, as was said before) and make a Point under it, viz. under the last 0 but one, as may be seen in the Example; and there being a Place more in this pointed out Dividual than in the Divisor, I seek how oft the first Figure of the Divisor, viz. 3, is contained in the two first Figures or Places of the Dividend, viz. 30, and the Answer is 10 Times; but you are never to take above 9 times at once, in any of these Examples of Division, wherefore try in your Mind whether it will bear 9 times, before you set it down in the Quotient (as was said before) saying to yourself, or in your Mind, 9 times 5 is 45; 5 and go 4; 9 times 6 is 54, and 4 is 58; 8 and go 5; and 9 times 3 is 27, and 5 is 32; now 32 cannot be taken out of 30, wherefore take a time less by a Unit or One, viz.

8 times
8 times; and finding it will not go 8 times, set down 8 in the Quotient; and then say, 8 times 5 is 40, 0 and carry 4; and 8 times 6 is 48, and 4 is 52; 2 and carry 5; and 8 times 3 is 24, and 5 is 29; and then there is 2920 to be taken from 3000; and after Subtraction the Work appears thus.

\[ \text{365) 3000 (8} \]
\[ \text{2920} \]

Then to the Remainder 80, I bring down o, the last of the Dividend, and then there is 800 for a new Dividual; then you must try how oft you can take 365 out of the said Dividual 800, and the Number of Places being equal to both in Divisor and Dividual, to wit, 3, ask how oft three in 8; answer twice; so put 2 in the Quotient, and say twice 5 is 10; 0 and carry 1; and twice 6 is 12, and 1 is 13; 3 and carry 1; and twice 3 is 6, and 1 is 7; so there is 730 to be deducted from 800, and the Remainder is 70, as in the whole Work may be seen, viz.

\[ \text{365) 30000 (82} \]
\[ \text{2920} \]
\[ \text{800} \]
\[ \text{730} \]
\[ \text{70} \]

Thus by the Work the Nobleman hath Eighty-two Pounds per Diem, and 70 Pounds over; which if multiplied by 20, the Shillings in a Pound, would produce 1400 Shillings; which if divided per said Divisor 365, there would come cut 3s. a Day more, and there will be a Remainder of 305, which multiplied by 12, the Pence in a Shilling, produces 3660; which divided still per 365, gives 10 Pence a Day more: So that 30000 l. a Year, is 7.82---3---10 a Day.

Once more; Divide 46242 Gallons of Canary, by 252, the Gallons in a Tun, thus set down:

\[ \text{252) 46242 (183} \]
\[ \text{252} \]
\[ \text{2104} \]
\[ \text{2016} \]
\[ \text{882} \]
\[ \text{756} \]
\[ \text{(126)} \]

In this Example, after Enquiry, I find that it will not go twice; therefore I set down 1 in the Quotient, and place 352 under 462 of the Dividend, and after Subtraction the Remainder is 210; to which I bring down 4 from the Dividend, and the Dividual is 2104; and then seeking again, find it will bear 8 times; which placed in the Quotient, and the Divisor 252 multiplied by it
it, the Product is 2016 to be subtracted from 2104, which being done, the Remainder is 88; to which 2, the last Figure of the Dividend being brought down, there is 882 for the last Dividend; and then seeking again, I find it will go 3 times; and the Product of the Divisor multiplied by 3, is 756; which subtracted from 882, there remains 126 for the last, or true Remainder: So that by this Division I find there are 183 Tuns in 46242 Gallons, and 126 Gallons remaining, or over and above; which being Half of 252 the Divisor; the Remainder is therefore Half a Tun more.

When you have a Cypher or Cyphers in the Divisor, in the First, Second, or Third Place, &c. separate such Cypher or Cyphers with a DASH of the Pen, from the rest of the Divisor; and also cut off as many Figures or Cyphers from the Right of the Dividend, as you cut off Cyphers from the Divisor, and divide the remaining Figures towards the Left-hand by the remaining significant Figures of the Divisor.

**Example.**

Divide 42952 Square Poles of Land by 160, the Square Poles in an Acre of Land.

\[
\begin{array}{c|c}
16|0 & 42952 \\
32 & 268 \\
109 & 96 \\
135 & 128 \\
\hline
& (268) \end{array}
\]

Here the Cypher is cut off from the Divisor, and 2 from the Dividend; then I ask how oft 16 in 42; answer twice; then the 16's in 109, answer 9 times; then 16's in 135, answer 8 times. So there are 268 Acres, and 7 remains, that is in 268 Acres, \( \frac{7}{16} \) or \( \frac{7}{16} \) or almost Half an Acre.

Divide 27|00)62746|20( 2323 \( \frac{2}{7} \) or \( \frac{2}{7} \)

\[
\begin{array}{c|c}
54 & 87 \\
87 & 81 \\
\hline
& 64 \\
64 & 54 \\
\hline
106 & 81 \\
\hline
(25) & \end{array}
\]

In this Example, two Cyphers are separated from the Divisor, and also two Places from the Dividend, and then 62746 is divided only by 27. See the Work.

When
When the Divisor is 3, 4, 5, 6, or more Figures, there is a sure and easy Way of performing the Work truly, by making a Table of the Divisor: which may be done by Addition, or by multiplying the Divisor by 2, 3, 4, &c. Admit you are to divide 987654321 by 123456.

\[
\begin{array}{ccc}
\text{Times} & \text{123456} \\
987648 \cdots 8 & \hline \\
\text{(6321)} & \text{246912} \\
370368 & \hline \\
493824 & \hline \\
617280 & \hline \\
740736 & \hline \\
864192 & \hline \\
987648 & \hline \\
1111104 & \hline \\
\end{array}
\]

Here having noted the Number of Figures in the Divisor, which here is 6, I make a Point under the Sixth Figure, or Place of the Dividend, &c.

The foregoing Table is made by doubling the first Line, which makes 246912; which added to the first or uppermost Line, gives the 3d Line 370368, which also added to the said first Line, makes 493824 for the 4th Line or Product; and so of the rest; still remembering to add the subsequent Line or Product to the first or uppermost Line, till you come to the last Line of 9 times, which is 1111104; the Truth of which may be proved by multiplying the first or uppermost Line by 2, 3, 4, 5, &c. and if you commit an Error by Addition, it may be found or corrected by Multiplication.

The Use of the said Table.

When you have pointed out your Number of Places in the Dividend, cast your Eye on the Table, and at the first View you may know how many times you can take, as in this Example, 7 times is too little, and 9 times too much; wherefore I set down 8 in the Quotient, and then multiply and subtract, and the Remainder is 6; to which I bring down 3, and put 0 in the Quotient, then to the 63, I bring down
The Young Man's Best Companion.

down 2, and place 0 in the Quotient; then to 632 I bring down 1, the last Figure of the Dividend: But still it will not bear any Times or Time, wherefore I put another 0 in the Quotient; and so the Work is done, and the Quotient is 8000, and the Remainder 6321, as in the Work.

Thus having plainly, fully, and pertinently shewn, by verbal Directions, the Method of working Division; I think it unnecessary to give any more Examples in that Manner, but shall leave some few Examples for Practice Sake, whose Quotients and Remainders are expressed, but the Operation omitted, to save Room, and for Trial of the Ingenuity of Practitioners.

7400690042 divided by 987, the Quotient is 7498166, and the Remainder 200.
479679002742 divided by 4689, the Quotient is 102298704 and the Remainder 4566.
7969767002 divided by 976294, the Quotient is 8163, and the Remainder 279080.
456789012345, divided by 9876543, the Quotient is 46249, and the Remainder 8775138.
764697 by 4500 Quotes 16993, and Remainder 1249. And 8092320000 by 345000, quotes 23456, and remains (0)

The Proof of Multiplication and Division.

These two Rules reciprocally prove each other; for in proving Multiplication, if you divide the Product by the Multiplier, the Quotient will be like the Multiplicand; or if the Multiplicand, the Quotient will be the same with the Multiplier.

Exa. 1. 345


24

1380

690

24) 8280 (345

72

108

96

120

120

Exa. 2.

Or thus,

345) 8280 (24

690

1380

1380

(0)
Division may be proved by Division thus:
If you divide the Dividend by the Quotient, the Quotient will be your former Divisor.

Example.

Divide 8280 by 345.

Here the Working again is needles, it being in the Page foregoing; and shews the Truth of the Assertion, that Division may be proved by Division, as aforesaid.

But the most usual Way of proving Division, is by Multiplication in this Manner, viz. multiply the Quotient by the Divisor, and the Product will be equal to the Dividend, Example of 1, in the foregoing Page.

345 Quotient.
24 Divisor.

Note, That when there is any Remainder, such Remainder must be taken in or added to the Product.

As in Multiplication, I gave some Examples of its Utility in Money, so likewise I shall give a few Examples of Division of Money; whereby may be seen how expeditiously some Things may be done, without having Recourse to Reduction, the Rule of Three, &c. viz.

Example 1.

Divide 26 l. 12 s. 6 d. equally among Five Men. For Disposition of working, set it down as follows.

<table>
<thead>
<tr>
<th>l. s. d.</th>
<th>Proof.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5) 26-12-6</td>
<td>26-12-6</td>
</tr>
<tr>
<td>5-06-6</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

In the Working of this, I say, the 5's in 26, 5 times; 5 times 5 is 25, from 26, and there remains 1, or 1 Pound, or 20 Shillings; which with the 12l. in the Place of Shillings, makes 32l. then the 5's in 32, 6 times; 6 times 5 is 30, from 32, and there remains 2l. or 24d. which with the 6d. in the Place of Pence, makes 30; then the 5's in 30, 6 times; and so the Work is done, and the Answer is that each Man must have
have l. 5---06---6 for his equal Share in the said Division of l. 26---12---6 amongst 5 Persons; and the Truth of it is proved by Multiplication of Money, sufficiently shewn in the Rule of Multiplication; as here, 5 times 6 is 30; 6 and carry 2; and 5 times 6 is 30, and 2 is 32; 12 and carry 1; and 5 times 5 is 25, and 1 is 26, &c.

Example 2.

Divide the Charges of a Country Feast, amounting to l. 246—13—4 equally among 12 Stewards, to know what each Steward must pay.

l. s. d.
12) 246—13—4

Answer 20—11—1 1/2

Here I say the 12's in 24 twice, and the 12's in 6, 0 times, and there remains 6l. or 120s. and 13s. make 133; and then 12's in 13 once; and there remains 1s. or 12d. then 12 and 4 is 16; and the 12's in 16 once, and 4 remains; so that each Steward must pay l.20—11—1 1/2 or four Twelfths of a Penny, something more than a Farthing; and this may be proved as that above.

When any Quantity is such a Number that any two Digits of the Multiplication-Table, multiplied together, make the said Quantity or Number, then the Quotient may be very expeditiously found at two Divisions, and sooner than at one. Example: Divide 7872 by 32. In this Example the Digits, component Parts, or Ratio's, which multiply'd together, make the Divisor 32, and 4 and 8, or 8 and 4; for it matters not which of the Ratio's you divide by first; for either of which Divisions give a true, and the same Quotient; as may be seen by the different Methods of the following Work.

4) 7872
8) 1968

246 Quotient.

Or thus, 8) 7872
4) 984

246 Quotient.

Here though the Operations are divers, yet the Quotients are one and the same. Again, divide 44184 by 56.
Here the Divisors are 7 and 8, or 8 and 7; for either, or both, will give the same Quotient.

And thus may above Forty Examples be wrought by Numbers out of the Multiplication Table, with great Dispatch and Expedition, as by 15, 18, 25, 35, 64, 72, 96, &c.

When it happens there is any Remainder in the first Division, or the last, or in both; to know the true Remainder as if you divided by the common Way, take this Method, viz. multiply the first Divisor by the last Remainder, and to take it in or add the first Remainder, if there be any, and the Product will be the true or same Remainder as if you divided by the long Way. Example: Divide 4567, by 15.

Here I multiply 3, the first Divisor, by 2, the last Remainder, and take in 1, the first Remainder, and it makes 7 for the true Remainder, as may be proved at Leisure, by the other Way.

(7) The same Observation and Method must be taken with respect to component Parts mentioned before, in Division of Money, as in Division of simple Numbers.

Example.

\[
\begin{array}{c}
3)\ 463-18-06 \\
\hline
Divide \\
\hline
(6)\ 154-12-10 \\
\hline
Answer \ 25-15-5\frac{5}{6} \\
\end{array}
\]

By this Method of Division of Money (if the Quantity be as aforesaid made by even component Parts) you may, by having the Price of several Things, know the Price or Value...
The Young Man's Best Companion.

The value of one thing, at the said rate, as well as by the Rule of Three: So doth Multiplication of Money answer Questions in the Rule of Three, when the first Number is a Unit or One.

Example by Division.

\[
\begin{array}{c}
7) \quad \underline{1.\ s.\ d.} \\
\underline{84} & \underline{31-10-0} \\
\hdashline
12) \quad 4-10-0 \\
\hdashline
\text{Answer} \quad 0-07-6 \text{ a Pound.}
\end{array}
\]

As in the Multiplication of Money, to have an Answer, you multiply the Price by the Quantity, so in Division of Money, you divide the Price by the Quantity, to have your Answer.

I could speak more largely, if I had Room, of the excellent Uses that may be made of Multiplication and Division only; but their various Uses will be better understood by their Application in the following Rules of Arithmetick, particularly in the next Rule, call'd,

Reduction.

Which is an Application of Multiplication and Division, shewing how to reduce Numbers of one Denomination to another, thereby discovering the same Value, tho' in different Terms.

1. As first, All Great Names are brought into Smaller by Multiplication, as Pounds into Shillings, Pence, or Farthings, by multiplying 20, 12, and 4. Or Hundreds Weight into Pounds Weight, by multiplying by 4 and by 28, or by 112; or lower, into Ounces or Drums, by multiplying by 16 and 16.

2. And on the contrary. All Small Names are brought into greater by Division; as Farthings into Pounds, by dividing by 4, 12, and 20; and Pounds Weight into Hundreds Weight, by dividing by 28 and 4; and Drums into Pounds, by dividing by 16 and 16.

But you may Note, That Pounds only are brought into Pence, by multiplying by 240; or into Farthings by multiplying by 960; and just the contrary by Division.

And for Weight, as express'd above.
The Young Man's Best Companion.

The Sense, Meaning and Use of Reduction, is expressed in the following Verses.

Reduction shows how we of Names in Use,
May Great to Small, and Small to Great, reduce;
So that the Answer which shall thence arise,
The given Sum in Value equalize;
Multiply, or divide it, back you must;
Which makes again your given Number just.

Example 1.

In 240 /. Sterling how many Pence?
20 Shillings 1 Pound.

\[
\begin{array}{c}
4800 \text{ Shillings in 240 } /.\\
12 \text{ Pence } 1 \text{ Shilling}
\end{array}
\]

\[
\begin{array}{c}
\text{Answer} \quad 57600 \text{ Pence in 240 } /.
\end{array}
\]

Example 2.

In 226 Tuns of Copper, how many Pounds Wt?
20 C. 1 Tun.

\[
\begin{array}{c}
4520 \text{ Hund. Wt. in 226 Tuns} \\
4 \text{ qrs. } 1 \text{ C.}
\end{array}
\]

\[
\begin{array}{c}
18080 \text{ qrs. of a C. Wt. in 226 Tuns} \\
28 \text{ lb. } 1 \text{ qr. of a C.}
\end{array}
\]

\[
\begin{array}{c}
144640 \\
36160
\end{array}
\]

\[
\begin{array}{c}
506240 \text{ Pounds Wt. in 226 Tuns}
\end{array}
\]

These foregoing Examples are great Names to be brought into Small (as may easily be observed and understood;) therefore, as the first Rule directeth, it is done by Multiplication, by multiplying the greater Name by the Number of the next lesser Name that makes one of the said greater; as in the last Examples the lesser Name to Pounds is Shillings; where-
wherefore I multiply by 20, because 20 of that lesser Name makes one of the said greater Name, i.e. 20 Shillings make a Pound. And the same Regard is had, and Method observed in the Example of Weight; as is very plain to be seen in the Work, and is called Reduction Descending, because it brings Higher or Greater Denominations into Lower or Lesser.

4) Example 3.

Bring 494400 Farthings into Pounds.

\[
\begin{array}{c|c}
12 & 123600 Pence. \\
20 & 1030 Shillings. \\
& 515 Pounds.
\end{array}
\]

Or thus:

\[
\begin{array}{c|c}
960 & 494400 (515 l. \\
480 & \\
144 & 960, the Farthings \\
480 & in a Pound, \\
& & 515
\end{array}
\]

In this Way I divide by

In the first Way I divide the Farthings by 4, because 4 of them make a Penny, and the Quotient is Pence; then these Pence I divide by 12, because 12 of them make a Shilling, and that Quotient is Shillings; which Shillings I divide by 20, to bring it into Pounds, thus; I cut off the Cypher in the Dividend towards the Right, for the Cypher that is in the Divisor 20, which is also separated from 2 with a Dash of the Pen, (as may be seen in the Work) then I halve the Figures one by one, as they are united with the Remainder in the Dividend; which Half is Pounds, and is a short Way of Dividing by 20; in the Example I say, the Half of 10 (because I must not set down 0 at the Beginning) is 5, and the Half of 3 is 1, and there remains 1; which makes the last, which is 0, 10; and the half of 10 is 5. So that 10300 Shillings makes 515 Pounds, or there are 515 many Pounds in 494400 Farthings.

Note, In dividing by 20, as above, if any Thing remains it must be joined or annexed to the Figure or Cypher cut off; as suppose there had in halving the last Figure excepting that you cut off, remained 1, which there doth never more, and then neither, but when the Figure halveth odd;
odd; I say, if there had remained 1, then it must have been joined to the Cypher separated or cut off, and then there would have been 10 Shillings.

Example 4.

Reduce 27552 Pounds Weight into Hundreds Wt.

\[
\begin{array}{ccc}
28) & 27552 & (984) \\
252 & & 246 C. wt. Answer. \\
235 & & \text{Or thus:} \\
224 & & \text{lb.} \\
112 & & 224 \ldots \\
112 & & \ldots \\
\text{(o)} & & \ldots \\
\end{array}
\]

In the first of the two foregoing Examples, I divide the Pounds by 28, to bring them into Quarters; then I divide those Quarters by 4, to bring them into Hundreds Weight, as in the Work.

In the second Way, I divide the Pounds Weight by 112, the Pounds in a C. Weight, and it brings the Pounds Weight into Hundreds Weight at once.

The said Examples are of small Denominations to be brought into greater; and therefore according to the second Rule of Direction, it is done by Division, by dividing the lesser Name by as many of them as make the next greater Name; that is, by 28, because 28 of them make one of the next greater Name, viz. a Quarter of a Hundred; and this Reduction is called Reduction Ascending, because it brings low or small Names to higher or greater Denominations. — By which may be observed, that all Questions in Reduction whether Ascending or Descending, are answered either by Multiplication or Division, or by both; as will plainly appear in the sundry Examples of reducing of divers Denominations to others.

When it is required to reduce Numbers of several Denominations by Reduction Descending, or by Multiplication, you are to work as before; but you must always remember to take in such Numbers as stand in the Place of the next inferior
ferior Denomination; as when you multiply the Pounds by 20, if there be any Shillings in the Denomination or Place of Shillings, you must take them in. So likewise when you multiply the Shillings by 12, if there be any Pence in the Place of Pence, you must also take them in. And so when you multiply the Pence by 4, to bring them into Farthings, you must take in the Farthings, if there be any, in the Place of Farthings, as in the following Work.

**Example 5.**

<table>
<thead>
<tr>
<th>l.</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 346—16—9½ how many Farthings?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>20 Shillings 1 Pound.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6936 Shillings in 346 l. 16 s.</td>
</tr>
<tr>
<td>12 Pence 1 Shilling.</td>
</tr>
</tbody>
</table>

<p>| 83241 Pence in 346 l. 16s. 9d. |</p>
<table>
<thead>
<tr>
<th>4 Farthings 1 Penny.</th>
</tr>
</thead>
<tbody>
<tr>
<td>332966 Farthings in 346 l. 16s. 9d. ½.</td>
</tr>
</tbody>
</table>

The Example is so plain in the Work that it hardly needs any Explanation; but I begin to say, 0 is 0, but 6 in the Units of Shillings is 6; then twice 6 is 12; and 1, in the Tens of Shillings is 13; 3 and carry 1; and twice 4 is 8, and 1 is 9; twice 3 is 6; then by 12, saying 12 times 6 is 72, and 9d. (in the Place of Pence) is 81; 1 and carry 8; and 12 times 3 is 36, and 8 is 44; 4 and carry 4; and 12 times 9 is 108, and 4 is 112; 2 and carry 11; and 12 times 6 is 72, and 11 is 83, &c.

**Example 6.**

<table>
<thead>
<tr>
<th>C.</th>
<th>qrs.</th>
<th>lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>In 56—2—16 of Tobacco, how many Pound Weight?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4—qrs. 1 C.</th>
</tr>
</thead>
<tbody>
<tr>
<td>226 qrs. in 56 C. 2 qrs.</td>
</tr>
<tr>
<td>28 lb. 1 qr. of a C.</td>
</tr>
</tbody>
</table>

| 1814 |
| 453 |

*Ans. 6344 Pounds Weight in 56 C. 2 qrs. 16 lb.*
In the foregoing Work, I first multiply the 56 C. by 4 and take in the two Quarters; and then I multiply the 226 qrs. by 28, saying 8 times 6 is 48, and 6 (the Unit Figure in the odd Pounds) is 54; 4 and carry 5, &c. Then I multiply by 2, saying twice 6 is 12, and 1 (that stands in the Place of Tens in the odd Pounds) is 13; 3 and carry 1, &c. Then adding the two Products together, they make 6344 Pounds, contained in 56 C. 2 qrs. 16 lb. as in the Work is conspicuous, or the Example may be sooner done by multiplying the 56 C. by 112, the Pounds in a C. Wt. and taking in the odd Weight, viz. 2 qrs. 16 lb. or 72 Pounds at once, thus:

C.

56

112

= 672

56, 72 odd Weight.

6344

I say here, 12 times 6 is 72; 2 and carry 7; and 12 times 5 is 60, and 7 is 67; then once 6 is 6, setting it down in the third Place, because by multiplying by 12 at once, two Places are taken up; See the Work.

Or still briefer thus, by setting down the 56 C. four several Times in following Manner; taking in the odd Weight, as before.

56 C.

56

56

56, 72

The same as above, viz. 6344 Pounds.

Reduction Ascending,

Is the bringing Numbers from a lesser Denomination to a greater, and is the Reverse of Reduction Descending; and each may serve as a Proof to the other, one being performed by Multiplication, and the other by Division.

And Note, That when at any Time in Reduction Descending you take in, or add to, the odd Money, Weight, or Measure, as you multiply the several Denominations, such Quantities will be Remainders in Reduction Ascending.

Example.
112 The Young Man's Best Companion.
Example by the two foregoing Sums.

4)

In \( \frac{332966}{12} \) Farthings, how many Pounds?

\[
\begin{align*}
20 & \div 83241 = \frac{1}{2} d. \text{ remains what taken in.} \\
2,0 & \div 693,6 = 9 d. \text{ remains what taken in.} \\
346 & = 16 s. \text{ remains what taken in.}
\end{align*}
\]

So that in \( \frac{332966}{12} \) Farthings, there are \( \frac{346}{16} l. 16 s. 9 d. \frac{1}{2} \),
and is a sure Proof of the foregoing Work descending.

Again, in \( \frac{6344}{12} \) Pounds Weight, how many Hundreds Weight?

\[
\begin{align*}
28 & \div 6344 = (226) \text{ grs.} \\
56 & = 56 C. 2 \text{ grs. taken in.} \\
56 & = \frac{56}{184} \text{ remain Pounds taken in.}
\end{align*}
\]

So that in \( \frac{6344}{12} \) Pounds Weight there is \( 56 C. 2 \text{ grs. 16 lh.} \)
and proves the foregoing Example descending to be right.

Now follow promiscuous Examples of both Kinds of Reduction, one proving the other.

In \( \frac{276}{12} l. \) how many Pence?

\[
\begin{align*}
20 & = 12 \text{ In } \frac{66384}{12} \text{ how many Pounds?} \\
5532 & = 2 \text{ in } \frac{55312}{12} \text{ Answer.} \\
66384 & = \frac{276}{12} \text{ and Proof.}
\end{align*}
\]

In \( \frac{47964}{24} \) Grains how many Pounds Troy?

\[
\begin{align*}
24 & \div 47964 = (19918) \\
24 & = 24 \text{ Pwts.}
\end{align*}
\]

\[
\begin{align*}
239 & = \text{ In } 8 \text{ lb. 3 oz. 18 pwt. 12 gr. Answer,} \\
216 & = 20 \text{ how many Grains.}
\end{align*}
\]

\[
\begin{align*}
236 & = 99 \\
216 & = 20 \\
204 & = 1998 \\
192 & = 24
\end{align*}
\]

Gr. (12) \( \frac{7994}{24} \text{ and Proof.} \)
The Young Man's Best Companion.

In 34 C. ¼ of Cotton-Wool, how many Pounds?

\[
\begin{array}{c}
34 \\
34 \\
34 184 \\
3892 Pounds.
\end{array}
\]

\[
(84) \text{ lb. or } \frac{1}{4} \text{ of C.}
\]

In 456 C. 3 qr. 27 lb. of Copper, how many Pounds?

And what comes it to, at 21 d. per lb.

\[
\begin{array}{c}
456 C. \\
456 \\
456 \\
,111 \\
51183 Pounds. \\
21 \\
,111 \\
102366 \\
51183 Pounds.
\end{array}
\]

\[
1074843 \text{ Pence; which bring into Pounds by Division,}
\]

or Reduction Ascending, as before shewn, and it will amount to l. 4478: 10: 3.

Bring 4796 Ells Flemish into Ells English; multiply by 3, and divide by 5, because 3 Quarters make an Ell Flemish, and 5 an Ell English.

\[
5) 14388
\]

\[
2877 \frac{1}{3}
\]

Reduce 456 Ells English into Yards; multiply by 5, and divide by 4, thus:

\[
\begin{array}{c}
456 \text{ English Ells.} \\
5 \text{ qr. 1 Eng. Ell. In 570 Yds. how many Eng. Ells?} \\
4 \text{ qr. 1 Yd.} \\
2280 \text{ qrs.} \\
570 \text{ Yds.} \\
14388 \text{ Ans.}
\end{array}
\]

\[
\text{English Ells 456 Answer and Proof.}
\]

Bring
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Bring 130 Tuns of Wine into Gallons.
4 Hogheads = 1 Tun.

Or thus.
520
252 Gallons = 1 Tun.
63 Gallons = 1 Hoghead.
130 Tuns.

4 Hogheads = 1 Tun.
520
252 Gallons = 1 Tun.
63 Gallons = 1 Hoghead.
130 Tuns.

Ans. 32760 Gallons.

And so the contrary by Division.


Reduce 42 3 5 2 into Pecks.
10 qrs. = 1 Last.

Here I multiply by 10, and take in 3 qrs. and then by 8, and lastly by 4, and take in 2 Pecks.

423 qrs.
8 Bushels = 1 qr.
3389
4 Pecks = 1 Bushel.

13558 Pecks in 42 Lasts, 3 Quarters, 5 Bushels, and 2 Pecks.

In 13558 Pecks, how many Lasts, &c.

8) 3389 2 Pecks taken in.

1042 3 5 Bushels taken in.

Lasts 42 3 Quarters taken in.

Answer. 42 Lasts, 3 Quarters, 5 Bushels and 2 Pecks.

Thus by the two foregoing Examples it is seen, that Reduction Ascending and Descending mutually prove each other, as was said before; and is no more than that Multiplication and Division prove one another.

By Reduction also,

Foreign Coins of Exchanges may be reduced to Sterling Money; and on the contrary, Sterling Money to Foreign. 

Example
Example.
Reduce 246 Venetian Ducats de Banco, into Sterling Money, the Exchange at 52d. Sterling per Ducat, thus:

\[
\begin{array}{c}
246 \\
52 \\
\hline
492 \\
1230 \\
\hline
12) 12792 \\
\hline
2|0)106|6
\end{array}
\]

1. 53.6 To be paid in London, for the 246 Ducats drawn in Venice.

Reduce 53l. 6s. Sterl. into Ducats at 52d. Sterl. per Duc.

\[
\begin{array}{c}
1066 \\
12 \\
\hline
52) 12792 (246 Ducats to be paid in Venice for the 53l. 6s. drawn in London,
\hline
104
\end{array}
\]

To reduce Flemish Money into Sterling Money, divide, the Pence Flemish by the Par of Exchange, viz. 33s. 4d. and the Quotient will be the Sterling Money; and what remains, multiply by 20, &c. Example.

In 242l. 13s. 4d. Flemish, how many 20 Pounds Sterling, &c.

\[
\begin{array}{c}
33s. 4d. Flemish. 4853 \\
12 \\
\hline
400 \\
400) 58240 \\
\hline
1. 145 Sterling.
\end{array}
\]

Remains

\[
\begin{array}{c}
240 \\
20 \\
\hline
4|00)48|00 \\
12 Shillings Sterling.
\end{array}
\]
By the Work it appears that 145 l. 12s. Sterling, answers, or is equivalent to 242 l. 13s. 4d. Flemish, at 33s. 4d. Flemish, per Pound Sterling.

Thus Flemish Money may be reduced to Sterling Money, though the Par of Exchange be at any other Rate of Shillings and Pence Flemish; but when at the Rate, as above, viz. 33s. 4d. (the common Par) then the Answer is sooner found by multiplying by 3, and dividing by 5; for 400 d. Flemish is the same to 240 d. Sterling (each being a Pound) as 3 is to 5; for if you divide 240 by 3, it quotes 80: So 400 divided by 5, quotes the same.

The foregoing Example done by the last proposed Way.

\[
\begin{align*}
1. & \quad 242 - 13 - 4 \text{ Flemish} \\
& \quad \underline{3} \\
& \quad 5)728 - 00 - 0 \\
& \quad \underline{1.} \quad 144 - 12 - 0 \text{ Sterling.}
\end{align*}
\]

Note, French Money is reduced to Sterling, viz. Livres, Sols, and Deniers (or French Pence) as Sterling and Flemish Money is by multiplying by 20 and by 12. Also Proclamation Money is reduced to Sterling, if you multiply by 3, and divide by 4.

In 436 French Crowns, each 54d. \(\frac{1}{2}\) Sterling, how many Pounds, &c. Sterling?

\[
\begin{align*}
426 & \\
54 & \\
1704 & \\
2130 & \\
106\frac{3}{4} & \text{or } \frac{7}{12} \text{d.} \\
12) & 23110: 10d. \\
20) & 192\frac{5}{4} \\
\text{Answer } l. \quad 96: 5: 10 \text{ Ster.}
\end{align*}
\]

In this Example the Number of Crowns is multiplied by 54d. and for that I take the 4th Part of 246, which is 106\(\frac{3}{4}\) of a Penny, or a Half penny; which added to the other Pence, gives for Total 23110d. which divided by 12, quotes 1925, and 10d. remains; so the Answer is 96l. 5s. 10d. \(\frac{1}{2}\) Sterling; as in the Work.

Again, bring 1600 Pieces of Eight Mexico, at 54d. \(\frac{1}{3}\) Sterling, into Pounds, &c. Sterling?
Here the 1600 Pieces of Eight are multiplied by 54, to bring them into Pence; and for the \( \frac{2}{3} \) I take \( \frac{1}{3} \) of 1600 twice, \&c. as in the Work. And the Answer is \( 1.361:13:4 \).

This Method is of Use in reducing the Exchanges of Cadiz, Leghorn, and Genoa. Or when the Exchange is at so many Pence, and Eighths of a Penny, (as often the Exchanges run) then multiply the given Number to reduce it into Pence, by the Pence contained in a Piece of Eight; and also multiply the said given Number apart, by the Numerator or upper Figure of the Fraction, and divide by the Denominator, or under Figure of the Fraction, and the Quotient will be Pence; which add to the other Pence produced by multiplying the given Number by the Pence contained in one of the Pieces for Exchange; then divide the total Pence by 12, \&c.

Example.
Bring 296 Dollars, at 52d. \( \frac{3}{4} \) Sterling, into Pounds, \&c. Sterling ?

\[
\begin{array}{c}
296 \\
52 \\
\hline
592 \\
1480 \\
\hline
15392 \\
222 \times 8 = 1776 \\
\hline
12) 15614 \\
2|0)130|1 = 2 \\
\hline
\end{array}
\]

Answer \( 1.65:1:2 \) Sterling Money due for 296 Dollars, at 52d. \( \frac{3}{4} \) Sterling per Dollar.

But
The Young Man's Best Companion.

But Ducats, Dollars, Crowns, Millrears, &c. are more expeditiously cast up by the Rules of Practice hereafter to be shewn.

And so much for Reduction. The next Rule in Arithmetic, is

The GOLDEN RULE: Or Rule of Three.

It is called the Golden Rule from its excellent Performances in Arithmetic, as in other Parts also of Mathematical Learning.

And the Rule of Three, because from three Numbers given, proposed, or known, we find out a fourth Number required, or unknown, which bears such Proportion to the third as the second doth to the first Number. From whence also it is called, The Rule of Proportion.

And of this Proportion there are two sorts; one called Direct, and the other Indirect or Reverse.

Direct Proportion is, when the second and third Numbers are multiplied together, and their Product is divided by the first.

Indirect or Reverse Proportion is, when the first and second Numbers are multiplied together, and their Product is divided by the first.

In Direct Proportion, the fourth Number, or Answer to the Question, contains the third Number as often (or as many times) as the second contains the first.

But in Indirect Proportion, the greater the third Number is, the less is the fourth; and the less the third Number is, the greater is the fourth.

The Stating the Question.

The chiefest Difficulty that occurs in the Rule of Three, is the right placing the Numbers, or stating the Question; for when that is done, you have nothing more to do, but to multiply and divide, and the Work is done.

And to this End, we are to remember, that of the three given Numbers, two of them are always of one Name or Denomination; and the other Number is ever of the same Name with the fourth Number or Answer required; and must always be the second or middle Number; and the Number that asketh the Question, must still possess the third or last Place; and the other Number of the same Name with the third, must be the first Number; for, the first and third Numbers must always be of one Name, viz. both Money,
both Weight, both Time, or both Measure. And though they be of one Kind, yet if one of them is altered, by Reduction, from a high to a lower Name, then the other must be reduced to the same Name. For you must particularly note, That if either the first or third Numbers consist of several Denominations, that is of Pounds and Shillings; or Pounds, Shillings and Pence; or of Pounds, Shillings, Pence, and Farthings; or of Tons, Hundreds, Quarters and Pounds, &c. then must they be reduced to the lowest Name mentioned. And if one happen to be of divers Denominations, and the other but of one Name; then the Number of one Name must be reduced as low, or into the same Name with the other; as suppose the first Number is brought into Farthings, then the third Number, though but Pounds, must be brought into Farthings also. Then you are to multiply the second and third Numbers together (when the Proportion is Direct) and divide the Product by the first Number, and the Quotient thence arising will be the Answer to the Question, and in the same Name with the middle Number: And if in a small Denomination, it must be brought by Division to the highest Name, for the better understanding the Answer. You must also Note, That if the middle Number be of several Denominations, it must be brought into the lowest mentioned.

Example 1.

If 12 Gallons of Brandy cost 4l. 10s. what will 134 Gallons cost at that Rate?

Stated for Working thus.

<table>
<thead>
<tr>
<th>Gallons.</th>
<th>l.</th>
<th>s.</th>
<th>Gallons.</th>
</tr>
</thead>
<tbody>
<tr>
<td>If 12</td>
<td>04</td>
<td>10</td>
<td>134</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>12060</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>1.</td>
<td>50</td>
<td>5</td>
</tr>
</tbody>
</table>

Here the first and third Numbers are of like Names, viz. both Gallons; and 134 being the Number that asketh the Question, it hath the third Place, as it always must, as before asserted; and 4l. 10s. the second Number, being of two Denominations, viz. Pounds and Shillings, it is reduced into the lowest mentioned, viz. Shillings, as before, directed,
directed, and then the three Numbers are these, viz. 12—90—134; and 134 the third Number, being multiplied by 90, the second Number, produces 12060; which, divided by 12, the first Number, quotes 1005 Shillings, the Name of the middle Number 90; and 1005 Shillings, divided by 20, gives 50l. 5s. for the Answer; And for the Proof of its truth, state it back again thus:

**Example 2.**

<table>
<thead>
<tr>
<th>Gal.</th>
<th>l.</th>
<th>s.</th>
<th>Gal.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If 134. cost 50 — 5 what 12 ?

20

1005

12

134) 12060 (90s. Answer, or 4l. 10s.

1206 the Cost of 12 Gallons, and is a sure Proof of the first Work; and the back stating and working the Proof is as much a Question in the Rule of Three as the first.

By the foregoing Rules and Directions, and these two Operations, you may understand the Nature of the Rule, and Method of working, and with Eafe and Certainty answer any Example proposed in the Rule of Three direct: And therefore, I shall omit what I can of verbal Directions, and abate as much of Figure Work as is consistent with Dispatch, and of not leaving the Work too obscure; to save Room, and not to be too prolix; and to this End I shall only give the Examples stated, and a little of the Work, and the Answers to the Questions, leaving most of the Operations to be performed by the ingenious Practitioners.

**Example 3.**

If 56 l. of Indigo cost 1l. 4s. what will 1008 l. cost at that Rate?

l. | s. | l. |
---|----|----|
56—224—1008 ? **Answer** 4032 s. or 201 l. 12 s.

**Example 4.**

If half a C. Wt. of Rose Copper cost 4l. 1s. what Quantity will 14s. buy at that Rate?

s. | l. | s. |
---|----|----|
If 98 buy 56 what 14 ? **Answer** 8 l. of Copper.

**Example 5.**

If 4 C. 3 qrs. of Sugar cost 5l. 15s. 7d. what will 4 Hogheads come to, weighing 42 C. 1 qr. 14 l. If
If 532—1387—4746; Answer, 12373 Pence, or 51 l. 11s. 1d. And the Remainder 266; multiplied by 4, gives 1064; which also divided by the first Number 532, gives a Half-penny more; so the whole is 51 l. 11s. 1d. ½.

Any of these Examples, or any other, may be proved by a back-flating, according as the first Example was proved. And each Proof becomes another Question in the Rule of Three, as was said before.

Example 6.

If I have 50 l. a Year Salary, how much is due to me for 144 Days Service at that Rate?

Days. l. Days.

If 365—50—144? Answer, l. 19—14—6 90 5 Parts of a Penny.

In this Example, the Product of the third by the second Number is 7200; which divided by the first 365 (according to the Rule) quotes 19 Pounds, the Name of the middle Number and there is a Remainder of 265: which multiplied by 20 according to Reduction, and the Product still divided by 365, there comes out 14 Shillings; and yet there is a Remainder of 190, which multiplied by 12 and the Product divided by 365, gives 6d. and there’s a Remainder of 90; which multiplied by 4 (the last inferior Name) and divided by 365, yet it would not come to a Farthing more; so that the Answer is as above, 19—14—6 90 5.

You are to note always, That when any thing remains that is reducible to an inferior or lower Name; after multiplied as above, it must continually be divided by the first Number.

Note also; when the first of the three given Numbers is an Unit, or One, the Work is performed, or Answer found by Multiplication.

Example 7.

If I am to give 17s. for 1lb. of Balladine Silk, what must I give for 264lb. at that Rate?

lb. s. lb.

If 1—17—264

17

Answer 4488, or 224l. 8s.

Example 8.

If I buy 49 Bags of Hops, at 12 l. 12s. 6d. per Bag, what come they to at that Rate? Bags
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If 12 Ells of Holland cost 3l. 6s. what is the Price of 1 Ell at that Rate?

Ells 12) s. Ell.
If 12——66 ——— 1 Answer 5s. 6d.

Example 9.

If 56 Yards of Broadcloth cost 40l. 12s. what comes a Yard to at that Rate?

Yards 7) l. s. Yd.
If 56——40—12 ——— 1 Answer 14s. 6d. per Yd.

Example 10.

This Example is wrought by Division of Money, and by Component Parts; as before taught in the Rule of Division.

Example 11.

If A owes B 296 l. 17s. and compounds at 7s. 6d. in the Pound; what must B take for his Debt?

If 20——90——5937 Answer l. 111—6—4½

Example 12.

If a Gentleman hath an Estate of 500l. a Year, what may he expend daily, and yet lay up 12l. 15s. per Month?

First
First multiply 12l. 15s. per 12, the Months in a Year, and it makes 153l. which deducted from 500l. the Remainder is 347l. Then say,

Days.

If 365—-347, what 1 Day? Answer 19s.

After you have reduced the Pounds into Shillings, which make 6940; you divide them by 365, and the Quotient is 19s. per Day.

The Rule of Three Reverse, or of Indire⁷t Proportion.

WHAT Indire⁷t Proportion is, hath been hinted already.

In Direct Proportion, the Product of the First and Fourth Numbers, is equal to the Product of the Second and Third. But in this Proportion, the Product of the Third and Fourth Numbers, is equal to the Product of the First and Second.

The Method of stating any Question in this Rule, is the same with that of the Direct Rule.

For the first and third Numbers must be of one Name, or so reduced, as in that Rule; and the Number that moves the Question must possess the third Place; and the middle Number will be of the same Name with the Answer, as it is there.

To know when the Question, belongs to the Direct, and when to the Reverse Rule.

When the Question is stated as above said, consider whether the Answer to the Question ought to be more or less than the second Number; if more, than the lesser of the first and third Numbers must be your Divisor.

But if less, then the Bigger of the two extreme Numbers must be your Divisor.

And if the first Number of the Three is your Divisor, then the Proportion is Direct; but if the last of the Three given Numbers is your Divisor, the Proportion is Indire⁷t or Reverse.

Or without Regard, either to Direct or Reverse; If more is required, the Lesser \{ \} is Divisor.

If less, the Greater
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Examples for Explanation.

Example 1.

If 4 Men plain 250 Deal-boards in 6 Days; how many Men will plain them in 2 Days?

If 6 Days require 4 Men, what 2 Days? Answer 12 Men.

\[
\begin{array}{ccc}
2) & 24 & \hline \\
12 & \hline 
\end{array}
\]

Example 2.

If a Board be 9 Inches Broad, how much in Length will make a Square Foot?

\[
\begin{array}{ccc}
\text{In B.} & \text{In L.} & \text{In B.} \\
\text{If 12} & \text{12} & \text{what 9 Inches broad?} \\
\hline 
12 & \hline 
9) & 144 \\
\end{array}
\]

Answer 16 Inches broad.

In this Example, the first and second Numbers are multiplied together, (as they always must be) and their Product is divided by the Third; as in the Example above it, and agreeable to the aforesaid Assertion; for in the first Example, it is most certain, that 2 Days will require more Hands to perform the Work than 6 Days; therefore the Lesser of the extreme Numbers is the Divisor; and declares the Quotient is in the Indirec\text{t Proportion.}

Likewise in the second Example, 9 Inches in Breadth must needs require more in Length to make a Foot, than 12 Inches in Breadth; wherefore it is in the same Proportion with the first Example, because the Divisor is the third Number.

Example 3.

How many Pounds of Coffee, at 5 s. 9 d. per lb. is equivalent in Value with 246 Pounds of Tea at 13 s. 4d. per lb.

\[
\begin{array}{ccc}
d. & \text{lb.} & d. \\
160 & \text{426} & \text{987} \frac{5}{6} \\
\end{array}
\]

Here it is manifest that there must be more Pounds of the Coffee than the Tea; therefore 69 is the Divisor, which is the third Number, &c.
Example 4.

How many Yards of Sarcenet, of 3 qrs. wide will line 9 Yards of Cloth of 8 qrs. wide?

If 8—9 what 3

Here the narrower the Silk the more in Length is requird.

Yards 24 Answer.

Example 5.

If a Quartern Loaf weigh 4 lb. \( \frac{1}{2} \) when Wheat is 5s. 6d. the Bushel; what must it weigh when Wheat is 4s. the Bushel?

\[
\begin{array}{ccc}
d. & \frac{1}{2} lb. & d. \\
\text{If} 66-9- & \text{48 Answer} & 6\frac{1}{2}
\end{array}
\]

Example 6.

If in 12 Months 100l. Principal gain 5l. Interest; what Principal will gain the same Interest in 5 Months?

\[
\begin{array}{ccc}
M. & l.P. & M. \\
12-100- & 5
\end{array}
\]

\[
5) 1200
\]

Answer, 240l. Principal.

The Double Rule of Three Direct.

In this Rule, there are Five Numbers given to find out a Sixth, in Proportion to the Product of the fourth and fifth Numbers, as the third Number bears to the Product of the first and second Numbers.

Questions in this Kind of Proportion, are wrought either by two Operations in the Single Rule of Three Direct, or by the Rule composed of the Five given Numbers, and the one may be a Proof to the other; as may be seen in the Example following.

Example
Example I.

If 100 Pounds Principal, in 12 Months, gain 5 Pounds Interest, what will 246 Pounds Principal gain in 7 Months?

If 100 gain 5 what 246

\[
\begin{array}{c}
100 \\
5 \\
\hline
100 \\
600 \\
\hline
\text{Answer. 12l. 6s.}
\end{array}
\]

Then say again, if 12 gain 12—6 what 7

\[
\begin{array}{c}
12 \\
7 \\
\hline
1722 \\
6 \\
\hline
\text{Answer.}
\end{array}
\]

In the first Stating, the Answer is, that if 100l. gain 5 Pounds, the 246l. will gain 12 Pounds 6 Shillings.

Then I say in the next Stating; If 12 Months gain 12l. 6s. what will 7 Months gain? And the Answer of the Work is, 1. 7--3--6. And so much will 246 Pounds gain in 7 Months, if 100 Pounds gain 5 Pounds in 12 Months.

You must particularly note, That in all Operations where the Answer to the Question is found by two Rules of Three, the Answer of the first Stating is ever the middle Number of the second Stating or Work; as in the preceding Examples is plainly seen.
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The foregoing Question answered by a Rule composed of five given Numbers, thus:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>l.</td>
<td>M.</td>
<td>l.</td>
<td>l.</td>
<td>l.</td>
<td>M.</td>
</tr>
<tr>
<td>If 100</td>
<td>12</td>
<td>5</td>
<td>246</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>1200</td>
<td>1230</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In this Work, in stating the Question, the first and fourth Numbers are made of one Name, and the second and fifth; then the two first Numbers are multiplied together for a Divisor, and the last three Numbers are multiplied together for a Dividend, and the Quotient or Answer as in the same Name with the middle Number, viz. Pounds Interest; as in the Work I find the first Quotient 7 Pounds Interest; and so I proceed from one Denomination to another, till I find the same Answer as in the Work at two Statings, viz. l. 7 — 3 — 6.

This Method of Operation serves to answer all Questions in the Double Rule of Three Direct.

The Double Rule of Three Reverse.

In this Rule you must place your Numbers in such Order, that your second and fourth Numbers may be of one Name or Denomination, and your third and fifth.

Example.

If 100 l. Principal, in 12 Months, gain 6 l. Interest; what Principal will gain 20 l. Interest in 8 Months?

Stated
Stated thus:

<table>
<thead>
<tr>
<th>l. P.</th>
<th>Mo.</th>
<th>l. Int.</th>
<th>Mo.</th>
<th>l. Int.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>If</td>
<td>100</td>
<td>12</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td></td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

If 1200

20

48) 24000 (500l. P. Answer.

240

48 the Divisor.

In this Work, the third and fourth Numbers are multiplied together for a Divisor; and then the first is multiplied by the second, and that product by the fifth Number, and the Product 24000 is divided by 48, and the Quotient is 500l. Principle; which is what will gain 20l. Interest, in 8 Months, and the Answer to the Question, as may be seen in the Work.

Rules of Practice.

These Rules are so called from their frequent Use and Brevity in casting up most Sorts of Goods in Merchandize.

Note, That any Question in the Rule of Three, when the first Number in Stating is 1, it is most briefly done by these Rules called Practice.

But previous to these Rules, it is necessary to have the following Tables by Heart.


s. d. s. d.

<table>
<thead>
<tr>
<th>d.</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1/6</td>
<td>1/2</td>
<td>1/4</td>
<td>1/2</td>
</tr>
<tr>
<td>2/6</td>
<td></td>
<td>1/3</td>
<td></td>
</tr>
<tr>
<td>3/6</td>
<td></td>
<td></td>
<td>1/3</td>
</tr>
<tr>
<td>1/3</td>
<td></td>
<td></td>
<td>1/2</td>
</tr>
</tbody>
</table>

Parts of a Shilling. Of a Pound.
Example 1.

<table>
<thead>
<tr>
<th>6d. is</th>
<th>426 Pounds of Sugar, at 6d. per lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\frac{1}{2}) Is.</td>
<td>(2\frac{1}{3})</td>
</tr>
</tbody>
</table>

\[\begin{array}{c|c|c|c}
20 & 213 & \hline
10 & 13 & \hline
\end{array}\]

\(l. 10\frac{13}{13}\) Answer.

Here 6d. being the Price of each lb. and the Half of a Shilling; therefore the Half of 426 is taken, and gives 213s. or 10l. 13s.

Example 2.

<table>
<thead>
<tr>
<th>4d is (\frac{1}{3})</th>
<th>512 lb. of Cheese, at 4d. per lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>of Is.</td>
<td>(2\frac{1}{3}) 17(\frac{1}{3}) - 8d.</td>
</tr>
</tbody>
</table>

\[\begin{array}{c|c|c|c}
20 & 13 & \hline
10 & 8 & \hline
\end{array}\]

\(l. 8, 10, 8\) Answer.

Here 4d. is \(\frac{1}{3}\) of a Shilling; therefore the third Part of 512 is 170s. and \(\frac{2}{3}\) of a Shilling, or 8d. remains.

Note, Always what remains is of the same Name with the Dividend, which here is Groats, for the Pounds of Cheese are at a Groat each.

Example 3.

<table>
<thead>
<tr>
<th>3d. is (\frac{1}{4})</th>
<th>246 Yds. of Ribband, at 3d. per Yard.</th>
</tr>
</thead>
<tbody>
<tr>
<td>of Is.</td>
<td>(2\frac{1}{2}) 6(\frac{1}{2}) - (\frac{1}{2}) of a Shilling, or 6d.</td>
</tr>
</tbody>
</table>

\[\begin{array}{c|c|c|c}
20 & 6 & \hline
10 & 3 & \hline
\end{array}\]

\(l. 3 - 1 - 6\) Answer.

Here the Yards are divided by 4, because 3d. is the 4th of a Shilling; and it quotes 61 Shillings, and 2 remains, or two 3 Pence; so the Answer is l. 3---1---6d.

And thus may any proposed Question be answered, belonging to the first Table, or Parts of a Shilling; that is by dividing the given Number by the Denominator of the Fraction, and the Quotient will always be Shillings, which (the Remainders being known as above) bring into Pounds, by dividing by 20, &c.

When the Price of the Integer is at a Farthing, a Halfpenny, or three Farthings more than the Price of Pence mentioned, then for those Farthings take their even Part of the foregoing Quotient taken for the even Part of a Shilling, and add, &c.
The Young Man's Best Companion.

Examples.

249 Ells of Canvas, at $4\frac{1}{2}$ per Ell.

<table>
<thead>
<tr>
<th>$4\frac{1}{2}$ d. is $\frac{1}{3}$</th>
<th>$\frac{1}{3}$ d. is $\frac{1}{8}$</th>
<th>of 4d.</th>
<th>83</th>
<th>10 $\frac{3}{8}$ or 4d. $\frac{1}{2}$ Answer.</th>
</tr>
</thead>
</table>

2$\frac{1}{2}$. 39$\frac{1}{3}$ Answer.

2$\frac{1}{2}$. 13$\frac{1}{2}$

In this Example I divide by 3 for the Groats, as being the Third of one Shilling, and it quotes 83s. then I consider that a Half-penny is the Eighth of 4d. therefore I take the eighth Part of the Groat Line, or 83s. and that produces 10s. and $\frac{1}{8}$ of a Shilling, or 4d. $\frac{1}{2}$; then the two Lines being added together, make 93s. 4d. $\frac{1}{2}$, or 4l. 13s. 4d. $\frac{1}{2}$, as in the Work.

Parts of a Pound.

10s. is $\frac{1}{2}$ | 254 Yards of Cloth at 10s. per Yard.

l. 127 Answer.

Here the Half of 254 is taken, because 10s. is the Half of a Pound.

s. d.

6 8 is $\frac{1}{2}$ | 972 Gallons at 6s. 8d. per Gallon.

l. 324 Answer.

Here the third Part is taken, because 6s. 8d. is the Third of a Pound; and the Answer is l. 324.

And thus may any Question proposed be answered belonging to the second Table, or Parts of a Pound; that is, by dividing the given Number by the Denominator of the Fraction, and the Quotient will always be Pounds; and if any thing remains, it is always so many Halves, Thirds, Fourths, or Fifths, &c. of a Pound, according to the Denominator that you divide by.

If the Price be Shillings and Pence, or Shillings, Pence, and Farthings, and no even Part of a Pound; then multiply the given Number by the Shillings in the Price, and take even Parts for the Pence, or Pence and Farthings, and add the several Lines together, and they will be Shillings; which Shillings bring into Pounds, as before.
# The Young Man's Best Companion.

**Examples.**

<table>
<thead>
<tr>
<th>lb.</th>
<th>s.</th>
<th>d.</th>
<th>Ells</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>426</td>
<td>4</td>
<td>9</td>
<td>216</td>
<td>2</td>
<td>3.5</td>
</tr>
</tbody>
</table>

| 4   | 1704  | 432   |
| 2   | 213   | 54    |
| 1   | 106    | 9     |

<table>
<thead>
<tr>
<th>6d.</th>
<th>3d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>1/2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3d.</th>
<th>6d.</th>
<th>3d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>1/2</td>
<td>1/8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>21 (3)</th>
<th>202 (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 (0)</td>
<td>49 (5)</td>
</tr>
</tbody>
</table>

**Answer.** 101-3-6

- 396 Gallons of Brandy, at 75. 9d. per Gallon,

<table>
<thead>
<tr>
<th>6d.</th>
<th>3d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2</td>
<td>1/2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3d.</th>
<th>6d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2</td>
<td>1/2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2 (0)</th>
<th>306 (9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 (0)</td>
<td>49 (5)</td>
</tr>
</tbody>
</table>

**Answer.** 101-3-6

When the Price is 10d. only annex 0 to the Right of the given Number (which is multiplying by 10) and they are Pence; which divide by 12, and by 20.

**Example.** 426 lb. of Hops at 10d. per lb.

<table>
<thead>
<tr>
<th>12</th>
<th>0</th>
<th>4260 (0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 (0)</td>
<td>35 (5)</td>
<td></td>
</tr>
</tbody>
</table>

**Answer.** 17-15

When the Price is 11d. set down the Quantity twice in the Form of Multiplication, and add the two Lines together, then divide by 12, and 20.

**Example.** 426 lb. of Copper at 11d. per lb.

<table>
<thead>
<tr>
<th>12</th>
<th>0</th>
<th>4686 (0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 (0)</td>
<td>39 (0-6)</td>
<td></td>
</tr>
</tbody>
</table>

**Answer.** 19-10-6
The Young Man's Best Companion.
If the Price be 11d. ½, take Half the uppermost Line, &c.

Example.

942 lb. of Tobacco, at 11d. ½ per lb.
942
571
12) 10833 Pence

\[ \underline{\text{2|0|90|2—9d.}} \]

l. 45 2—9 Answer.
When the Price is 1s. only divide by 20.

Example.

2|0| 96|4 lb. of Tobacco, at 12d. per lb.

\[ \underline{l. 48|4 Answer.} \]
When the Price is 2s. it is done at Sight, by doubling the last Figure towards the Right-hand, and setting it apart for Shillings; and the Figures toward the Left are Pounds.

Example.

596 Gallons of Spirits, as 2s. per Gallon.

\[ \underline{l. 59—12 Answer. Here the Double of 6 is 12s. and the 59 are Pounds.} \]
From this Method of working by 2s. a Multitude of Examples may be most expeditiously wrought, viz.

<table>
<thead>
<tr>
<th>Ells.</th>
<th>Yards.</th>
</tr>
</thead>
<tbody>
<tr>
<td>444 Cambric.</td>
<td>426 at 3s. 6d.</td>
</tr>
<tr>
<td>at 5s. 9d</td>
<td></td>
</tr>
<tr>
<td>44—8 at 2s.</td>
<td>42—12 at 2s.</td>
</tr>
<tr>
<td>44—8 at 2s. 1s. ½ 2s.</td>
<td>21— 6 at 1s.</td>
</tr>
<tr>
<td>1s. ½ of 2s.</td>
<td>22—4 at 1s. 6d. ½ 1s.</td>
</tr>
<tr>
<td>11—2 at 6d.</td>
<td>10—13 at 6d.</td>
</tr>
<tr>
<td>6d. ½ of 1s.</td>
<td>5—11 at 3d. Answer. l. 74—11 at 3s. 6d.</td>
</tr>
</tbody>
</table>

Answer, 127—13 at 5—9d.
The Operation of these two Examples is so intelligibly wrought, that there is no need of verbal Explanation.
Again, 548 Yards of Broadcloth, at 12s. 6d. per Yard.

\[
\begin{array}{c}
\text{6d. is } \\
\frac{1}{4} \text{ of 2s. }
\end{array}
\]

Note, That 13l. 14s. is the fourth Part of 54l. 16s. the two Shilling Line.

I. 342, 10 Answer.

Or multiply by 12s. and take Half of the given Number for the 6d. thus:

\[
\begin{array}{c}
\text{548 Yards.} \\
\frac{1}{2} \text{ of 16s. } \\
207 - 45 Answer.
\end{array}
\]

When the Price is an even Number of Shillings, multiply the Number of Integers by Half the Price, and double the first Figure of the Product for Shillings and carry as is usual in Multiplication, and the other Figures towards the Left will be Pounds.

Example.

296 Yards of Cloth, 14s. per Yard.

7 the Half of 14 Shillings.

I. 207 - 45 Answer.

Here 7 times 6 is 42; the Double of 2s. is 4s. &c.

When the Price is an odd Number of Shillings, work for the even Number as above; and for the odd Shillings, take the \(\frac{1}{20}\) of the given Number, and add them together.

Example.

496 Gallons of Citron Water, at 17s. per. Gal.

8 the Half of 16, or even Part.
In this Example I say, 8 times 6 is 48; the Double of 8 is 16s. and carry 4; then 8 times 9 is 72, and 4 is 76; 6 and carry 7; and 8 times 4 is 32, and 7 is 39; then the Half of 4 is 2, &c.

Even Parts of a Pound.

<table>
<thead>
<tr>
<th>Yards.</th>
<th>Nobles s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10s.</td>
<td>426 of Cloth, at 10s. 429 at 6—8 each.</td>
</tr>
<tr>
<td>is ½</td>
<td>—— per Yard</td>
</tr>
<tr>
<td></td>
<td>213 Answer, 6—8d. ½</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>lb.</th>
<th>lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>598 of Cochineal, at</td>
<td>154 of Indigo, at</td>
</tr>
<tr>
<td>—— 5s. per lb.</td>
<td>—— 4s. per lb.</td>
</tr>
<tr>
<td>l. 149 ½ or 10s. Answer. is ½</td>
<td>l. 30 ½ or 16s. Anf.</td>
</tr>
</tbody>
</table>

| 3s. 4d. | 542 Zealand Dollars, at 3s. 4d. |
|         | 90 ½ or 6s. 8d. Answer l. 90—6—8 Sterling. |

In all these Examples of Practice, I divide by the Denominator of the Fraction, and what remains is always of the same Name with the Denominator; as one Half, Thirds, Fourths, Sixths, or Eights of a Shilling, or of a Pound, &c.

If the Price be Half a Crown, divide by 8; if at 20d. or 1s. 8, divide by 12, &c.

When the Price is Shillings and Pence, and no even Part of a Pound; multiply the given Number by the Shillings, and take Parts of it for the Pence, as directed before.

Example.

246 Marks, 13s. 4d.

---

For the Groat, I say the 3's in 24, 8 times; and the 3's in 6, twice, &c.

---

l. 164 Answer.
But this Example may be sooner done by multiplying the given Number by 2, and dividing that Product by 3 (because a Mark is two Thirds of a Pound) thus:

\[
\begin{array}{c}
246 \\
\hline \\
2 \\
\hline \\
3) 492 \\
\end{array}
\]

I. 164 Answer and Proof.

I have not here Room to speak of the various and almost infinite Methods and Rules of Practice (having several other Subjects and Things to treat on) but shall leave some general Rules, which if heedfully noted, will be of great Use to Learners; and are these, viz.

1. When the Price is Parts of a Farthing; or of a Penny, as \( \frac{1}{2} \), \( \frac{3}{8} \), \( \frac{7}{12} \), &c. then multiply the Integers by the Numerator, and divide by the Denominator, and the Result will be either Farthings or Pence; which reduce to Pounds, &c.

2. When the Price is Pence, and no even Part of a Shilling; as suppose 5d. 7d. 8d. or 9d. then it may be done by taking their Parts, as 3d. and 2d. is 5d. and 4d. and 3d. is 7d. and 4d. and 4d. is 8d. and 6d. and 3d. is 9d. but it is an easy and sure Way to multiply the given Number by 5, 7, 8, or 9, and then the Product is Pence; which reduce to Pounds by Reduction.

3. When the Price is Pence, and Parts of a Penny; as 1d. \( \frac{1}{4} \), 2d. \( \frac{1}{2} \); or 6d. \( \frac{3}{4} \); then work for the Penny by taking the \( \frac{1}{2} \); for 2d. the \( \frac{1}{5} \); and for 6d. the \( \frac{1}{2} \): Then for the Farthings, take the \( \frac{1}{4} \) of the Penny Line, and for \( \frac{1}{2} \), \( \frac{1}{4} \) of the Two-penny Line; and for \( \frac{1}{5} \), take \( \frac{1}{6} \) of the 6 Penny Line; then add their Results together; and the total will be Shillings, which reduce to Pounds by dividing by 20. Or by the sure Way of bringing the mixt Number into the lowest Denomination; as 1d. \( \frac{1}{4} \), into 5 Farthings; 2d. \( \frac{1}{2} \), into 5 Halfpence, and 6d. \( \frac{3}{4} \), into 27 Farthings; then multiply the Integers by 5, and the Product is Farthings; or by 5 Halfpence, and the Product will be Halfpence; or by 27 Farthings, and the Product will be Farthings; which, whether Farthings or Pence, reduce to Pounds, &c.

4. When the Price is Shillings and Pence, or Shillings, Pence, and Farthings, multiply the Integers by the Shillings of the Price, and take Parts for the Pence, or Pence and Farthings, &c.

5. If
5. If the Price be Pounds and Shillings, or Pounds, Shillings, Pence and Farthings; multiply by the Shillings in the Price, that is, in the Pounds and Shillings, and take Parts for the Pence and Farthings.

6. When the Number of Integers hath a Fraction annexed or belonging to them; as \( \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \) &c. then take \( \frac{1}{2}, \frac{1}{4}, \frac{1}{8} \) of the Price of one of the Integers, and add that to the other Results.

**TARE and TRET, &c.**

Gross Weight is the Weight of the Goods in Hundreds, Quarters and Pounds, with the Weight of the Hoghead, Cask, Chest, Bag, Bale, &c. that contains the Goods.

Tare is allowed to the Buyer for the Weight of the Hoghead, Cask, Chest, Bag, Bale, &c.

Trett is an Allowance made for Waste, Dust, &c. in sundry Sorts of Goods, as Tobaccoes, Cottons, Pepper, Spices, &c. and is always 4lb. per 104lb. Suttle, and found by dividing the Suttle Pounds by 26, because 4 times 26 makes 104lb. When the Gross Weight is brought into Pounds, and before the Tare is deducted, they are called Pounds Gross; and after the Tare is subtracted, the remaining Pounds are called Pounds Suttle; which divided by 26 (as said before) quarts Pounds Trett, &c.

Tare at 30d. each per Cask, Hoghead, Bag, &c.

The Allowances for Tare are variously wrought; as by the following Examples.

In 12 Casks of Indigo, containing 45 C. gr. 14 lb. Gross, Tare 30lb. per Cask, how many Pounds Nett?

<table>
<thead>
<tr>
<th>12 Casks</th>
<th>C. gr. lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>1 14</td>
</tr>
</tbody>
</table>

360 Pounds Tare.

12 Casks 45 14

\[ 360 + 360 \]

5082 Pounds Gross.

5082 Pounds Gross.

Subtract: 360 Pounds Tare.

\[ 5082 - 360 \]

Answer 4722 Pounds Nett.

In this Example, the lbs. Tare of one is multiplied by the Number of Casks, and the Product is 360 Pounds Tare, and the Gross Weight is reduced into Pounds by the Method shewn
The Young Man's Best Companion. 137

flown in Reduction of Weight; and then the Pound's Tare are deducted from the Pounds Gross, and the Remainder are Pounds Nett, viz. 4722, as in the Work.

When the Tare is at so much per C. avt. multiply the Number of Hundreds by the Tare, and take Parts for the odd Weight, and add it to the Tare found by Multiplication, and divide it by 112, to bring it into Grosf Weight, in order for Subtraction.

Example.

What is the Nett Wt. of 12 Casks of Argol, Wt. Grosfs.

\[
\begin{align*}
84 & \text{ C. 2 qrs. 14 lb.} \\
14 & \text{ Tare per C.}
\end{align*}
\]

\[
\begin{align*}
336 & \\
84 & 7 \text{ for Half C.} \\
1 & \frac{1}{2} \text{ for 14 lb.}
\end{align*}
\]

\[
\begin{align*}
112 & 1184\frac{4}{10} \text{ C.} \\
112 &
\end{align*}
\]

\[
\begin{align*}
64 & \text{ lb. or half a C. and 8 lb.}
\end{align*}
\]

The Tare in the last Example is to be found by the foregoing Directions, 8 C. 2 qrs. 8\frac{1}{2} lb., which subtracted as in the Work, leaves 74 C. 0 qrs. 5 lb. \frac{1}{4}, for the Nett Wt.

But the foregoing Example may be sooner done by Practice, thus:

\[
\begin{align*}
\text{C. qrs. lb.} & \\
8)84 & -2 -14 \text{ Grosfs.}
\end{align*}
\]

\[
\begin{align*}
\text{sub.} & \ 10 -2 -8\frac{1}{4} \text{ Tare.}
\end{align*}
\]

\[
\begin{align*}
74-0-5\frac{1}{4} \text{ Nett Wt.}
\end{align*}
\]

In this Method, the Grosf Weight is divided by 8, because 14 lb. is one Eighth of 112 lb. and the Remainder is reduced into the next inferior Name, and still divided by 8, to the End, and then deducted as above, and the Nett Weight is the same as by the other Way. And so may any Tare per C. be found, if the Tare be an even Part of 112 lb. as 14 is one Eighth, and 7 lb. is the Half of that, and 16 lb. is one Seventh, and 8 lb. is Half of that, &c. that is, if the Tare be at 7 lb. per C. find it for 14 lb. as before, and then take the Half of that for 7 lb. per C. Tare, the like for 8 lb.
The Young Man’s Best Companion.

8lb. per C. Tare; take one Seventh for 16lb. and then the Half of that for 8lb. per C. Tare.

Of TREAT T.

What Trett is, when allowed, and how found, hath been said already; now I shall give an Example for Explanation as follows.

Bought six Hogheads of Tobacco, containing Gross and Tare as follows, viz.

<p>| | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N.</td>
<td>C.</td>
<td>grs.</td>
<td>lb.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>lb.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>qt.</td>
<td>4</td>
<td>1</td>
<td>20</td>
<td>Tare</td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>5</td>
<td>2</td>
<td>19</td>
<td></td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>6</td>
<td>3</td>
<td>18</td>
<td></td>
<td>102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>7</td>
<td>3</td>
<td>12</td>
<td></td>
<td>104</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>8</td>
<td>2</td>
<td>13</td>
<td></td>
<td>106</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>9</td>
<td>1</td>
<td>14</td>
<td></td>
<td>110</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

26) 4198 161 lb. Trett, 42—3—12 602

26... 42

159 42|96

156

38 subjact 602 Pounds Tare.

26

12 deducit 161 6/13 Pounds Trett.

4036 7/13 Pounds Nett.

There are some few other Rules, such as Barter, or exchanging Goods for Goods; also Exchange for Coin, Profit, Loss, &c. but all of them being done either by the Rule of Three, or by Rules of Practice, it is therefore here unnecessary to enlarge upon them.

Of FRACTIONS Vulgar and Decimal.

What Fractions are, hath already been hinted in the Rule of Division, from whence they arise; for the Remainder is a supposed Part of the Divisor; as admit 54l. is divided into Twelve equal Parts, the Quotient is 4; and the Remainder 6: So that here 6 is six Parts of 12, or six Twelfths’, equal to a Half; for 6 is the 6 of 12; and set down in this Form 6/12 and understood by these Names, viz.
The Numerator is above the short Line, and sheweth the Number of Parts; and the Denominator stands under the Line, and declares the Number of equal Parts the Integer or whole Number is divided into; as above 54 lb. is divided into 12 Parts, and the Quotient says there are 4 of those 12 Parts contained in 54, and 6 remains, or 6 Twelfths of a Pound, or 10 s. as above said.

Fractions are thus set down and read, viz. \( \frac{1}{4} \), or one Fourth; \( \frac{1}{2} \), one Half; \( \frac{1}{3} \), one Third; \( \frac{1}{5} \), one Fifth; \( \frac{2}{3} \), two Thirds; \( \frac{2}{4} \), two Fourths; \( \frac{2}{6} \), two Sixths; \( \frac{5}{6} \), five Sevenths, &c.

Fractions are either proper or improper. A proper Fraction hath its Numerator less than the Denominator; as \( \frac{1}{5} \), five Eighths; \( \frac{2}{5} \), twenty-four Fifty-Sixths, &c.

An improper Fraction hath its Numerator greater than the Denominator; as \( \frac{7}{3} \), seven Thirds; \( \frac{48}{5} \), forty-eight Fifteenths, &c.

Again, Fractions are either Simple or Compound; simple when Part of an Integer or Thing hath but one Numerator, and one Denominator; as \( \frac{2}{3} \) of a Pound Sterling \( \frac{1}{2} \) of a C. Weight, \( \frac{3}{4} \) of a Ton, \( \frac{3}{5} \) of a Gallon, &c. Compound, is a Fraction of a Fraction, as the \( \frac{1}{2} \) of \( \frac{2}{3} \) of a Pound Sterling is equal to Half a Crown; or when one is divided into any Number of Parts, and those Parts again subdivided into Parts, &c.

Fractions are of two Kinds; viz. Vulgar and Decimal. Vulgar Fractions are as declared before. Decimal Fractions are artificially expressed by setting down the Numerators only, the Denominators being understood; and are always a Unit with as many Cyphers annexed as there are Places in the Numerator; and therefore must be either 10, or some Power of 10, as 100, 1000, 10,000, or 100,000, &c.

Decimal Fractions appear as whole Numbers, (and in the general so wrought) but are distinguished from them by a Point or a Comma prefixed thus, .5, and is read five Tenths; .32, thirty-two Hundredths; .256, two Hundred and 6 Thousandths: But of Decimal Fractions and their Use hereafter.

Reduction of Vulgar Fractions, is to fit or prepare them for Addition, Subtraction, &c.
1. To Reduce a mixt Number to an improper Fraction.

**Rule.**

Multiply the Integer by the Denominator, and take in the Numerator.

**Example.**

Reduce 12 Gallons \(\frac{3}{4}\) to an improper Fraction, thus,

\[
\begin{array}{c}
4 \\
51
\end{array}
\]

\(4\) Answer, 51 Fourths, or 51 Quarts.

2. To reduce an improper Fraction to a whole or mixt Number.

**Rule.** Divide the Numerator by the Denominator.

**Example.**

Reduce the last Example to a whole or mixt Number, viz.

\[
\begin{array}{c}
51 \\
4)
\end{array}
\]

\[
\begin{array}{c}
48 \\
3 \\
4
\end{array}
\]

3. Remainder.

4. Divisor.

Here 12 Gallons is the whole Number, and \(\frac{3}{4}\) the Fraction, the same with 3 Quarts.

3. To reduce Fractions to a common Denominator.

**Rule.**

Multiply the Numerator of each Fraction into all the Denominators, except its own, and the Product will be a Numerator to that Fraction; and then do so by the next, &c.

**Example.**

Reduce \(\frac{2}{3}\), and \(\frac{5}{6}\) of 204. or any other Integer, or Thing, to a common Denominator; say twice 4 is 8, and 6 times 8 is 48, for a new Numerator to \(\frac{2}{3}\); then say, 3 times 3 is 9, and 6 times 9 is 54, for a new Numerator to \(\frac{5}{6}\); lastly, say, 5 times 4 is 20, and 3 times 20 is 60, the Numerator to \(\frac{5}{6}\); Then, to find the common Denominator, say 3 times 4 is 12, and 6 times 12 is 72, the common Denominator: So that \(\frac{2}{3}\) is equal \(\frac{2}{3}\), \(\frac{5}{6}\) to \(\frac{3}{3}\), and \(\frac{60}{72}\) to \(\frac{5}{5}\). And thus proved;
of a Pound is $13\quad 4\quad 48$ \{ Added together \\
ditto $15\quad 0\quad 54$ \} make $162$. \\
\frac{5}{6}$

Here the several Numerators are added together, and they make $162$, which placed over the common Denominator $72$, make the Improper Fraction $\frac{162}{72}$; and its Value is found as before directed. To reduce an improper Fraction to a whole or mixt Number; as may be seen in the foregoing Page.

4. To reduce a Fraction into its lowest Terms.

Rule.

If there are even Numbers, take Half of the Numerator and Denominator as long as you can; and then divide them by any Digit Number (i.e. 3, 4, 5, 6, &c.) that will leave no Remainder in either.

Example.

Reduce $\frac{56}{84}$ into its lowest Terms; say, the $\frac{1}{2}$ of $56$ is $28$, and the $\frac{1}{2}$ of $84$ is $42$; and then, the $\frac{1}{2}$ of $28$ is $14$, and the $\frac{1}{2}$ of $42$ is $21$. So the Fraction $\frac{56}{84}$ is reduced to $\frac{14}{21}$. And since they both are not to be halved any longer; for though you can halve $14$, yet you cannot $21$, without Remainder; try therefore to divide them by some other Digit Number; and you will find, that $7$ will divide both Numerator and Denominator without any Remainder; then say, the $7$'s in $14$, twice; and the $7$'s in $21$, three times: So is the Fraction $\frac{56}{84}$ reduced into its lowest Terms, $\frac{2}{3}$ two Thirds; and is the same in Value with $\frac{56}{84}$, and done in this Form;

\[
\begin{array}{c|c|c}
56 & 28 & 7 \\
\hline
84 & 43 & 21 \\
\end{array}
\]

And the Certainty that $\frac{2}{3}$ is the same in Value with $\frac{56}{84}$ is found by multiplying any Integer by the Numerator of each Fraction, and dividing by the Denominator of each Fraction.

Example.
Example.

Let the Integer be 1l. Sterling, or 20s.

The best Way.  

<table>
<thead>
<tr>
<th>s.</th>
<th>20</th>
<th>3</th>
<th>40</th>
<th>13s. 4d.</th>
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</thead>
<tbody>
<tr>
<td>2</td>
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<td></td>
<td></td>
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<tr>
<td>z</td>
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The common Way.

<table>
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<th>20</th>
<th>56</th>
<th>84</th>
<th>120</th>
<th>13s. 4d.</th>
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</thead>
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<td>84</td>
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<td></td>
<td></td>
<td>280</td>
<td></td>
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<td></td>
<td></td>
<td>252</td>
<td></td>
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<td></td>
<td>12</td>
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<td></td>
<td></td>
<td></td>
<td>1</td>
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<td></td>
<td></td>
<td>336</td>
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<td>336</td>
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</tr>
</tbody>
</table>

Here it is manifest, that by working by a Fraction in its lowest Terms, much Time and Figures are saved. In one Operation, 20, the Integer is multiplied by 2, and the Product 40 divided by 3, and there remains 1, or \(\frac{1}{3}\) of a Shilling, or a Groat, as in the other Work.

There are other Methods of reducing a Fraction into its lowest Terms; but in my Opinion, none so ready as the foregoing.

5. To reduce a compound Fraction into a simple One of the same Value.

Rule. Multiply the Numerators together for a Numerator, and the Denominators together for a Denominator.

Example.

Reduce \(\frac{2}{3}\) of \(\frac{3}{4}\) of \(\frac{5}{6}\) of a Pound Sterling, into a simple Fraction. Say twice 3 is 6, and 5 times 6 is 30, the Numerator: Then 3 times 4 is 12; and 6 times 12 is 72, the Denominator. So \(\frac{30}{72}\) of a Pound is equivalent to \(\frac{5}{12}\) of \(\frac{3}{4}\) of \(\frac{5}{6}\) of a l. Thus proved, \(\frac{5}{6}\) of a l. is 16 s. 8 d. and \(\frac{3}{4}\) of ditto, or 16s. 8d. is 12s. 6d. and \(\frac{7}{3}\) of 12s. and 6d. is 8s. 4d. the Answer; And multiplying 20 by 30, and dividing by 72, gives the same Answer, as in the following Work is plain.
6. To find the Value of any Fraction, whether of Coin, Weight or Measure.

Rule. Multiply the Integer by the Numerator, and divide by the Denominator; and if any Thing remains, multiply it by the Number of Units of the next inferior Denomination.

Example.

What is \( \frac{3}{5} \) of a Pound, or 20s.? the foregoing Example of Proof to the compound Fraction \( \frac{2}{3} \) of \( \frac{4}{5} \) of \( \frac{5}{6} \), and as it is worked there, it need not again be repeated.

Again, What is \( \frac{5}{6} \) of a Ton Weight?

C.

20 the Integer.

5 the Numerator.

The Denominator 6) 100

16—4 remains.

4 qrs. 1 C.

6) 16

C. qrs. 2—4 remains.

28 lb. 1 qr.

6) 112

Answer,

16 C. 2 qrs. 18 lb. \( \frac{5}{6} \), lb. 18—\( \frac{3}{6} \)}
The Young Man's Best Companion.

Here the Integer 20 C. is multiplied by the Numerator 5; and the Product 100 divided by the Denominator 6, and the Remainder 4 is multiplied by the Parts of the next inferior Denomination, &c. and the Answer is 16 C. 2 qr. 18 lb. 4 or \( \frac{2}{3} \) of a Pound Weight, as in the Work.

Addition of Vulgar Fractions.

If the Fractions to be added have a common Denominator, add the Numerators together for a Numerator, and place it over the common Denominator.

Example.

Add \( \frac{2}{5} \), \( \frac{3}{4} \), and \( \frac{4}{5} \) of a Pound Sterling together. Say 2 and 3 is 5, and 4 is 9, the Numerator; which place over 5, the common Denominator, thus, \( \frac{2}{5} \), and this improper Fraction \( \frac{2}{5} \) is in Value 36 s. for 9 times \( \frac{5}{4} \) of a Pound is 36s. Thus: Here \( \frac{4}{5} \) is 16s. I say the 5's in 9, once, and 4 remains, 1 l. 1 \( \frac{4}{5} \) which is \( \frac{3}{5} \) of a Pound.

But if the Fractions to be added have unequal Denominators, then they must be reduced to a common Denominator, by a Rule before shewn, before Addition can be made; and then proceed as above.

2. When mixt Numbers are to be added, work with the fractional Parts as before, and carry the fractional Value to the whole Numbers.

Example.

Add 25 l. \( \frac{3}{4} \) to 12 l. \( \frac{1}{2} \), thus:

\[
\begin{array}{c}
25\frac{3}{4} \\
12\frac{1}{2} \\
\hline
103 \\
4 \\
49 \\
\hline
152 \\
4 \\
38
\end{array}
\]

Here 1 and 3, the Numerators, make 4; and \( \frac{3}{4} \) is 1, and 2 is 3, and 5 makes 8; and 1 and 2 is 3, and the Answer is 38.

Or they may be reduced to improper Fractions, thus:

\[
\begin{array}{c}
25\frac{3}{4} \\
12\frac{1}{2} \\
\hline
103 \\
4 \\
49 \\
\hline
152 \\
4 \\
38
\end{array}
\]

Here the Numerators are added, and their Total is 152; which divided by 4, the common Denominator, gives 38 Pounds, the same Answer as above.
3. When Compound Fractions are to be added to Simple Ones, reduce the Compound Fraction to a Simple One, as before directed; and then proceed as above.

Example.

Add $\frac{2}{3}$ and $\frac{3}{4}$ to $\frac{1}{2}$ of a Pound; thus, once $2$ is $2$ and twice $4$ is $8$, the compound Fraction; then add saying, $2$ and $3$ is $5$, and $2$ is $\frac{1}{2}$, equal in Value to $17s. 6d$.

Subtraction of Vulgar Fractions.

In this Rule, the Fractions must have a common Denominator, or be reduced to one, before Deduction can be made.

Example.

What is the Difference between $\frac{1}{4}$ and $\frac{3}{4}$? Answer $\frac{1}{2}$; and proved by Addition; for $\frac{1}{4}$ and $\frac{3}{4}$ make $\frac{1}{2}$ or $3$ Quarters.

Note, The Difference between the Numerators is the Difference of the Fractions.

Again, from $\frac{1}{4}$ of a Pound, take $\frac{x}{4}$; Here the Fractions are to be reduced to a common Denominator; $36$ the first Numerator, and $20$ the second Numerator, and their Difference is $16$, and $48$ is the common Denominator; so that $\frac{16}{48}$ or $\frac{1}{3}$ in its lowest Terms, is the Difference between $\frac{3}{4}$ of a Pound, and $\frac{1}{2}$ of a Pound, that is $6s. 8d$.

To subtract a Compound Fraction from a Simple one.

Rule. Reduce the Compound Fraction to a Simple one, and then work as before.

Example.

From $\frac{1}{2}$ take $\frac{2}{3}$ of $\frac{8}{9}$; say twice $8$ is $16$, and $3$ times $9$ is $\frac{27}{3}$, the compound Fraction: Then $\frac{13}{14}$ and $\frac{16}{27}$ must be reduced to a common Denominator, thus; $13$ times $27$ is $351$, the first Numerator; and $14$ times $16$ is $224$, the second Numerator, and $14$ times $27$ is $378$, the common Denominator. Then subtract $224$, the second Numerator, from $351$, the first Numerator, and the Remainder is $127$, which place over $378$, the common Denominator, thus, $\frac{127}{378}$ Answer.

When a simple Fraction is to be deducted from a whole Number.

Rule. Subtract the Numerator of the Fraction from the Denominator, and Place the Remainder over the Denominator, and carry 1 to subtract from the whole Number, &c.

Example.

From $12l. take \frac{5}{8}$ thus; say $5$ (the Numerator) from $8$ (the Denominator) and there remains $3$, which place over the Denominator $8$, thus, $\frac{3}{8}$, then $1$ from $12$ and there remains $11$; so the Answer is, $l. 11, \frac{3}{8}$, or $11-7-6$, as may be proved by the whole Numbers.
Multiplication of Vulgar Fractions.

Rule. Multiply the Numerators into one another for a Numerator of the Product; and then do the same by the Denominators, for a Denominator of the Product.

Example.

Multiply $\frac{3}{4}$ of a Pound, by $\frac{5}{8}$ of ditto; say 3 times 5 is 15, the Numerator; and 4 times 6 is 24, the Denominator; so the Answer is $\frac{5}{16}$, or in its lowest Terms $\frac{5}{8}$.

You are to Note, That Multiplication in Fractions lessens the Product, tho' in whole Numbers it augments it; as above, $\frac{5}{8}$ or 12s. 6d. is less than $\frac{5}{6}$ or 16s. 8d. and also less than the other Fraction $\frac{3}{4}$ or 15s. The Reason of which I have not here Room to insist on; but it is given in my Arithmetick in Multiplication of Vulgar Fractions; to which Book I refer the Reader for that, and sundry Enlargements in the several Rules in the Science of Arithmetick.

2. To multiply a whole Number by a Fraction.

Rule. Multiply the Integer by the Numerator of the Fraction, and place the Product over the Denominator.

Example.

Multiply 56l. by $\frac{4}{3}$

\[
\begin{align*}
\text{Multiply} & \quad 56 \times 3 \\
\text{Product} & \quad 168 \\
\text{Answer} & \quad \frac{168}{4} \\
\end{align*}
\]

This improper Fraction $\frac{168}{4}$ reduced according to Rule, makes but 42l. which is less than 56; and confirms what was before asserted, viz. that Multiplication of Fractions lessens the Product, &c.

3. To multiply a Simple by a Compound Fraction.

Rule. Reduce the Compound Fraction to a Simple One, as before taught, and Work as above.

Example.

Multiply $\frac{6}{8}$ of a Pound, by $\frac{4}{3}$ of $\frac{4}{3}$ of a Pound: Say, 6 times 6 is 36, and 8 times 12 is 96. So that the Answer is $\frac{36}{96}$, or $\frac{3}{8}$ in its lowest Terms; equal to 7s. 6d.

Division of Vulgar Fractions.

Rule. Multiply the Numerator of the Divisor into the Denominator of the Dividend, and the Product is the Denominator of the Quotient; and then multiply
tiply the Denominator of the Divisor into the Numerator of the Dividend, and the Product will be the Numerator of the Quotient.

**Example.**

Divide \( \frac{1}{6} \) by \( \frac{2}{3} \); \( \frac{3}{1} \) \( \frac{4}{3} \) Quotient.

Here 16 multiply by 2, gives 32; and 15 by 3, gives 45; so that the Quotient is \( \frac{2}{3} \), equal to \( 1 \frac{2}{3} \), as in the Work.

Again, Suppose \( \frac{2}{3} \) was divided by \( \frac{2}{3} \) the Quotient will be \( \frac{2}{3} \) equal to 1 Integer, or whole Thing. And so any other Example.

**Reduction of Decimal Fractions.**

W H A T a Decimal Fraction is, hath been already shewn. The next Step is, how to reduce a Vulgar Fraction into a Decimal; which is no more than to annex Cyphers at Discretion (that is, 2, 3, or 4, &c.) to the Numerator, and then divide it by the Denominator.

**Example 1.**

Reduce \( \frac{3}{4} \) of a Pound Sterling to a Decimal.

\[
\begin{array}{c}
4) & 300 \\
-75 & \\
\hline
225 & \text{that is, 75 Hundredths, equal to 3 qrs. of any Thing, whether Money, Weight, Measure, &c. as being \( \frac{3}{4} \) of 100; and so, 25 Hundredths is, in Decimals, the Quarter of any Thing, as being \( \frac{2}{4} \) of 100; and five Tenths expresses the Half of any Thing, as being the \( \frac{2}{5} \) of 10.}
\end{array}
\]

In Reduction of Decimals, sometimes it happens that a Cypher or Cyphers must be placed to the Left Hand of the Decimal, to supply the Defect or Want of Places in the Quotient of Division, or in the Product of Multiplication of Decimals. — In this Case always remember, That so many Cyphers as you annex to the Denominator of the Vulgar Fraction, so many Places you must point off in the Quotient towards the Left-hand; but if there be not so many Places to point off, then you must supply the Defect by placing 0 to the Left of the Decimal.

**Example 2.**

Reduce 9d. or \( \frac{9}{20} \) to the Decimal of a Pound Sterling, thus:

\[
G \ 5 \quad 2410
\]
Here is but three Places in the Quotient, viz. 375; and therefore I cannot point off 4 for the four Cyphers annexed to 9; wherefore I prefix o to the Left of the Quotient 375, thus .0375, and then it is the Decimal of 375 ten thousandths Parts of an Integer in the Work.

The more Cyphers you annex, the nearer you bring your Decimal to the Truth: But in most Cases, four Cyphers annexed is sufficient. But when you are to reduce $\frac{1}{4}$, $\frac{1}{3}$, or $\frac{1}{6}$ (as above) of an Integer to a Decimal, or any Number of Shillings to the Decimal of a Pound, two Cyphers are sufficient. One Example more.

Example 3.

Reduce 3 Farthings to the Decimal of a Pound, that is, $\frac{3}{990}$ vulgarly, 960 Farthings being a Pound, and therefore so expressed, and with the same Reason as 9 Pence before, 240 Pence being a Pound.

\[960:300000(0.003125).\] The Work being perform'd according to the Division, with two Cyphers prefix'd, quotes, .003125, or 3125 Millionth Parts of a Pound by the same Method, the Vulgar Fraction of Weight, Measure, &c. are reduced to Decimals.

Example 4.

How is 12 Pounds Weight expressed in the Decimal of 1 C. Weight Avoirdupois, or 112 lb. the Vulgar Fraction is $\frac{12}{365}$ and the Decimal, 1071, found as before, thus,

\[112) 120000(1071;\]

$\frac{112}{112}$ The Remainder 48 is not worth Notice, being less than the 10000th Part of an Unit, or 1.

Example 5.

How is 73 Days brought to the Decimal of a Year vulgarly thus expressed $\frac{365}{365}$.

\[365) 730 (2 Ans. 2 Tenths. Thus proved; 365;\]

\[730;\]

0. Here 365, the Days in a Year, is divided by 10 twice, and the Quotients added together, and they make 73 Days.
Valuation of Decimals.

To find the value of a decimal fraction, whether of coin, weight, measure, &c.

Rule. Multiply the decimal given by the units contained in one of the next inferior denomination, and point off as many places from the right-hand, as you have in your decimal; so those figures toward the left of those pointed off, are integers or whole numbers; and those on the other side toward the right-hand are parts of 1 or unity; that is, so many tenths, hundredths, thousandths, or ten thousandths of one of those integers, whether a pound, a shilling, or a penny, &c. or of a ton, a hundred, a quarter, or a pound weight, &c. and so of any other integer, of what kind or quality soever.

Examples.

$0.476$ parts of a pound sterling.
$20$ shillings a pound.

$9.520$
$12$ pence $1$ shilling.

Answer. $6.240$
$9s. 6d. 960$
$4$ farthings $1$ penny.

Parts or $\frac{1}{4}$
of $1d.$ $960$ parts of $1l.$ or almost $\frac{1}{4}$ of $1d.$

$0.476$ parts of a ton wt.
$20\ C.$ $1$ ton.

$9.520$
$4$ qrs. $1$ C.

Answer. $2.080$
$28l. 1$ qr. of a C.
$9\ C.$ $2$ qrs. $2$ lb. $240$ parts.

$2.240$

In the example of money, I multiply the fraction by $20$, and point off $520$ for the three places in the decimal, &c. and the answer is $9s. 6d. \frac{1}{4}$.

In the example of weight, I proceed as in that of money (the fraction being the same) but with different respect to
The Young Man's Best Companion.

to the inferior Denominations; and the Answer is 9 C. 2 qrs. 2 lb. \(\frac{2}{200}\) of a Pound Weight.

To find the Value of a Decimal in Money in a briefer Method, viz.

Rule. Always account the Double of the first Figure (to the Left-hand) for Shillings; and if the next to it is 5, reckon 1 s. and whatever is above 5, call every One Ten, and the next Figure so many Ones as it contains, which Tens and Ones call Farthings; and for every 25, abate one: As admit the last Example of Money, viz. 476 the Double of 4 is 8; and there being one five in 7, (the next Figure) I reckon 1 s. more, which makes 9 s. and there being 2 in 7 above 5, they are to be accounted two Tens or 20; which with the next Figure 6 being so many Ones, makes 26 Farthings; and abating 1 for 24, give 6d. and almost a Farthing more, for the Fraction 960 Thousandths of a Pound wants but 40 of a Farthing.

Addition of Decimals.

Is the same in Practice as in whole Numbers, only in setting down. Care must be taken that the Decimal Parts stand respectively under their Parts; that is, Primes under Primes, Seconds under Seconds, Thirds under Thirds, &c. and the Integers stand as in whole Numbers.

Example.

<table>
<thead>
<tr>
<th>Integers</th>
<th>Primes</th>
<th>Seconds</th>
<th>Thirds</th>
<th>Primes</th>
<th>Seconds</th>
<th>Thirds</th>
<th>Fourths</th>
<th>Fifths</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 4 6</td>
<td>.4 2</td>
<td>6</td>
<td></td>
<td>.4 7</td>
<td>9 6</td>
<td></td>
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<td></td>
<td>.5</td>
<td></td>
<td></td>
<td>.9</td>
<td></td>
</tr>
</tbody>
</table>

4 3 7 .7 0 5 1 .4 7 6 0 2 1 4 9 8 2

Note. There must be as many Places pointed off, as there are in the biggest Number.

The casting up of the foregoing Examples is the same with Addition of one Denomination in whole Numbers: The Total of the first (supposing them Pounds Sterling) is 437l. and ,705 Parts. The second is 1l. and ,4760 Parts. And the third is 2l. and ,14982 Parts.

Subtrac.
Subtraction of Decimals.

THE Numbers must be placed as before in Addition, and then proceed as in Subtraction of one Denomination of Numbers.

<table>
<thead>
<tr>
<th>l. pts.</th>
<th>l. pts.</th>
<th>l. pts.</th>
</tr>
</thead>
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</tr>
<tr>
<td></td>
<td></td>
<td>4761,528</td>
</tr>
</tbody>
</table>

Multiplication of Decimals.

HERE the placing the Numbers and Operation is the very same as in whole Numbers; and only remember to point off towards the Right Hand so many Places for Decimals as you have Decimal Places in both Multiplier and Multiplier.

<table>
<thead>
<tr>
<th>Examples.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
</tr>
<tr>
<td>24,6</td>
</tr>
<tr>
<td>2,5</td>
</tr>
<tr>
<td>1230</td>
</tr>
<tr>
<td>492</td>
</tr>
<tr>
<td>61,50</td>
</tr>
</tbody>
</table>

| (2)       |
| 4602      |
| 0,075     |
| 23010     |
| 32214     |
| 345,150   |

| (3)       |
| 2796      |
| 26        |
| 16776     |
| 5592      |
| 7,2696    |

| (4)       |
| 0,07214   |
| 0,006     |
| 00043284  |

| (5)       |
| 0,083     |
| 0,16      |
| 498       |

| (6)       |
| 4,25      |
| 1,09      |
| 3825      |
| 425       |

|         |
| 01328   |
| 4,6325  |

Note, That where there are not a competent Number of Figures, or Places to point off, such Defect is supplied with Cyphers to the Left-hand; as in the 4th and 5th Examples, according to what was before hinted in reducing a Vulgar Fraction to a Decimal.
Division of Decimals.

As the same in Operation as in whole Numbers. The only Difficulty is to know how many Decimal Places to point off towards the Left-hand of the Quotient; to which End, remember this Rule; Observe how many Decimal Places there are both in the Divisor and Dividend, and note the Difference; and whatsoever it is, so many Places must be pointed off to the Right-hand of the Quotient.

Examples.

Divide 12,345,670 by 6,789) 12,345,670(1,818

In this Example, the Dividend hath three Decimal Places more than the Divisor, wherefore I point of three Places to the Right-hand of the Quotient, viz. 818; so the Quotient is 1 Integer, and .818 Parts.

55566
54312
---
12547
6789
---
57580
54312
---
(3268)

Divide 3, 46000 by 1,23) 3,46000 (2,813

Here the Difference between the Divisor and Dividend is three Places; as in the foregoing Example; therefore .813 is pointed off for the Decimal Fraction; and the Quotient is 2 Integers, and .813 Thousandths of an Integer, or 1.

1000
984
---
160
---
123
---
370
369
---
(1)

Thus much for Fractions Vulgar and Decimal; wherein I have been as concise as possible, and worked with as much Plainness as I could invent.
THE next Qualification to fit a Man for Business, after Arithmetick, is the Art of Book-keeping, or Merchants Accoumts, after the Italian Manner, by Way of Double Entry.

It is not without good Reason that most People of Business and Ingenuity, are desirous to be Masters of this Art: for if we consider the Satisfaction that naturally ariseth from an Account well kept; the Pleasure that accrues to a Person by seeing what he gains by each Species of Goods he deals in, and his whole Profit by a Year’s Trade; and thereby also to know the true State of his Affairs and Circumstances; so that he may, according to Discretion, trench or enlarge his Expences, &c. as he shall think fit._

This Art of Book-Keeping, or Merchants Accoumts, is talked of by many, but truly understood but by very few: For every petty School-master in any By-Corner, will be sure to have Merchants Accoumts expressed on his Sign, as a principal Article of his Ability, in Teaching; though, strictly speaking, for want of the Practical Part, knows hardly any Thing of the Matter, and consequently incapable of teaching it.

Instructions, Notes, Rules, and Directions for the right ordering and keeping Merchants Accoumts, by the excellent Order of Charge and Discharge, commonly called Debtor and Creditor.

Of the Books in Use.

The Books of principal Use, are the Waste-Book, (or by some called the Memorial) Journal, and Ledger.

Waste-Book.

In this Book must be daily written whatever occurs in the way of Trade; as Buying, Selling, Receiving, Delivering, Bargaining, Shipping, &c. without Omission of any one Thing, either bought or sold, &c. as Money lent, or received at Interest. But not Money received or paid for Goods sold or bought at Times; for that will come of course, and must be entred into the Cash-Book, from whence it is posted into the Ledger.

The Waste-Book is ruled with one Marginal Line, and three Lines for Pounds, Shillings, and Pence, and the Day of
of the Month, and Year of our Lord, is inserted in the Middle of the Page. In this Book any one may write, and, on Occasion, any Thing may be blotted out, if not well entered, or any Error be made.

**J O U R N A L.**

INTO this Book every Thing is posted out of the *Waste* Book, but in other Terms, in a better Stile, and in a fairer Hand, without any Alteration of Cyphers or Figures; and every Parcel, one after another, promiscuously set without Intermission, to make the Book, or several Entries of it, of more Credit and Validity, in case of any Law Dispute, or any other Controversy that may happen between Merchant and Merchant. In this Book you are to distinguish the Debtor and Creditor (or in quaintier Terms, the *Debit* and *Credit.*) And to this Book you must have Recourse for the Particulars of an Accompt, which in the Leidger are entered in Grofs, that is, in one Line. In this Book also, the Day of the Month must be placed in the middle of the Page; and is ruled with double marginal Lines, for References to the Leidger; and with three Lines for l. s. d. as the Waste-Book.

**Of the Leidger.**

FROM the *Journal* or Day-Book (as derived from the French) all Matters or Things are posted into the Leidger, which by the Spaniards are called *El Libro Grande,* as being the biggest Book, or Chief of Accompts. The Left-hand Side of this Book is the *Debtor,* and the Right the *Creditor;* and the Numbers and Folios of each Side must be alike as 45 *Debtor,* and also 45 *Creditor.* The Day of the Month (in this Book) by most is set in a narrow Column on the Left-hand, and the Month on the Left of that; But where I kept Books, the Number in the narrow Column referred to the Journal Page, and the Month and Day was placed in the broad Column, to the Right of that; and at the Head of each Folio is the Name of the Place of Residence, and the Year of our Lord; as thus:

*London, Anno* ————– 1779.

But the Examples of the several Books hereafter following, will make the foregoing Hints of them much more intelligible.—And as I am upon the Doctrine of Book-keeping, I’ll take this as an universal Text (for so it is) *viz.*
The Young Man's Best Companion.

All Things Received, or the Receiver, are Debtors to the Delivered, or the Deliverer.

Waste-Book Entry.

London, January 1, 1770.
Bought of William Wilkins, of Norton-Falgate, 120 Yards of white Sarcenet, at 2s. 3d. per Yard, to pay in two Months. — — — — — —

The Journal Entry of the same.
Wrought Silk, Debtor to William Wilkins, l. 13—10 for 120 Yards of white Sarcenet, at 2s. 3d. per Yard, to pay in two Months. — — — —

In this Example, the Account of wrought Silks is the Receiver, and therefore Debtor to W. Wilkins, the Deliverer.

Again.
Waste-Entry Book.

January 4.
Sold Henry Harrington 246 lb. nett of Indico Lahore, at 6s. 6d. per lb. to pay in 3 Months.

Journal Entry.
Henry Harrington Dr. to Indico, for 246 lb. nett, at 6s. 6d. per lb. to pay in 3 Months.

Once more.
Waste-Book Entry.
Bought of George Goodinch, Sen. viz.
Cheese Cheese 430 C. ½, at 23s. 4d. per C. — — — { l. 502 — 5
Butter 50 Firkins, qt. nett 280 lb. at 3d. per lb. } 35 — 0
to pay in 6 Months. — — — —

Journal Entry.
Sundry Accounts Dr. to Geo. Goodinch, l. 537 — 05 — — — — viz.
Cheese of Cheshire, for 430 C. ½ 23s. 4d. per C. — { l. 502 — 5
Butter for 50 Firkins, qt. nett 280 lb. at 3d. per lb. } 35 — 0
### Wafte-Book.

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Sarcenet 50 Yards, at 3s. per Yard</td>
<td>7 10 0</td>
</tr>
<tr>
<td>Indico Lahore 50 Pounds, at 7s. per Pound</td>
<td>17 10 0</td>
</tr>
</tbody>
</table>

#### Journal Entry of the last.

<table>
<thead>
<tr>
<th>Entry</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>James Jenkins Debtor to sundry Accounts, viz.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>To white Sarcenet 50 Yards, at 3s. per Yard</td>
<td>7 10 0</td>
</tr>
<tr>
<td>8</td>
<td>To Indico Lahore for 50 lb. at 7s. per lb.</td>
<td>17 10 0</td>
</tr>
</tbody>
</table>

From these few Examples of Entry, it may be observed, that an experienced Person in Accompts, and a good Writer, may keep a Journal without a Wafte-Book, or a Wafte-Book without a Journal, since they both import one and the same Thing, though they differ a little in Words, or expressing; for the Leaves of both are numbered by Pages, or Parcels, as some do.

But however, I shall give Methods of keeping each as far as Room will give me Leave.

#### The Wafte-Book.

---

London, January 1 — — 1768.

An Inventory of all my Effects of Money, Goods, and Debts, belonging to me A. B. of London, Merchant, viz.

In Cash for trading Occasions

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Tobacco 4726 lb.</td>
<td>3500,—,—</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>at 9d. per lb.</td>
<td>177, 4, 6</td>
</tr>
<tr>
<td>In Broadcloth 6 Pieces</td>
<td>15, —, —</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>at 50s. per Piece</td>
<td></td>
</tr>
<tr>
<td>Dowlas 1000 Ells, at</td>
<td>116, 13, 4,</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2s. 4d. per Ell —</td>
<td></td>
</tr>
<tr>
<td>Canary Wines 9 Pipes</td>
<td>270,—,—</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>at 20l. per Pipe —</td>
<td></td>
</tr>
<tr>
<td>Due to me from Henry Bland, per Bond</td>
<td>60,—,—</td>
</tr>
</tbody>
</table>

---

| Total                     | 4138 17 10 |
The Young Man's Best Companion.  

157

\( \text{(1)} \)

\text{Journal.}

\text{Inventory, &c. as above.}

Sundry Accts. Dr. to Stock—4138, 17, 10

\( \text{viz.} \)

<table>
<thead>
<tr>
<th>Item</th>
<th>l.</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash for trading Occasions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobaccaes 4726 l. at 9d. per lb.</td>
<td>350</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broadcloths, 6 Pieces at 50s. per Piece</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dowlas 1000 Ells, at 2s. 4d. per Ell.</td>
<td>116</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Canary Wine 9 Pipes, at 30 l. per Pipe</td>
<td>270</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Henry Bland due on Bond</td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ 4138 \, 17 \, 10 \]

I shall make one Page serve for Waste-Book and Journal Entries, to save Room, and also to have both Methods of Entry under Eye, to make them more intelligibly useful to the Reader, he hereby being not obliged to turn over Leaf to see their Difference of Entry.

\text{Waste-Book.}

London, January 1. 1768.

Owing to William Webb, by Note of my Hand — 50

Ditto to Roger Ruff, to Balance of his Account — 16 12 4

Ditto to Henry Horn, due the 4th of May next — 62

128 12 4

\text{Journal.}

Stock Debtor to Sundry Accounts,

\( \text{viz.} \)

To William Webb, by Note of my Hand — 50

To Roger Ruff for Balance of his Account — 16 12 4

To Henry Horn, due the 4th of May next — 62

128 12 4
The Young Man's Best Companion.

Waste-Book.

London, Feb. 2d ———— 1768.

Sold Thomas Townsend, viz.

\[
\begin{align*}
246 \text{ lb. of Virginia Cut Tobacco, at 14d. per lb.} & \quad \text{14 07—} \\
460 \text{ Ells of Dowlas, at 3s. per Ell} & \quad \text{69 ——}
\end{align*}
\]

Feb. 2.

Journal.

6 Thomas Townsend, Debtor to Sundries, viz.

\[
\begin{align*}
1 \text{ To Tobacco, for 246 lb. at 14d. per lb} & \quad \text{14 07—} \\
1 \text{ To Dowlas, for 460 Ells, at 3s. per Ell} & \quad \text{69 ——}
\end{align*}
\]

Wajte-Book.

Ditto 24th.

Bought of Leonard Legg, 4 Pipes of Canary, at 28l. per Pipe ———— 112 ——

To pay in 6 Months.

Ditto 24th.

Journal.

1 Canary Wine, Debtor to Leonard Legg, for 4 Pipes, at 28l. per Pipe ———— 112 ——

2 To pay in 6 Months.

The short Lines ruled against the Journal Entries are, or may be, termed Posting Lines, and the Figure on Top of the Lines denotes the Folio of the Ledger where the Debtor is entered; and the Figure under the Line shews the Folio of the Ledger where the Credit is entered; and the other smaller Figures against the sundry Debtors, or sundry Creditors (whether Goods or Persons) shew also in what Folios of the Ledger they are posted. And the Figures in the narrow Column towards the Left-hand of the Pounds, Shillings, and Pence Lines, direct to the Folio in the Ledger where the Debit or Credit is posted, that is, to the Accompt
Accompt of Goods, or of the Person immediately following the Words To or By; the first being proper to the Left or Debit Side of the Ledger; and the other used always on the Right or Credit Side of the Folios in the Ledger.

There are several other Books used by Merchants besides those three before-mentioned; as the Cash-Book, which is ruled as the Ledger, and folio'd likewise, wherein all Receipts of Money are entered on the Left-hand Folio, and Payments on the Right; specifying in every Entry the Day of the Month (the Year being set on the Top) for what, and for whose Account the Money was received, or paid; and the Total Debit or Credit of each Side is to be posted into the Ledger, to the Account of Cash therein, in one Line of either Side, viz. to or by sundry Accompts, as per Cash-Book, Folio, &c. which is to be done once a Month, or at Discretion; and the Particulars of each Side, Article by Article, are to be posted into the Ledger to the proper Accompts unto which they belong; with References in the Cash-Book to the several Folios in the Ledger; and carry the Balance over Leaf in the Cash-Book; by which you may know at any time what Cash you have, or ought to have, by you.

Another Book, is a Book of Charges of Merchandize, wherein is to be entered the Custom and petty Charges of any shipp'd Goods; as Porterage, Wharfage, Warehouse-room, &c. and once a Month is transferred into the Cash-Book on the Credit Side, making Reference to the Book of Charges of Merchandize; and likewise the same in the Debtor Side of the same Accompt in the Ledger for the Particulars thereof.

The next Book I shall name, is the Invoice Book, or Book of Factories: In this Book is to be copied all Invoices or Cargoisons of Goods shipped, either for Accompts proper or partable; and also of Goods received from Abroad, which must always be entered on the Left-side, leaving the Right-side Blank; and on the Advice of the Disposal of Goods sent Abroad, and also on the Sale of Goods receiv'd from Abroad, enter them on the Blank or Right-side; so that at first View may be seen how the Accompt stands, &c.

The next a Bill-Book, wherein is enter'd Bills of Exchange accepted, and when they become due; and when paid, made so in the Margin.
The next is a Book of Household Expences, for the Monthly Charge spent in House keeping; likewise Apparel, House-rent, Servants Wages, and Pocket Expences; and this may be monthly summed up, and carried to the Credit of Cash.

Besides the above mentioned, there must be a Book to copy all Letters sent abroad, or beyond the Seas; wherein the Name of the Person or Persons to whom the Letter is sent, must be written pretty full, for the readier finding the same.

The next is (and what is very necessary) a Receipt Book, wherein is given Receipts for Money paid, and expressed for whose Accompnt or Use, or for what it is received; to which the receiving Person must set his Name for himself, or some other, with the Year and Day of the Month on the Top.

Lastly, A note or memorandum Book, to minute down Affairs that occur, for the better Help of Memory; and is of great Use where there is Multiplicity of Business.

Having given an Account of the several Books, and their Use, the next Thing necessary will be, to give some few Rules of Aid to enable the Book keeper to make proper Entries; and to distinguish the several Debtors and Creditors, viz.

First, For Money received make Cash Dr. to the Party that paid it (if for his own Account) and the Party Cr.

Secondly, Money paid make the Receiver Dr. (if for his own Account) and Cash Cr.

Thirdly, Goods bought for ready Money, make the Goods Dr. to Cash, and Cash Cr. by the Goods.

Fourthly, Goods sold for ready Money, just the contrary, i. e. Cash Dr. and the Goods Cr.

Fifthly, Goods bought at Time; Goods bought are Dr. to the Seller of them, and the Seller Cr. by the Goods.

Sixthly, Goods sold at Time: just the contrary, i. e. the Party that bought them is Dr. to the Goods, and the Goods Cr. by the Party.

Seventhly, Goods bought Part for ready Money, and the rest at Time. First, make the Goods Dr. to the Party for the Whole. Secondly, make the Party Dr. to Cash for the Money paid him in Part of those Goods.

Eighthly, Goods sold, Part for ready Money, and the rest at Time. First, make the Party Dr. to the Goods for the Whole. Secondly, Cash Dr. to the Party received of him in Part of those Goods.—Or either of these two last Rules.
Rules may be made Dr. to Sundries; as Goods bought, Dr. to the selling Man for so much as is left unpaid, and to Cash for so much paid in ready Money. And so on the contrary for Goods sold.

Ninthly, When you pay Money before it is due, and are to have Discount allowed you, make the Person Dr. to Cash for so much as you pay him, and to Profit and Loss for the Discount; or make the receiving Man Dr. to Sundries as before:

**Profit and Loss is Dr.**

To Cash for what Money you pay and have nothing for it, as Discount of Money paid you before due, and to Abatement by Composition, Household Expences, &c.

**Per Contra, Cr.**

By Cash for all you receive, and deliver nothing for it; as Discount for prompt Payment, any Legacy left you, Money received with an Apprentice, and by the Profit of every particular Commodity you deal in, by Ships, in Company, by Voyages, &c.

**To balance or clear an Account when full written.**

1. **First,** if the Dr. Side be more than the Credit, make the Old Accompt Cr. by the New; and if the contrary, make the new Accompt Dr. to the Old: but if the Debtor Side be less than the Credit, then make the old Accompt Dr. to the New, and the new Accompt Cr. by the Old, for such a Rest or Sum as you shall find in the Accompt.

2. An Accompt of Company, wherein you have placed more received of another than his Stock; then add as much on the Debit Side as you find on the Credit Side; to the End that, in the new Accompt, you may have so much Debit as you put in, and so much Credit as you have received.

3. In Accompts of Merchandize, you must enter the Gain, or Loss, before you make the old Accompt Cr. by the New, and the New Dr. to the Old, for, the Remainder of Goods unfold.

4. In the Foreign Accompts, which you are to keep with a double Margin, or Column, for Dollars, for Crowns, or any Foreign Coins whatsoever, which have been received or paid by Bills of Exchange for Goods sold by Factors or Correspondents,
The Young Man's Best Companion.

respondents, or bought by them for the Accompts before; here you must first balance the said inward Margin of Dollars, Crowns, &c.

To remove an Account full written to another Folio.

Sum or add up, the Dr. and Cr. Sides, and see the Difference, which place to its opposite; as, admit the Cr. Side exceeds the Dr. then you are to write the Line in the Old Accompt to balance on the Dr. Side, to answer the Line on the Cr. Side of the New Accompt.

How to balance at the Year's End, and thereby to know the State of your Affairs and Circumstances.

YOU must make Accompt of Balance on the next void Leaf or Folio of your Ledger to your other Accompts; but after so done, do not venture to draw out the Accompt of Balance in the said Folio, till you have made it exact on a Sheet of Paper, ruled, and titled for that Purpose; because of Mistakes or Errors that may occur or happen in the Course of balancing your Ledger; which are to be rectified, and will cause Erasements or Alterations in that Accompt, which ought to be very fair and exact: and after you have made it to bear in the said Sheet, copy fair the said Accompt of Balance in the Ledger.

The Rules for Balancing are these, viz.

1st, Even your Accompt of Cash, and bear the Nett Rest to balance Dr.

2dly, Cast up all your Goods bought, and those sold, what kind soever, in each Accompt of Goods; and see whether all Goods bought, be sold or not; and if any remain unfold, value them as they cost you, or according to the present Market Price, ready Money; and bear the Nett Rest to balance Dr.

3dly, See what your Goods or Wares severally cost, and also how much they were sold for, and bear the Nett Gain or Loss to the Account of Profit and Loss.

4thly, Even all your Drs. and all your Crs. in order as they lie, and bear the Nett Rest of every Dr. and Cr. to Balance.

5thly, Even your Voyages, your Factors Accompts, wherein is either Gain or Loss, and bear the Nett Gain or Loss to the Accompt of Profit and Loss, and the Goods unfold to Balance.

6thly,
6thly, Even the Accompt of Profit and Loss, and bear the Nett Reft to Stock or Capital, as an Advance to your Stock or Capital.

7thly, Even your Stock, and bear the Nett Reft to balance Cr.

Then cast up the Dr. and Cr. Sides of your Balance; and if they come out both alike, then are your Accompts well kept; otherwise you must find out your Error by pricking over your Books again, to see whether you have entered every Dr. and Cr. in the Ledger as you ought.

Note, By pricking over the Book is meant, an Examining every Article of the Journal, against the Ledger, and marking it thus,—or thus †; and upon the second Examination thus ‡; and upon a third Examination thus ℥; or any other Mark.

Note also, in all Accompts of Goods, you must keep a Column in the middle of the Leaf, of each Side, for Number, Weight or Measure.

And also Note, That the Money, Wares, or Goods remaining in your Hands, and the Debts owing to you, must ever balance with the nett Stock and Debts owing by you.

Though all that hath been said in relation to Book-keeping, and the several Rules thereunto belonging, may seem a little abstruse to the altogether Unlearned therein, yet there is no such mighty Difficulty to instruct them as they may imagine; for these following Hints may render what hath been already said intelligible to an ordinary Capacity.

1st, Stick close to the Text, or general Rule beforementioned, viz. That all Things received, or the Receiver, are Debtor to all Things delivered, or the Deliverer; for this Rule holds good in all Cases.

2dly, When the Dr. (whether Person or Goods) is known, the Cr. is easily understood, without mentioning it: For if A be Dr. to B, then B is Cr. by A, for what Sum soever it be; also, if Goods be Dr. to C, then C is Cr. by those Goods for the Sum they amount to—This I mention, because that most Authors (if not all) that I have met with on the Subject of Book keeping, spend a great many Words, which I think (begging their Pardon if I err) might be saved, in declaring the Creditor, as well as shewing the Debtor, when it may be understood, as aforesaid.

3dly, This Art of Italian Book-keeping, is called Book-keeping by double Entry, because there must be two Entries;
the first being a Charging of a Person, Money, or Goods; 
and the second a Discharging of a Person, Money or Goods.

4thly, Strictly note, That if the first Entry be on the Dr. or Left-hand Side of your Ledger; the next or second Entry, must always be made on the Right or Credit Side of your Ledger; for when ever one Person or Thing is charged, then always another Person or Thing is discharged for the Sum, let it be what it will.

And so it is in balancing or evening an Accompt, and carrying it to another Folio; for if the old Accompt be evened by Balance on the Credit Side, then the new Accompt must be debited or charged on the Debit Side, for the Sum that balanced the old Accompt.

Much more might be said on this Art of Book-keeping, if I had Room; but I have plainly spoke to the principal Fundamentals thereof, which I hope may be sufficient for the Instruction and Improvement of any intelligent Reader.

The next Matter I shall go upon, is to shew, or give Examples of various Kinds of Receipts and promissory Notes; also Bills of Parcels in different Trades; likewise Bills of Book-Debts, Bills of Exchange, with Remarks on them; and some other Precedents of Writings in Trade and merchantile Affairs.

And first of Receipts of different Forms

Received, September 23, 1768, of Mr. Anthony Archer, the Sum of Six Pounds, Nine Shillings, on Account for my Master Bryan Murray, per me Caleb Catchmoney.

London, September 23, 1768.

Received of Mr. Kendrick Keptouch,
Ten Pounds Eleven Shillings and Six-pence, in full, per me Henry Hasly.

Note, the Sum received must always be expressed in Words at Length, and not in Figures, in the Body of a Receipt; but it may and ought to be expressed in Figures behind a Brace (as in the two foregoing Examples, or under the Left-hand Part of the Receipt, as in the following) as well as in the Body of the Receipt.
When a Receipt is given in a Book, there is no Occasion to mention the Man’s Name of whom you receive the Money; because that is implied, he being the Owner of the Book.

A Receipt in Part of Goods sold.

Received the 24th of September, 1768, of Mr. Timothy Trustlittle, Fifty Pounds, in Part of Indigo sold him the 22d Instant, per me. Lawrence Lovemoney.

£.50—00—0

A Receipt given in a Receipt Book.

Received the 26th of September, 1768, the Sum of Forty-five Pounds, by the Order, and for the Account of George Greedy, Esq; per Timothy Trusty.

£.45—00—0

Received the 27th of September, 1768, of Mr. Daniel Davenport, and Company, One Hundred Pounds, on Account of Self and Partner, per James Jenkins.

£.100—00—0

Received of Mr. Timothy Tennant, this 25th Day of October, 1768, Six Pounds, for a Quarter’s Rent due at Michaelmas last, for my Master Lancelot Letfarm, per me. Francis Faithful.

£.6—00—0

Received August 14, 1769, of Mr. Peter Bishop, Twenty-nine Pounds Six Shillings, in Part of a Bill of Sixty Pounds, due the 3d of October next, to Mr. Sampson Shuffle.

Francis Fidal.

£.29—6—0

A Receipt on the Back of a Bill of Exchange.

September 30th, 1768, received the full Contents of the within mentioned, being 500 Pieces of Eight, per Nathaniel Needy.

Promissary Notes.

I Promise to pay Mr. Timothy Teazer, Sixty Pounds, on the 20th of this Instant September, witnes my Hand this 15th of September, Anno 1768.

Daniel Dilatory.

£.60—00—00

I Promise to pay to Mr. Christopher Casb, or his Order, five Pounds for Value received; witnes my Hand this 26th Day of October, 1768.

Robin Ruck.

£.5—00—00
The Young Man's Best Companion.

A Note given by Two.

WE, or either of us, promise to pay to Mr. Matthew Mistrust, or his Order, Six Pounds Sterling, on Demand, for Value received: Witness our Hands this 27th of September, 1769.

Nathan Needy.
Samuel Surety.

Witness, Nicholas Notice.

A Bill of Debt.

Memorandum, That I William Want, of London, Weaver, do owe and am indebted unto Mr. Timothy Truft, of Westminster, Watchmaker, the Sum of Twenty-five Pounds Six Shillings, of lawful Money of Great-Britain; which Sum I promise to pay the said Timothy Truft, his Executors, Administrators, or Assigns, on or before the 10th Day of December next ensuing. Witness my Hand this 22d Day of October, 1769.

William Want.

Witness, Titus Testis.

A Bill of Parcels.

It is usual when Goods are sold, for the Seller to deliver to the Buyer, with the Goods, a Bill of Parcels; which is a Note of their Contents and Prices, with a Total of their Value cast up, &c.—These Bills ought to be handsomely writ, and in methodical Order, according to the best and customary Way of each particular Trade.

I shall therefore shew the Forms or Bills of Parcels in some Trades and Professions, with the shortest Methods of calling up the several Articles in each Bill.

A Mercer’s Bill.

London, December 26, 1768.


12 Yds. ¼ of rich flowered Sattin, at 12s. 6d. per Yd.
8 Yds. of sprigg’d Tabby, at 6s. 3d. per Yd.
5 Yds. ¼ of Farrindon, at 6s. 8d. per Yd.
6 Yds. of Mohair, at 4s. 2d. per Yd.
17 Yds. ½ of Luteeftring, at 3s. 4d. per Yd.

16—7—8

Sometimes the Money is paid presently, then the Receipt is made as follows.

Received
Received the 26th of September, 1768, Sixteen Pounds, seven Shillings, and eight Pence, in full of this Bill, for my Master Abel Atlas, and Company, per me

_Francis Fairfax._

**A Woolen Draper's Bill.**

_London, September 24, 1768._

Bought of Benjamin Broadcloth, 22d of September, 1768, viz.

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yds. of fine Spanish Black</td>
<td>7</td>
<td>18.4</td>
</tr>
<tr>
<td>Yds. of Ditto</td>
<td>5½</td>
<td>12.4</td>
</tr>
<tr>
<td>Yds. of fine mixt Cloth</td>
<td>6½</td>
<td>15.9</td>
</tr>
<tr>
<td>Yds. of Frize</td>
<td>16</td>
<td>3.6</td>
</tr>
<tr>
<td>Yds. of Drap-de-berry</td>
<td>4</td>
<td>13.5</td>
</tr>
<tr>
<td>Yds. of superfine Spanish Cloth</td>
<td>5/6</td>
<td>18.10</td>
</tr>
</tbody>
</table>

**A Linen Draper's Bill.**

_Sevenber 26, 1768._

Bought of Marmaduke Muslin, viz.

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ells of Dowlas</td>
<td>16</td>
<td>1s. 4d.</td>
</tr>
<tr>
<td>Ells of Lookram</td>
<td>14</td>
<td>1s. 3d.</td>
</tr>
<tr>
<td>Ells of Holland</td>
<td>22</td>
<td>3s. 4d.</td>
</tr>
<tr>
<td>Piece of Cambrick</td>
<td>1</td>
<td>15s.</td>
</tr>
<tr>
<td>Yds. of Diaper</td>
<td>85</td>
<td>1s. 10d.</td>
</tr>
<tr>
<td>Yds. of Damask</td>
<td>19</td>
<td>4s. 3d.</td>
</tr>
<tr>
<td>Pieces of Muslin</td>
<td>2</td>
<td>18s. 10d.</td>
</tr>
</tbody>
</table>

The several Articles of these Bills are purposely omitted being cast up, for the Exercise of the Reader in the Rules for Practice; or by the Rules of Multiplication of Money, before shewn; which indeed is the best Method of all, for the ready casting up the divers and sundry Articles contained in any Bill of Parcels whatsoever.

**Example.**

We'll take the last Article of the Wollen-Draper's Bill, viz. 5 Yds. 7/8, &c. at 18s. 10d. per Yard.

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 7/8</td>
<td></td>
<td>18.10</td>
</tr>
<tr>
<td>1. 4-14-2</td>
<td></td>
<td>18.10</td>
</tr>
<tr>
<td>16-5 3/4</td>
<td></td>
<td>18.10</td>
</tr>
</tbody>
</table>

Facit 5-10-7 3/4 16-5 3/4

In this Example the Price is multiplied by the Quantity, viz. 5 Yards 7/8, according to the Rules delivered in Multiplication.
The Young Man's Best Companion.

tiplication of Money; and the Product by 5 is l. 4—14—2. Then for the \( \frac{2}{5} \) of a Yard, I multiply the Price of the Integer, viz. 18s. 10d. by the Numerator of the Fraction, viz. 7, and divide by the Denominator 8, and the Quotient is 16s. 5d. \( \frac{3}{4} \) agreeable with the Rule spoke to in the Doctrine of Fractions. Which 16s. 5d. \( \frac{3}{4} \), added to the Product of 18s. 10d. multiplied by 5, gives l. 5—10—7\( \frac{1}{4} \), as in the Operation above.

A Grocer's Bill.

Bought of Robert Raisin, and Peter Plumb, October the 4th, 1768, viz.

<table>
<thead>
<tr>
<th>Item</th>
<th>C.</th>
<th>qrs.</th>
<th>lb.</th>
<th>l.  s.  d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar 2 Hhds. qt.</td>
<td>17</td>
<td>-2</td>
<td>17</td>
<td>1 -10 -6</td>
</tr>
<tr>
<td>Raisins 3 Barrels</td>
<td>6</td>
<td>1</td>
<td>19</td>
<td>1 -14 -5</td>
</tr>
<tr>
<td>Tobacco 1 Hhd.</td>
<td>4</td>
<td>0</td>
<td>12</td>
<td>4 -19 -4</td>
</tr>
<tr>
<td>Rice 1 Barrel</td>
<td>1</td>
<td>0</td>
<td>15</td>
<td>2 -16 -4</td>
</tr>
<tr>
<td>Pepper 1 Bag</td>
<td>1</td>
<td>3</td>
<td>19</td>
<td>3 -12 -4</td>
</tr>
<tr>
<td>Brimstone</td>
<td>2</td>
<td>1</td>
<td>19</td>
<td>1 -19 -1</td>
</tr>
</tbody>
</table>

A House's Bill.

Bought of Silvester Slipstocking, October 5th, 1768, viz.

<table>
<thead>
<tr>
<th>Item</th>
<th>C.</th>
<th>qrs.</th>
<th>lb.</th>
<th>l.  s.  d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Pair of Womend mixt Worsted Hose, at</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>5 -7 -6</td>
</tr>
<tr>
<td>3 Pair of Women's Silk Hose, at</td>
<td></td>
<td>9</td>
<td>20</td>
<td>9 -4 -4</td>
</tr>
<tr>
<td>22 Pair of Men's Wollen ditto, at</td>
<td></td>
<td>3</td>
<td>20</td>
<td>3 -2 -4</td>
</tr>
<tr>
<td>8 Pair Women's ditto, at</td>
<td></td>
<td>2</td>
<td>19</td>
<td>2 -2 -4</td>
</tr>
<tr>
<td>21 Yards of Flannel, at</td>
<td></td>
<td>1</td>
<td>11</td>
<td>1 -11 -6</td>
</tr>
<tr>
<td>8 Pair of Thread Hose, at</td>
<td></td>
<td>3</td>
<td>4</td>
<td>3 -4 -4</td>
</tr>
</tbody>
</table>

The best and most expeditious Way of casting up these several Articles is by the Method shewn in Multiplication of Money.

A Fishmonger's Bill.

Bought of Leonard Ling, 6th of October, 1768.

<table>
<thead>
<tr>
<th>Item</th>
<th>C.</th>
<th>qrs.</th>
<th>lb.</th>
<th>l.  s.  d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 C. of Haberdine, at</td>
<td>1</td>
<td>7</td>
<td>10</td>
<td>6 -10 -6</td>
</tr>
<tr>
<td>1 ( \frac{1}{2} ) of Ling, at</td>
<td></td>
<td>8</td>
<td>12</td>
<td>8 -12 -6</td>
</tr>
<tr>
<td>1 ( \frac{1}{2} ) of Stock-Fish, at</td>
<td></td>
<td>4</td>
<td>10</td>
<td>4 -10 -6</td>
</tr>
<tr>
<td>6 ( \frac{1}{2} ) Barrels of White Herrings, at</td>
<td>3</td>
<td>10</td>
<td>2</td>
<td>3 -10 -2</td>
</tr>
<tr>
<td>1 Barrel of red Herrings, at</td>
<td></td>
<td>2</td>
<td>12</td>
<td>2 -12 -6</td>
</tr>
<tr>
<td>95 dried Salmon, at</td>
<td></td>
<td>0</td>
<td>10</td>
<td>0 -10 -2</td>
</tr>
</tbody>
</table>

The Amount of each Article is purposely omitted for the young Man's Exercise in Arithmetic.

Note, Haberdine or Ling, 124 is a Hundred; Of Stock Fish and Herrings, 120 to the Hundred, 1200 to a Thousand, and 12 Barrels a Last.
A Leather-feller's Bill.

Bought of Henry Hide, the 7th of October, 1768, viz.

<table>
<thead>
<tr>
<th>Item</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 Large oiled Lamb Skins, at</td>
<td>1</td>
<td>3 1/2</td>
</tr>
<tr>
<td>13 Kipp of Goat Skins,</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>137 Allom'd Sheep Skins, at</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>19 Calf Skins, at</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>85 Oiled Buck Skins, at</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>10 Russia Hides, at</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>60 Dicker of Hides, at</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Note, 50 Goat Skins make a Kipp; and other Skins, five-score to be Hundred. A Dicker is 10 Hides or Skins; and 20 Dicker a Last.

A Pewterer's Bill.

Bought of Andrew Antimony, October the 7th, 1768, viz.

<table>
<thead>
<tr>
<th>Item</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 Hard Metal Dishes, wt. 42lb. at 14d. per lb.</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>1 Dozen of ditto Plates,</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>1 Chamber-pot of ditto,</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>1 Standish of ditto,</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>2 Tankards of ditto,</td>
<td>0</td>
<td>5 10</td>
</tr>
<tr>
<td>18 Best Spoons,</td>
<td>0</td>
<td>4 6</td>
</tr>
<tr>
<td>3 Hard Metal Porringer,</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>1 Salt of ditto,</td>
<td>0</td>
<td>1 10</td>
</tr>
<tr>
<td>1 Sett of Castors,</td>
<td>0</td>
<td>10</td>
</tr>
</tbody>
</table>

4 19 2

Examples of Casling.

<table>
<thead>
<tr>
<th>Items</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 pr. of Wollon Hose, at 3s. 2d. per Pair,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 and 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-6-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-2 the odd Pair.</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

l. 3-9-8 Answer.
The Young Man's Best Companion.

**Bills on Book Debts.**

*A Woollen Draper’s Bill.*

Mr. Francis Frize, Dr.

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Yards</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 20</td>
<td>To 16 Yds. ½ of Black Cloth, at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May 4</td>
<td>To 35 Yds. mixt grey Cloth, at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>June 12</td>
<td>To 12 Yds. ½ of fine Broad Cloth, at</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If the Gentleman pays the Whole Bill, then make the Receipt thus:

Received the 19th of Oct. 1768, of Mr. Francis Frize, the Sum of Fifty-four Pounds, &c. in full of this Bill, and of all Accompts, for my Master,

A Mercer’s Bill.

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Yards</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar. 26</td>
<td>To 16 ½ of flower’d Sattin, at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>April 14</td>
<td>To 14 of Venetian Silk, at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May 26</td>
<td>To 14 ½ of flower’d Damask, at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>June 7</td>
<td>To 5 ½ of Genoa Velvet, at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ditto 26</td>
<td>To ⅔ of Lutestring, at</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If Part of this Bill is paid, write thus:

Received of Madam Dinah Dilatory, Twelve Pounds Ten Shillings, in Part of Payment for my Master, Bryan Brocade,

A Corn Chandler’s Bill.

Mr. Robert Racer, Dr. to Lional Livery.

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 14</td>
<td>To 5 Quarters of Oats, at</td>
<td>2</td>
<td>3 per Bush.</td>
</tr>
<tr>
<td>May 16</td>
<td>To 9 Bushels of Beans, at</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>June 12</td>
<td>To 7 Bushels of Bran, at</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>ditto 14</td>
<td>To 16 Bushels of Beans, at</td>
<td>3</td>
<td>11</td>
</tr>
</tbody>
</table>

*Henry Hunter.*

*A Tobacco.*
### A Tobacconist's Bill.

1768,

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Price per Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 1</td>
<td>To 1 Hhd. of Tobacco, qt. nett</td>
<td>569 lb.</td>
<td>at</td>
<td>10½ per lb.</td>
</tr>
<tr>
<td>ditto 25</td>
<td>To 1 Box qt. 75 lb. ½ nett</td>
<td>11½</td>
<td></td>
<td></td>
</tr>
<tr>
<td>June 4</td>
<td>To 5 Bags of Old Spanish, qt. nett</td>
<td>671 lb.</td>
<td>at</td>
<td>3½</td>
</tr>
<tr>
<td>July 12</td>
<td>To ½ Hhd. qt. 334 Gross Tare</td>
<td>42 nett.</td>
<td>293 lb.</td>
<td>5½</td>
</tr>
<tr>
<td>7ber 7</td>
<td>To 2 Rolls of Tobacco, qt. 9¼ lb.</td>
<td>9½</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### A Stationer's Bill.

1769

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Price per Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 12</td>
<td>To 57 of Demy Paper, at</td>
<td></td>
<td></td>
<td>10 9 per R.</td>
</tr>
<tr>
<td>ditto 13</td>
<td>To 195 of 2d Foolscap, at</td>
<td></td>
<td></td>
<td>6 3</td>
</tr>
<tr>
<td>August 2</td>
<td>To 375 of 2d Demy, at</td>
<td></td>
<td></td>
<td>8 2</td>
</tr>
<tr>
<td>7ber 6</td>
<td>To 95 of French Royal, at</td>
<td></td>
<td></td>
<td>2 6</td>
</tr>
<tr>
<td>8ber 29</td>
<td>To 26 Rolls of Parchment, at</td>
<td></td>
<td></td>
<td>15 11</td>
</tr>
</tbody>
</table>

Note, A Roll of Parchment is 60 Skins: A Ream of Paper 20 Quires; and Bale of Paper 10 Reams.

### A Bricklayer's Bill.

1769

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Price per Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 25</td>
<td>To 25 Thousand of Bricks, at</td>
<td></td>
<td></td>
<td>16s. per M.</td>
</tr>
<tr>
<td>ditto 30</td>
<td>To 11 Thousand of Plain Tiles, at</td>
<td></td>
<td></td>
<td>20s. 6d. per M.</td>
</tr>
<tr>
<td>April 1</td>
<td>To 28 C. of Lime, at</td>
<td></td>
<td></td>
<td>12s. per C.</td>
</tr>
<tr>
<td>ditto 9</td>
<td>To 20 Load of Sand, at</td>
<td></td>
<td></td>
<td>3s. 6d. per Load.</td>
</tr>
<tr>
<td>May 20</td>
<td>To 140 Ridge Tiles, at</td>
<td></td>
<td></td>
<td>8s. 6d. per C.</td>
</tr>
<tr>
<td>June 24</td>
<td>To 90 Days Work myself, at</td>
<td></td>
<td></td>
<td>3s. per Day.</td>
</tr>
<tr>
<td></td>
<td>To 90 Days my Man, at</td>
<td></td>
<td></td>
<td>2s. 6d. per Day.</td>
</tr>
<tr>
<td></td>
<td>To 90 Days another Bricklayer, at</td>
<td></td>
<td></td>
<td>2s. 6d.</td>
</tr>
<tr>
<td></td>
<td>To 90 Days for two Labourers, at</td>
<td></td>
<td></td>
<td>2od. per Day each.</td>
</tr>
</tbody>
</table>

Note, 1000 plain Tiles is 1 Load; and 25 Bags or Bushels of Lime 1 C. A Brick must be 9 Inches long, and 4 Inches broad. Bricks are of three Sorts, Plaice Bricks, Red and Grey Stock Bricks. —

Here it is necessary to give a general Rule for the casting up any Thing sold by the Thousand; as Bricks, tiles, Clinkards,
Clinkards, or Flanders Paving Bricks, and several other Things mentioned in the Book of Rates, viz. Barrel Hoops, Goofe Quills, Oranges and Lemons, Squirrel Skins, Billets, &c.

And the easy Rule is this, viz.

Multiply the given Number by the Shillings in the Price, (if the Price be at so many Shillings per M) and always cut off three Figures or Places towards the Right-hand; and the Figures towards the Left-hand are Shillings, which divide by 20, to bring them into Pounds; and those Figures separated towards the Right-hand multiply by 12, the next inferior Denomination; and still cut off, or separate three Places towards the Right-hand, and the Figures towards the Left are Pence; and the three last Figures cut off, multiply by 4; and still separate three Places towards the Right-hand, and the Figures towards the Left are Farthings.—And if the Price be Shillings and Pence per Thousand, then reduce the Price into Pence, and multiply the given Number by the Pence contained in the Price, cutting off three Places towards the Right as aforesaid, and the Figures towards the Left are Pence, which bring into Pounds, according to Rule; and multiply the Remainder, or Figures cut off by 4, &c.

Example.

24650 Brick, at 17s. per Thousand.

<table>
<thead>
<tr>
<th>24650</th>
</tr>
</thead>
<tbody>
<tr>
<td>172550</td>
</tr>
<tr>
<td>17</td>
</tr>
</tbody>
</table>

Anf. Shillings 41,9|050 20l. 19s, and 666 of a Shil.
or l. 20,198 1/12

Example 2.

261324 plain Tiles, at 16s. 6d.

<table>
<thead>
<tr>
<th>261324</th>
</tr>
</thead>
<tbody>
<tr>
<td>26090592</td>
</tr>
<tr>
<td>2351916</td>
</tr>
<tr>
<td>198</td>
</tr>
</tbody>
</table>

Pence 51742,152

Divide per 12) 4

| 20|s. 4311—10d. (608 |
|-------|
| 215—11—10 and 666 of a Penny. |
When Things bought by the Thousand, and retailed by the Hundred, as particularly Dutch and English Pantiles; then follow this Rule, \textit{viz.}

Multiply the given Quantity by the Price, whether Shillings, or Shillings and Pence. If Shillings, multiply by the Number of Shillings, and cut off two Figures or Places toward the Right-hand, and those toward the Left are Shillings; which reduce to Pounds as usual; and what remains, that is, the Figures cut off, multiply by 12; and again cut off two Places more toward the Right-hand, and the Figures to the Left are Pence; and what remains multiply by 4, &c.

\textit{Example.}

1726 Pantiles, at 7s. per C.

\[
\begin{array}{rcl}
120 \mid 82 \\
7 \\
\hline
12 \\
9 \mid 84 \\
4 \\
\hline
3 \mid 36
\end{array}
\]

That is, 6l. os. 9d. \(\frac{1}{4}\) and \(\frac{36}{100}\) of a Farthing.

If the Price be Shillings and Pence, multiply by the Pence contained in the Price, and proceed as before; and then the Figures toward the Left-hand will be Pence; which reduce to Pounds, according to Rule.

\textit{Example.}

2964 Stock Bricks, at 2s. 6d. per C.

\[
\begin{array}{rcl}
Pence 889 \mid 20 \\
4 \\
\hline
80
\end{array}
\]

That is, 3l. 14s. Id. and \(\frac{80}{100}\) of a Farthing, or \(\frac{20}{100}\) of a Penny.

This Method is preferable to \textit{Practice}, because of its Exactness for the odd Number above Thousands or Hundreds, which would be puzzling to be very exact as to the odd Number; but by this Method, the Question is solved to the 1000 or 100 Parts of a Farthing; as may be seen by the foregoing Examples of the Operation.
Of Bills of Exchange.

BILLS of Exchange are either Inland, or Foreign:
The Inland Bills are drawn by one trader in one City
or Town, upon another of another City or Town in the
same Kingdom; as London upon Bristol, or Exeter upon Lon-
don, &c. and these chiefly concern our Shop-keepers, and
wholesale Traders, either of Town or Country, and the
Foreign more immediately concern the Merchant.

Bills of Exchange, if handsomely drawn, must be written
in a fair Hand, on a long Piece of Paper, about three
Inches broad; and writ in Form after the following Pre-
cedents.

A Bill payable upon Sight.
New-York, 6th October, 1769.

At Sight hereof, pay to Mr. George Greedy, or his Or-
der, the Sum of Fifty Pounds, Philadelphia Curren-
cy, for Value received of Christopher Cask; and place it to
the Accompt, as per Advice, of

To Mr. Peter Punctual, Your humble Servant,
Merchant in Daniel Draffin.
Philadelphia.

Note, A Bill at Sight is payable three Days after the Ac-
ceptor seeth it.

New-York, November 4, 1769.

Even Days after Sight hereof, pay to Mr. Nathan Needy,
or his Order, Twenty-four Pounds, Ten Shillings,
New-England Currency, old Tenor, for Value received
here of Mr. Timothy Transfer, and place it to Accompt, as
per Advice from

To Mr. Simon Certain, Your Friend and Servant,
Hatter, in Milk-
Street, Boston.

If Mr. Needy sends his Servant, Andrew Benson, to re-
cieve the Money; after he hath writ his Name on the Back
of the Bill, (which is his Order) the Servant must write a
Receipt to his Master's Name, thus:

Received, November 17, 1769, the full Contents of the
within mentioned Bill, being Twenty-four Pounds, Ten
Shillings.
Witness,
Andrew Benson.
A Foreign Bill of Exchange.

Philadelphia, May 1st, 1768.

Sir,

At thirty Days after Sight of this my first of Exchange, my second, third or fourth, of the same Tenor, and Date, not being paid, pay to Mr. Stephen Emerson, or Order, the Sum of One Hundred and Sixty Five Pounds Sterling, Value received here, and place the same to Accompt, as per Advice from To Mr. Simon Surepay,

Your humble Servant,

Ebenezer Reynolds.

The Acceptance is thus wrote under the Bill:

Accepted this 16th Day of November, 1768.

per Simon Surepay.

Notes on Bills of Exchange.

1. The Acceptor of any Bill is become absolute Dr. to the Person to whom the Bill is payable for the Contents thereof.

2. The Person to whom the Bill is payable, must demand the Money the very Day it becomes due, and if the Acceptor die before it becomes due, it must be demanded of the Executor or Administrator.

3. The Drawer of any Bill must always give his Correspondent a Letter of Advice, that he hath drawn such a Bill on him for such a Sum, &c.

4. None may pay a Bill without such a Letter of Advice.

5. A Bill is due the third Day after theExpiration of the Time mentioned in the Bill.

Of Endorsing.

It frequently happens, that between the Acceptance of a Bill, and the Time of Payment, the Party to whom it is first made payable, hath Occasion to pay it away; if so, he writes his Name on the back of the Bill, which is his Order, (as said before) and gives it to the Person he is indebted to, and then he is impowered to receive the Money: And it may be, the second Person also wants to pay it away: and then he writes his Name likewise under the other, and delivers
The Young Man's Best Companion.

livers it to a third Person to receive the Money; and it may be, the third does the same, and delivers it to a fourth Person, &c. All that do so are Endorsers; and he that last hath the Bill, if the Acceptor will not pay it, may sue him or the Endorsers, or Drawer, or any of them, for the Money.

An Endorsement is generally in these Words, viz. Pay the Contents of the within mentioned Bill to Henry Hafty, George Greedy.

But many times the Name only is accounted sufficient.

Of Protesting.

WHEN a Bill is to be protested, the Party that hath the Bill must go to a Publick Notary (not a common Scrivener) whose Business it is, and he goes with you to the Acceptor's House and demands Payment, &c. and then he draws up a Protest according to Law; which is to be returned to the Drawer within the Time limited, &c.

It is needless to give here the Form of Protest, because no Man can do it of himself.

A Bill of Debt.

Now all Men by these Presents, That I Lawrence Lackcash, of Boston, Vintner, do owe and am indebted unto Charles Creditman, of the same Place, Salter, the Sum of One Hundred and Fifty Pounds lawful Money of Boston, old Tenor, which said Sum I promise to pay unto the said Charles Creditman, his Executors, Administrators, or Assigns, on or before the 24th of December next ensuing the Date hereof. Witness my Hand and Seal, this 6th Day of October, 1768.

Sealed and Delivered,

in the Presence of Lawrence Lackcash.

A Bill for Money borrowed.

Received and borrowed of Oliver Overcash, of Philadelphia, Merchant, Fifty Pounds, which I do hereby promise to pay on Demand. Witness my Hand this 6th Day of October, 1768.

Paid

Peter Penury.
The Form of an Invoice.

Port Royal, in Jamaica, July 24th, Anno 1768.

INVOICE of five Barrels of Indico, five Hhds. of Sugar, and five Hhds. of Pymento, shipped on board the George of London, George Jones, Commander, for Accompt and Rifque of Messrs. John and Thomas Fisher, of London, Merchants, being mark'd and number'd, as per Margent; Contents, Costs and Charges, viz.

<table>
<thead>
<tr>
<th>Item</th>
<th>Quant.</th>
<th>l.</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F Indico 5  Barrels</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td></td>
<td>143</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>146</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>152</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>172</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>756 lb. nett, at 2s. 2d. per lb.</td>
</tr>
<tr>
<td>Sugar, 5 Hhds. Tare</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.qr. lb.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qrs. lb.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-3-27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12-2-19</td>
<td></td>
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<tr>
<td>to</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>14-1-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-1-10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>68-0-00-8-3-12</td>
</tr>
<tr>
<td>Pymento, 5 Hhds. Tare</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lb.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grofs</td>
<td></td>
<td></td>
<td></td>
<td>389</td>
</tr>
<tr>
<td>Tare</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>432</td>
<td></td>
<td></td>
<td></td>
<td>84</td>
</tr>
<tr>
<td>396</td>
<td></td>
<td></td>
<td></td>
<td>72</td>
</tr>
<tr>
<td>to</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>376</td>
<td></td>
<td></td>
<td></td>
<td>70</td>
</tr>
<tr>
<td>412</td>
<td></td>
<td></td>
<td></td>
<td>82</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2026-389</td>
</tr>
<tr>
<td>To Cost of 5 Barrels and 10 Hhds.</td>
<td></td>
<td></td>
<td></td>
<td>5 7 9</td>
</tr>
<tr>
<td>To Storage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>234 19 10 12</td>
</tr>
<tr>
<td>To Commission at 5 per C.</td>
<td></td>
<td></td>
<td></td>
<td>11 14 1 13</td>
</tr>
<tr>
<td>Errors excepted, per A. B.</td>
<td></td>
<td></td>
<td></td>
<td>246-14-10</td>
</tr>
</tbody>
</table>
A

An Account of Sales of 2756 Ells brown Osnabrigs; 1112 Yards of blue Linen; 2 Pieces of black Cloths, 9t. 39 Yards; 40 Pair of Thread Stockings; and 175 Ells of Bag Hol

land, received from on board the Ship Good Success, Samuel Sharp, Commander, for Account of Mr. Lawrence Lucky, of London, Merchant.


The Form of an Account of Sales.

March 17

To Portridge, ditto 1769.

Dr. 1. 15s. 3d.
To Commision on Sales, at 5 per C. 12 16s. 9d.
To Stores, at 1/2 per Cent. 6 8s. 4d.

Osnabrigs, making 3456½ Yards.

Of black Cloths, q't. 5 per C. 8 2s.

By ditto for 175 Ells of Bag Hol

Land, at 6s. 3d. per Ell, 54 13s. 9d.

By ditto for 175 Ells of Bag Hol

Land, at 6s. 3d. per Ell, 54 13s. 9d.

By ditto for 175 Ells of Bag Hol

Land, at 6s. 3d. per Ell, 54 13s. 9d.

By Lawrence Monk, for 39 Yards of black Linen, at 7s. 6d. per Yard, 5 1s. 4d.

By ditto for 175 Ells of Bag Hol

Land, at 6s. 3d. per Ell, 54 13s. 9d.

By ditto for 175 Ells of Bag Hol

Land, at 6s. 3d. per Ell, 54 13s. 9d.

By ditto for 175 Ells of Bag Hol

Land, at 6s. 3d. per Ell, 54 13s. 9d.

By ditto for 175 Ells of Bag Hol

Land, at 6s. 3d. per Ell, 54 13s. 9d.
The Young Man's Best Companion. 179
The Extraction of the Square and Cube Roots, of great Use in Measuring, Gauging, &c.

The Square Root.

1st. A Square Number is any Digit, or any other Number, which being multiplied into itself, produceth a Square Number; as 4 multiplied by 4, produceth 16; so 16 is the Square Number, and 4 is said to be the Root of 16, because it grows from, or is produced of 4; so 4 is the Square of 2, for twice 2 is 4, and 9 is the Root of 81, for 9 times 9 is 81, &c.

2dly, To extract the Square Root of any Number, is to find another Number, which multiplied by (or into) itself, produces the Number given, and is a Proof of the Work.

3dly, Square Numbers, are either single or compound.

4thly, All single Square Numbers, with their respective Roots, are contained in the following Table, viz.

<table>
<thead>
<tr>
<th>Roots</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Squares</td>
<td>1</td>
<td>4</td>
<td>9</td>
<td>16</td>
<td>25</td>
<td>36</td>
<td>49</td>
<td>64</td>
<td>81</td>
</tr>
</tbody>
</table>

5thly, When the Root of any Square Number is required less than 100, and yet not exactly a single Square expressed in the Table above; then you are to take the Root of the Square Number expressed in the Table, which (being less) comes the nearest to the given Number to be squared; As suppose 60, the nearest Root to it (as being less) is 7, and 12 being given, the Root belonging to it is 3.

6thly, A compound Square Number is that which is produced of a Number consisting of more Places than one, multiplied by itself, and never less than 230: So 459 is a compound Square Number, produced by the multiplying 27 into itself.

7thly, The Root of any Number under 100 may be easily known by the foregoing Table of single Squares: But to extract the Root of a compound Number of several Places, observe the following Directions, in Relation to the Finding the Root of this Square Number 45796.
1. Set a Point over the Place of Units thus, 45796, and so successively over every second Figure towards the Left-hand, as thus, 45796; and again thus, 45796. Thus must your Number be prepared for Extraction in Natural Numbers; But in the Decimals, you must point from the Place of Primes towards the Right-hand, omitting one Place, as above; and if the Decimals are odd, affix a Cypher towards the Right-hand of them to make them even. Your Number thus prepared, draw a crooked Line on the Right of the Number as in Division; and indeed the Operation of the Square Root is not much unlike Division; only there the Divisor is fixt, and in the Square Root we are to find a new One for each Operation. I say having made a crooked Line thus, 45796 (seek the nearest Root in the foregoing Table, to the first Point on the Left-hand, which here is 4, the Root of which is 2, which place behind the crooked Line thus;

\[
45796 \quad (2)
\]

\[
\begin{array}{c}
4 \\
\hline
0
\end{array}
\]

and subtract it, and there remains 0: Then to the Remainder, bring down the next Point 57 thus;

\[
43796 \quad (2)
\]

\[
4
\]

\[
057
\]

which call the Resolvend; then double the Root of the first Point, and place it on the Left-hand of the Resolvend (or proper enough the Dividend) thus;

\[
45796 \quad (2)
\]

\[
4
\]

\[
4) \quad 57
\]

The 4, the double of the Root 2 on the Left-hand of the crooked Line, call the Divisor, then seek how often 4, the Divisor, can be taken in 5, the first Figure of the Resolvend
The Young Man's Best Companion. 181

(57 for you are to omit the last Figure towards the Right-hand) which here is one, which place behind the Root 2, and also behind the Divisor 4 thus:

\[
\begin{align*}
45796 & \quad (21 \\
4 & \\
41 & \quad 57 \\
\hline
& \quad 41 \\
& \quad 41 \\
16 & \\
\end{align*}
\]

Then multiply the Divisor (now) 41, by the Figure last placed in the Root, \textit{viz.} 1, and place it under the Resolvend thus, and subtract it therefrom.

\[
\begin{align*}
45796 & \quad (21 \\
4 & \\
41 & \quad 57 \\
\hline
& \quad 41 \\
& \quad 41 \\
16 & \\
\end{align*}
\]

Then bring down the next Point, \textit{viz.} 96, and place it on the Right of the Remainder 16 for a new Resolvend or Dividend thus; next double the Quotient, or Part of the Root, \textit{viz.} 21, and place it for a new Divisor to the new Resolvend 1696, thus:

\[
\begin{align*}
45796 & \quad (21 \\
4 & \\
41 & \quad 57 \\
\hline
& \quad 41 \\
& \quad 41 \\
& \quad 42 \\
\end{align*}
\]

Then seek how oft \(42\) in \(169\)? (still reserving or omitting the unit Figure of the Resolvend or Dividend, as aforesaid) and I find I can have it 4 times, which I place in the Quotient, or Place of the Root, and then the Work appears thus:

\[
\begin{align*}
45796 & \quad (214 \\
4 & \\
41 & \quad 57 \quad \text{Resolvend.} \\
\hline
& \quad 41 \\
& \quad 424 \quad 1696 \quad \text{Resolvend.} \\
& \quad 1696 \quad \text{Product.} \\
\end{align*}
\]
The Young Man's Best Companion.

In the last Step, I place 4 in the Root, and likewise 4 behind the Divisor 42, which makes the new Divisor 424 to the Resolvend 1696; which Divisor multiplied by 4, the Figure last placed in the Root, produced 1696; equal with the Dividend or Resolvend aforesaid, as in the Operation may be seen. So that the Square Root of 45796 is 214; for 214, multiplied into itself, produces 45796, the Number given, whose Square Root was sought.

More Examples.

What's the Square Root of 12299049 (3507 the Root?)

1st Divisor 65) 329 Resolved.
325 Product.

2d Divisor 700) 490 Resolvend.
000 Product.

3d Divisor 7007) 49049 Resolvend.
49049 Product.

(0)

Decimally.

. . . . .
160,000000(12,649

1 Divisor 22) 66
44

2d Divisor 246) 1600
1476

3d Divisor 2524) 12400
10096

4 Divisor 25289) 230400
227601

(2799)

Note,
Note, That when the Divisor cannot be had in the Resolvend, then place a Cypher in the Quotient, and also on the Right of the Divisor, and bring the Resolvend a Step lower, and then bring down the next Square, &c. as in the Example above may be seen.

Note further, If any Remainder happen to be after Extraction, you may proceed by annexing Pairs of Cyphers to the Left of the given Number, and so come to what Exactness you please.

Note also, Such Numbers given for Extraction that leave Remainders, are by some called Irrationals, because their Roots cannot be exactly discovered, but still there will be something remaining, though you work by whole Numbers of Fractions; As in the Example above, where the Remainder is 2799.

The Extraction of the Cube Root.

To extract the Cube Root of any Number, is to find another Number, which multiplied by itself, and that Product by the Number found, produces the Number given for Extraction.

From the foregoing Table for Extraction of the Square Root, proceed the several Squares of the Cube Root, viz.

<table>
<thead>
<tr>
<th>Roots</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Squares</td>
<td>1</td>
<td>4</td>
<td>9</td>
<td>16</td>
<td>25</td>
<td>36</td>
<td>49</td>
<td>64</td>
<td>81</td>
</tr>
<tr>
<td>Cubes</td>
<td>1</td>
<td>8</td>
<td>27</td>
<td>64</td>
<td>125</td>
<td>216</td>
<td>343</td>
<td>512</td>
<td>729</td>
</tr>
</tbody>
</table>

1st, To prepare any Number for Extraction, make a Point over Unity, and so successively over every third Figure, missing two between each Point; but in Decimals, you must point from the Place of Units to the Right-hand, &c.

Example.

Extract the Cube Root of 46656, prepared thus, as above directed.

Here are but two Points, therefore the Root will have but two Places.

2dly, The Number being prepared, seek in the foregoing Table the nearest Root to the first Point or Period 46, which you will find to be 3, which place in the Quotient thus, 46656 (3 the Cube or Triple whereof, viz. 3, is 27, which
which place under your first Point 46, as in
the Margent; the which subtract from 46, 46656 (3
and there rests 19; this is your first Work, 27
and no more repeated. Then to the Re-
mainder 19, bring down the next Period, 19
vix. 656 (which is the last) and place it on the Right of
the Remainder 19, thus;

\[
\begin{array}{c}
46656 (3 \\
27 \\
\hline
19656 \text{ Resolvend.}
\end{array}
\]

Then draw a Line under the Resolvend; next square the
3 placed in the Quotient; which makes 9, which multiplied
by 300 makes 2700 for a Divisor, which place accordingly
thus;

\[
\begin{array}{c}
46656 (3 \\
27 \\
\hline
2700) 19656
\end{array}
\]

Then seek how often 2 in 19? Answer, but 6 times, be-
cause of the Increase that will come from the Quotient, then
multiply the Divisor by 6, and the Product will be 16200;
which place orderly under the Dividend thus;

\[
\begin{array}{c}
46656 (36 \\
27 \\
\hline
19656 \\
16200
\end{array}
\]

Then proceed to find the Increase coming from the Quo-
tient thus; Square your last Figure 6, and it makes 36;
which multiply by 3, the other Figure of the Quotient, it
gives 108; which multiplied by 30, makes 3240. This
place also orderly under the last Number before set down,
viz. 16200, and the Work will appear thus;

\[
\begin{array}{c}
46656 (36 \\
27 \\
2700) 19656 \\
16200 \\
3240 \\
216 \\
\hline
19656
\end{array}
\]

Dividend.
Then cube the figure last placed in the Quotient, \( \text{viz. } 6 \), and it makes \( 216 \); which place orderly likewise under the Line \( 3240 \), as above, then add the three Lines together, and they make \( 19656 \) (for so many you always have after the first Operation.) And seeing the Total to be equal to the Dividend above, \( \text{viz. } 19656 \), and no more Periods to bring down, I see the Work is finished, and find the Cube Root of \( 46656 \) to be \( 36 \).

Some Geometrical Problems useful in Mensuration.

Upon a right Line given to erect a Perpendicular, as in Figure 1.

Let \( CD \) be the Line given to have a Perpendicular raised on it from \( B \), with the Compasses (opened at a small convenient Distance) place one Foot in the point \( B \), and with the other make two marks \( E \) and \( F \), on either Side of \( B \); then open the Compasses to a more large and convenient Distance, and make the Arch \( GG \), by setting one Foot in \( E \), and as near as you can over the Point \( B \), then (the Compasses being open at the same Distance) place one Foot on the Point \( F \), and describe the Arch \( HH \), crossing the former at the Point \( A \); thro' which Intersection with a Ruler draw the Line from \( A \) to \( B \), which will be perpendicular to the Line \( CD \).

How to raise a Perpendicular on the End of a Line.

This is effected several Ways; but I shall instance only two, which are very easy. See Figure 2.

First Method.

Suppose the Line \( AB \) be given to raise a perpendicular towards the End.

First open your Compasses to any small distance, and set one Foot in the Point \( A \); and with the other describe the Arch \( FED \); then with one Foot of the Compasses in \( D \) (they being opened to the same Distance) cross the Arch in \( E \); and then setting one Foot in \( E \), with the other make the Arch \( AFG \), crossing the first Arch in \( F \). Again, set one Foot in \( F \), and with the other describe the small Arch \( HH \), crossing the former in the Point \( C \); so the Line \( AC \) being drawn is the Perpendicular required.
Admit \(B\) be the Point given on which to draw the Perpendicular \(BI\). Open the Compasses to any small Distance; and setting one Foot in the Point \(B\), pitch down the other Foot at Random, as suppose at \(K\); then the Foot resting in \(B\), turn the other about till it crosses the Line \(AB\) in \(L\); the draw the Line \(KL\), and set the same Distance \(KL\), which the Compasses already stand from \(K\) to \(M\); so a Line drawn from \(B\), thro' \(M\), is the Perpendicular on the End the Line \(AB\).

**How to divide a Right Line into two equal Parts, and Right Angles; as in Figure the 3d.**

Suppose the Line \(AB\) to be given to be divided into 2 equal Parts, at Right Angles. Take in the Compasses any Distance above Half the Length of \(AB\), and setting one Foot in the Point \(A\), with the other draw the Arch \(CDE\); then (the Compasses unaltered) set one Foot in \(B\), and with the other cross the former Arch both above and below the Line in the Points \(F\) and \(G\); then a Line drawn from \(F\) to \(G\) shall intersect, or cut the given Line in \(H\), and divide the Line \(AB\) into two equal Parts, and at Right Angles.

**Of Parallel Right Lines:**

Right lined Parallels, are Lines drawn on a Plane of equal Length and Distance; and tho' infinitely extended will never meet, and in all Parts retain an equal Distance such as these underneath.

\[
\begin{align*}
B & \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad C \\
C & \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad D
\end{align*}
\]

To draw a Right Line Parallel to another Right Line at a Distance given; as in Figure the 4th.

Take in your Compasses the given distance \(GH\), then setting one Foot in \(E\), draw the Arch \(IK\); then moving to \(F\), describe the Arch \(LM\); then laying a Ruler on the Top of the two Arches, just touching them, draw the Line \(NO\), which will be parallel to the given Line \(EF\).

To bring any three Points (not in a Straight Line) into a Circle, by finding the Centre, so that the Circle shall pass thro' those Points; as in Figure the 5th.

Let the three Points given be \(AB\) and \(C\), through which it is required that a Circle be drawn. First, set one Foot on
the Compasses in one of the given Points, as suppose in $A$, and extend the other Point to $B$, another of the Points, and draw the Arch of a Circle $G F D$; then (the Compasses not altered) set one Foot in $B$, and with the other cross the said Arch with two small Arches, in the Points $D$ and $E$, and draw the Line $D E$. Thirdly, set one Foot in $C$, (the Compasses being at the same Distance) and with the other Foot cross the first Arch $F D$ in the Points $F$ and $G$, and draw the Line $F G$, crossing the Line $D E$ in the Point $O$, which is the Centre sought for; in which, place one Foot of the Compasses, and describe the Circle at the Distance $O A$, and it passes through all the given Points $A B$ and $C$.

**How to make a Line of Chords Geometrically, to any assigned Length or Radius.**

Since in the Art of Dialing, there is frequent Use made of the Line of Chords, it is proper here to shew the Making thereof.

A Line of Chords is 90 Degrees of the Arch of a Circle, transferred from the Limb of a Circle to a Straight Line; now every Circle, whether great or small, is divided (or supposed to be divided) into 360 equal Parts, called Degrees: So the Semi or Half Circle contains 180, the Quadrant or Quarter 90, and the Radius or Semi-diameter (which is that Line on which the Circle or Semi-circle is drawn or described) noted in Figure the 6th of the Line of Chords, with the Letters $A B$, is always equal to 60 Degrees of that Circle which it describes, and therefore 60 Degrees of a Line of Chords is called the Radius thereof.

**To make the Line of Chords:** As in Figure the 6th.

First draw a Line of any Length, as $C B D$, and on the Middle thereof draw the Perpendicular $A B$; next open your Compasses to the Radius or Length that you would have your Line of Chords be of; which admit $A B$. And with that Distance on $B$, as the Centre, describe or draw the Semi-circle $C A D$, which is divided into two equal Parts, or Quadrants, by the perpendicular Line $A B$; thirdly, divide the Arch or Quadrant $A R D$, in 90 equal Parts or Degrees; which is done by taking the Length of the Lines $A B$, and setting that Distance on the Quadrant $A D$, and from $D$ to $R$; so is $D R$ 60 Degrees, and $A R$ 30 Degrees; then take the Distance $A R$, and set it from $D$ to $S$, so is the Quadrant divided into three equal Parts, at the Point $S$, and $R$, each
containing 30 Degrees; this done, divide the several Spaces between AR, RS, and SD, into three equal Parts, each of which will be 10 Degrees, according as the Numbers are seen and set apart to them: And these again divided into two equal Parts, each Part contains 5 Degrees; and every of those into 5 smaller, as in the Representation; and so the whole Quadrant is divided into 90 Degrees. Fourthly, The Quadrant ARSD being thus divided into 90 Degrees, set one Foot of the Compasses in D, and open the Foot to A, and describe the Arch AEF, touching the Line CD, in F; so is the Point F, upon the Right Line CD, the Chord of 90 Degrees. Fifthly, open the Compasses from D to 80 Degrees, and describe the Arch 80 GH; so shall the Point H be the Chord of 80 Degrees. Sixthly, Open the Compasses from D to 70, describe the Arch 70 IK, so is K the Chord of 70 Degrees. Again, Open the Compasses from D to R, the Radius of 60 Degrees, and describe the Arch RLB, so is B the Chord of 60 Degrees, equal to the Radius. Do the same by 50, 40, 30, 20, and 10, and then you will have the Line DF divided into 90 unequal Parts, called Chords, as in Figure 6.

Thus much for the Line of Chords, frequently made use of in Dialling, where there is not the Conveniency of having a Mathematical Instrument-maker near at hand.

Note, A Degree is the 360th Part of any Circle, and every Degree is supposed to be divided into 60 equal Parts, called Minutes; and every Minute is supposed to be subdivided into 60 equal Parts called Seconds, &c.

Of Mensuration of Plains and Solids.

The several Kinds of Measuring are three, viz.

1st, Lineal, by some called Running Measure, and is taken by a Line, and respects Length without Breadth; the Parts of which are,

12 Inches 1 Foot, 3 Feet 1 Yard, 16 Feet and Half a Rod, Pole, or Perch.

All Kinds of ornamental Work, such as Cornice Freeze, &c. are measured by Running Measure.

2dly, Superficial, or flat square Measure is that which respects Length and Breadth; and the Parts are, viz.

144 Inches one Foot, 72 Inches half a Foot, 36 Inches one Quarter of a Foot, 18 Inches Half a Quarter of a Foot, 272 Inches and a Quarter one Rod, 136 Feet Half a Rod; 1296 Inches, or 9 Feet, one superficial square Yard.
Solid, or Cube Measure, which respects Length, Breadth and Depth, or Thickness; and the Parts are, *viz.*

1728 Inches 1 Foot, 1296 Inches three Quarters of a Foot, 864 Inches Half a Foot, 432 Inches one Quarter of a Foot, and 27 Feet 1 solid Yard.

**Superficial Measure.**

To measure Things that have Length, and Breadth, such as Boards, Glass, Pavement, Wainscoat, and Land, is to take the Dimensions of the Length and Breadth, according to the customary Method used in each Particular; as Board and Glass are measured by the Foot, but the Dimensions are taken in Feet and Inches, and the Content given in Feet.

Wainscot and Paving by the Yard, as are also Plaistering and Painting, and the Dimensions are taken in Feet and Inches; and the Content given in Yards.

Dimensions of Land are taken by the Pole or Chain, of 4 Poles in Length; all which is taken in square Measure superficial, that is, an Inch, Foot, Yard or Pole; which is not only sometimes in Length, but also as much in Breadth too; or if it wants of it one Way, it must be made up the other.

**Of the Square.**

The squaring of any Number, is multiplying it into itself, as 12 Inches multiplied by 12 Inches, make 144 Inches square, on the Flat. The Square of any Thing is found four several Ways, *viz.* by whole Numbers, by Decimals, by Practice, and by Cross Multiplication; in each of which Methods I shall give Examples of Operation.

When any thing is to be measured, it must be considered what Form or Fashion it is of; and then it must be measured according to the several Rules for each Figure.

First, If it be a Square of equal or unequal Sides, that is, one Way longer or wider than the other (as Boards are almost always much longer than they are broad) then the Length and Breadth must be multiplied one by the other, which makes it square Measure, as was hinted before; and if that Product be divided by its proper Divisor, as 144 is the Divisor for flat or superficial Measure, and 1728 the Divisor for cube or solid Measure; the first being the square Inches in a superficial square Foot, and the other the cubick square Inches in a solid Foot square.

**Example.**

Admit a Board be 12 Inches broad, and 8 Feet, or 96 Inches long, how many square superficial Feet doth it contain?
The Young Man's Best Companion.

Here the Length in Inches is multiplied by the Breadth in Inches, and the Product 1152 divided by 144, the square Inches, in a Foot, quotes 8 Feet square for the Contents of the Board.

A general Rule for Dispatch.

If the Length of a Board, or Piece of Glass be given in Feet and the Breadth in Inches, multiply one by the other (without any Reduction) and divide the Product by 12, and the Quotient will be the Answer in Feet, and the Remainder will be Parts of a Foot. So the foregoing Example might have been sooner done by dividing 96 in Length, by 12 the Breadth, and it quotes 8 Feet for the Contents, as by the former Way.

Example.

Suppose a Board be 14 Feet long, and 15 Inches broad, what's the Content in square Feet?

14 Feet long.
15 Inches broad.

So the Answer is 17 Feet and ½. And so for any other Example of this Kind.

Here 3 Inches is the 2 of a Foot, whereof 2 of 14 is taken and added to 14, and it makes 17 Feet and 2, equal to 2.

If a Board be wider at one End than the other, then take the Breadth in the Middle, or add the Measure of both Ends toge-
together and take the Half for the mean Breadth, which multiply by the Length.

**Example.**

Suppose a Board to be 120 Inches long, and the narrowest End 10 Inches wide, and the broadest End 24 Inches wide; what is its Content in superficial Feet?

Add \[ \{ \text{34 broadest End.} \]  
\[ \{ \text{10 narrowest.} \]  

the 44 Half is 22 the Medium.  
120 the Length.  

\[
\begin{array}{r} 
144 \\ 2640 \\
\hline 
144 \\
1200 \\
1152 \\
\end{array}
\]

Rem. 48 | 4 | 1  
\[
\begin{array}{r} 
144 \\ 12 \\
\hline 
144 \\
12 \\
3 \\
\end{array}
\]

is \( \frac{1}{2} \) of 144. 

Or thus.

**Feet.**  **Inches.**

10 — 00 narrowest End.  
2 — 10 the mean Breadth.  

**In.** 10 — 00  

For 10 In. \[ \{ \text{6 \( \frac{1}{2} \) 5 — 00} \]  
\[ \{ \text{4 \( \frac{1}{3} \) 3 — 04} \]  

18 — 04 Answer.

If a Board or Piece of Glass be ever so irregular, it may be measured very near, by taking the Breadth in 5 or 6 Places, and add the several Breadths together, dividing the Total by the Number of Places, and the Quotient will be the mean Breadth; which multiply by the Length, &c.

Having the Breadth in Inches of any Board, or Piece of Glass, to know how much in Length of that Board or Piece of Glass, will make a Foot Superficial.
Rule. Divide 144 by the Inches in Breadth, and the Quotient will be the Length of that Board that will make a Foot.

Example.

If a Board be 9 Inches broad, what Length of that Board will make a superficial Foot?

Or by the Rule of Three Reverse, thus,

\[
\begin{array}{ccc}
9 & \mid 144 & \div I. b. & I. l. & I. n. \\
\hline
& & & & \text{If 12 give 12, what 9 broad?} \\
\end{array}
\]

Inches 16 \text{ Answer. 12}

\[
\begin{array}{ccc}
9 & \mid 144 & \div I. b. & I. l. & I. n. \\
\hline
& & & & \text{Answer. 16 Inches.} \\
\end{array}
\]

If a Board be 12 Feet \(\frac{1}{2}\) long, and 15 Inches broad, how many square Feet doth it contain?

\text{Vulgarly.}

\[
\begin{array}{c}
\text{Inches.} \\
150 \text{ long.} \\
15 \text{ broad.} \\
\hline
750 \\
15 \\
\hline
144) 2250 (15 \text{ Feet.}) \\
144 \\
\hline
810 \\
720 \\
\hline
\text{Remainder 90} \\
\text{Multiply by 12 Inches 1 Foot.} \\
\hline
144) 1080 (7 \text{ Inches.}) \\
1008 \\
\hline
\text{Remainder}. \ .72 \\
\text{by 4 \(\frac{1}{4}\) of an Inch.} \\
144) 288 (2 \(\frac{1}{4}\) or \(\frac{1}{2}\)) \\
288 \\
\hline
\end{array}
\]

\text{Decimally.}

\[
\begin{array}{c}
12.5 \\
1.25 \\
\hline
6.25 \\
2.50 \\
1.25 \\
\hline
15.625 \\
12 \\
\hline
7.500 \\
4 \\
\hline
\text{Quarters 2,000}
\end{array}
\]
### By Cross Multiplication.

<table>
<thead>
<tr>
<th>Feet</th>
<th>In.</th>
<th>Feet</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>6</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>6</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>1/2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ \text{Facit} \quad 15\frac{7}{2} \]

### By Practice.

<table>
<thead>
<tr>
<th>Feet</th>
<th>In.</th>
<th>Feet</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>6</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>1\frac{1}{2}</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ \text{Facit} \quad 15\frac{7}{2} \]

Here the Content is found four several Ways, \textit{viz.} by multiplying the Inches together, and dividing by 144, &c. The next Work is performed Decimally; the third Method is by cross Multiplication; and the last and best is by Practice.

Any of these Methods may be easily understood by the Use of the Arithmetical Part of this Book, except the Method by Cross Multiplication, which, I think, hath not been shewn; wherefore I shall explain it here.

In the Example, 1 Foot 3, stands under 12 Feet 6; and having drawn a Line, say, once 12 is 12; then I say Cross-way, 6 times 1 is 6 Inches; so that Line is 0 Feet, 6 Inches; Then Cross-ways again, I say 3 times 12 is 36 Inches, the 12's in 36 is 3 times, or 3 Feet; so that Line is 3 Feet 0 Inches. Lastly, I multiply the Inches together, saying, 3 times 6 is 18, the 12's in 18 once, and there remains 6, or \[ \frac{6}{12} \], equal to \[ \frac{1}{2} \], as in the Work.

**Proper Directions for Joiners, Painters, Glaziers, &c.**

Rooms being generally various in their Forms, take this general Rule in all Cases, \textit{viz.}

Take a Line, and apply one End of it to any Corner of the Room; then measure the Room, going into every Corner with the Line, till you come to the Place where you first began; then see how many Feet and Inches the String contains, and set it down for the Compass or Round; then take the Height by the same Method.

Glaziers are to take the Depth and Breadth of their Work, and multiply one by the other, dividing by 144; Glass being measured as Board.

Having
Having thus shewn the Method of casting up Dimensions, I come now to Particulars; and the first of

Glaziers Work, by the Foot.

If the Window be square, multiply the Length by the Breadth, which will produce the Content, as above said.

Examples.

A Window glazed
By Cross Multiplication

<table>
<thead>
<tr>
<th>Feet.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
</tr>
</tbody>
</table>

\[ 56 \times 0 = 3 \text{ Inches} \]

\[ 61 \times 3 = 63 - 5 \frac{1}{4} \text{ Answer.} \]

If the Windows are arched or have a curved Form, no Allowance is made by Reason of the extraordinary Trouble, and Waste of Time, Expence or Waste of Glass, &c. And the Dimensions are taken from the highest Part of the Arch, down to the Bottom of the Window, for the Height or Length, which multiply by the Breadth, and the Product will be the Answer in Feet, &c.

Glaziers are often so very nice, as to take their Dimensions, and to measure to a Quarter of an Inch.

Example.

<table>
<thead>
<tr>
<th>Feet.</th>
<th>In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3 \frac{1}{2} long.</td>
</tr>
<tr>
<td></td>
<td>2 Feet 7 \frac{1}{4} broad.</td>
</tr>
</tbody>
</table>

\[ 8 - 7 = 1 \frac{1}{4} \]

\[ 6 \frac{1}{4} \times \frac{3}{4} = 1 \]

\[ 11 - 4 \frac{3}{4} \]

Glass is measured by the Foot, as said before; and the Price of Work in England, in Sterling Money is as follows, viz.

English
The Young Man's Best Companion.

<table>
<thead>
<tr>
<th>Material</th>
<th>Price per Foot (Common Work, Leading included)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Glass</td>
<td>0.5</td>
</tr>
<tr>
<td>French and Crown Glass</td>
<td>1.0</td>
</tr>
<tr>
<td>New Leading old Glass</td>
<td>0.3</td>
</tr>
<tr>
<td>Common Diamond Squares</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Painters Work by the Yard.

When the Wainscot of a Room is painted, you are to measure round the Room with a Line, as hinted before, without girting the Mouldings, which are to be measured by a String, and added to the other; then multiply the Compass by the Height, with the Addition of the Mouldings, &c. and you have the Content in Feet and Inches, which reduced to Feet, bring into square Yards by dividing by 9.

Example 1.

A Room painted.
Feet. In.

Being 45—8 in Compass, What is the Content in square 10 Feet 6 high. Yards?

\[ \begin{align*}
456 &- 8 \\
22 &- 10 \\
9 &\text{)} 479 &- 6 \\
\end{align*} \]

Yards 53—2—6 Answer.

Example 2.

If the Height of a Room painted be 12 Feet 4, and the Compass 84 Feet 11; what square Yards doth it contain? Answer 116 Yards 3 Feet 3 \( \frac{3}{4} \).

Feet. In.
84—11 Compass.
12 F. 4 high.

\[ \begin{align*}
\text{In.} & 1019—00 \\
4 &\frac{1}{3} & 28 &- 03 &\frac{2}{3} \\
9 &\text{)} 1047 &- 03 &\frac{2}{3} \\
\end{align*} \]

Yds. 116—03—3 \( \frac{2}{3} \) Ans.

Note, Double Work is allowed in Window-Shutters; Sash-Frames and Mantlepieces are reckoned by themselves, unless the Mantlepieces stand in the Wainscot, and then they are to be measured as plain Work, deducting nothing for the Vacancy.
Prices in England.

<table>
<thead>
<tr>
<th>Description</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common coloured, 3 Coats in Oil, per Yard</td>
<td>0-6</td>
<td></td>
</tr>
<tr>
<td>On old Colour</td>
<td>0-4</td>
<td></td>
</tr>
<tr>
<td>Walnut-tree Colour</td>
<td>1-0</td>
<td></td>
</tr>
<tr>
<td>Marble Colour, from 16d. to</td>
<td>2-0</td>
<td></td>
</tr>
<tr>
<td>Sash-Frames, each</td>
<td>1-0</td>
<td></td>
</tr>
<tr>
<td>Sash-Lights, each</td>
<td>0-1</td>
<td></td>
</tr>
<tr>
<td>Window-Lights, one with another</td>
<td>0-3</td>
<td></td>
</tr>
<tr>
<td>Iron Casements</td>
<td>0-3</td>
<td></td>
</tr>
</tbody>
</table>

Joiners Work.

WAINSCOTING, the Dimensions are taken as in Painting, viz. by measuring the Height (indenting the String where ever the Plane goes, as well as the Painters do where ever the Brush goes) and then the Compass; which multiply one into the other, dividing the Product by 9, and the Quotient is the Answer in square Yards.

Example.

What is the Content of a Piece of Wainscoting that is 9 Feet 3 Long, and 6 Feet 6 broad?

Feet. In.

\[
\begin{array}{c}
9-3 \\
6 F. 6 \\
- \\
55-6 \\
In. 6 \frac{1}{2} \\
4-7 \frac{1}{2} \\
\end{array}
\]

\[
9) \ 60-1 \ \frac{1}{2} \ \text{Yds. } \frac{2}{3} \ \text{Ans.}
\]

\[
\begin{array}{c}
54 \\
6 \\
\end{array}
\]

By Cross Multiplication thus:

Feet. In.

\[
\begin{array}{c}
9-3 \\
6-6 \\
\end{array}
\]

\[
\begin{array}{c}
54-0 \\
4-6 \\
1-6 \\
\end{array}
\]

\[
60-1 \ \frac{1}{2} \ \text{as before, which divide by } 9, \ &c.
\]
Once more.

There is a Room wainscoted, the Compas of which is 47 Feet 3 Inches, and the Height 7 Feet 6 Inches; what's the Content in Yards square? Answer 39 Yards ½.

<table>
<thead>
<tr>
<th>Feet</th>
<th>Yards</th>
</tr>
</thead>
<tbody>
<tr>
<td>47</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>7 F.</td>
<td>2 Yds. 6</td>
</tr>
<tr>
<td>6 In.</td>
<td>31</td>
</tr>
<tr>
<td>½</td>
<td>6 In. 10½</td>
</tr>
<tr>
<td>354</td>
<td>9 Yds. 4½</td>
</tr>
</tbody>
</table>

Answer. 39 Yds. 3 or 1 ½

The Prices per Yard.

<table>
<thead>
<tr>
<th></th>
<th>s.  d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>For good Wainscot</td>
<td>6-0</td>
</tr>
<tr>
<td>Wainscoting, not finding Stuff, &amp;c.</td>
<td>2-0</td>
</tr>
<tr>
<td>Coarse Wainscoting</td>
<td>1-0</td>
</tr>
<tr>
<td>Deal Wainscot, finding Stuff</td>
<td>3-0</td>
</tr>
<tr>
<td>Not finding Stuff</td>
<td>1-6</td>
</tr>
</tbody>
</table>

Carpenters Work.

ROOFING, Flooring and Partitioning, the principal Carpentry in modern Buildings, are measured by the Square of 10 Feet each Way, that is 100 square Feet.

For Roofing, multiply the Depth and half Depth, by the Front: or the Front and half Front by the Depth, and you'll have the Contents.

The Dimensions are taken in Feet and Inches.

Example.

How many Squares deth that Piece of Work contain that measures 199 Feet 10 Inches in Length, and 10 Feet 7 Inches in Height? Answer 21 Squares, 14 Feet, 10 Inches ½.

Operation,

<table>
<thead>
<tr>
<th>Feet</th>
<th>Yards</th>
</tr>
</thead>
<tbody>
<tr>
<td>199</td>
<td>14</td>
</tr>
<tr>
<td>10</td>
<td>10½</td>
</tr>
<tr>
<td>1998</td>
<td>21</td>
</tr>
<tr>
<td>6½</td>
<td>99</td>
</tr>
<tr>
<td>1½</td>
<td>16</td>
</tr>
</tbody>
</table>

This Work is done by cutting off two Places toward the right Hand, and the Number on the Left are Squares, &c.

Again,
Again.

If a Floor be 49 Feet 7 Inches 4 Parts long, and 26 Feet 6 Inches broad; how many square Feet?

The Operation by Cross Multiplication.

<table>
<thead>
<tr>
<th>Feet</th>
<th>In.</th>
<th>Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>49</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>26</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

\[
\begin{align*}
\text{Answer: } & 13 \text{ Squ. Feet, } 14 \text{ Feet, } 8 \text{ In. } 4 \text{ Pts.}
\end{align*}
\]

Note, In measuring Roofing, no Deduction is made for Skylights, Chimney-Shafts, &c.

In measuring Flooring, take the Dimensions of the whole Floor at once in Feet, and then measure the Content in superficial Feet of the Vacancy for the Stairs, Hearths, &c. which deduct from the whole Floor, and the Remainder is the true Content; which bring into Squares as before.

Note, In Partitioning, you must measure the Doors, Door-cases and Windows, by themselves, and deduct their Content out of the Whole; except by Agreement they are included; and then you must mention in the written Agreement, Doors, Door-cases and Windows, included.

There are divers Sorts of Carpenters Work belonging to a Building, viz. Cantaliver-Cornice, Modilion-Cornice, Plain-Cornice, Guttering, Rail and Ballusters Lintale Penthouse-Cornice, Timber-front, Story, Breast-sommers, Shelving, Dresser, &c. all which are measured by Lentials, or Running Measure. There are also Doors and Door-cases, Lanthorn Lights, with their Ornaments, Balcony-Doors and Cafes, Cellar Doors and Curbs, Columns and Pilasters, Cupolas, &c. all which are valued by the Piece.

Carpenters Work in England, is done at the following Sterling Prices, viz.

<table>
<thead>
<tr>
<th>l.</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flooring, finding Boards, the Square</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Not finding Boards, from 2s. 6d. to</td>
<td>0</td>
<td>06</td>
</tr>
</tbody>
</table>
Roofing with Oak
Not finding Timber
Partitioning per Square
Not finding Timber
Stairs with Rails and Ballusters compleat
Sawing of Oak and Elm per 100 Feet
Trees for Fences

Oak timber is commonly sold for 40s. per Tun, that is 40 Feet square in the Place; Ash 30s. and Elm 28s per Tun.

Note, Carpenters measure the Timber Frames of any Building (which they call the Carcase) by the Square of superficial Measure, or 100 square Feet, as hinted before.

Bricklayers and Tyler's Work.

Of Walling.

WALLING is measured by the Rod Statute-Measure, being 272 Feet and \( \frac{1}{2} \) superficial. The Method of taking their Dimensions is thus; for a Wall round an Orchard or the like, they measure the Length by a Line going over the Buttresses; and for the Height, they measure over the Mouldings (pressing the Line into them) even to the Middle of the Coping: They likewise take Notice of the Thickness of the Wall, that is how many half Bricks in Length the Wall, as in Thickness; for three half Bricks, that is a Brick in Length, and one in Breadth, is Standard thickness; And all Walls, whether less or more, must be reduced to that Thickness, by this Rule, viz. Multiply the Product of the Length and Height, by the Number of half Bricks that the Wall is in Thickness: which Product divide by three, and then the Quotient by 272 (the \( \frac{1}{2} \) being generally neglected in Vulgar Working) and the Quotient will be Rods, at a Brick and half thick Standard Measure.

Example.

Admit the Face of the Wall measure 4085 Feet, and the Thickness be two Bricks and a Half, or five half Bricks thick. how many Rods doth it contain?
When the Work is wrought Decimally, then you divide by \(272 \frac{3}{4}\), or \(272, 25\), which gives the Quotient somewhat less. But the Measuring of Brick-Work may be shortened by having the Rod of 16 Feet \(\frac{1}{2}\) centesimally divided into 100 equal Parts, with which you take the Dimensions, and the Length of the Wall in those Rods; and 100 Parts multiplied by the Height, give the Content in Rods, of any Wall that is a Brick and half Thick. Deduction must be made for Doors, Windows, &c.

A Table to reduce Brick-Work to Standard Measure, i.e. a Brick and a Half-Thick.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Subtract (\frac{3}{4})</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Add (\frac{3}{4})</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Multiply (\frac{3}{4})</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Add (\frac{1}{2})</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Multiply (\frac{1}{2})</td>
<td></td>
</tr>
</tbody>
</table>

Reduces to a Brick and Half.

Example.

Suppose a Garden-Wall to be 254 Feet round, and 12 Feet 7 Inches high, and three Bricks thick; how many Rods doth it contain?

\[
\begin{align*}
254 & \quad 12 \\
\text{In.} & \quad 3048 \\
6 \frac{1}{2} & \quad 127 \\
1 \frac{1}{2} & \quad 21 - 2 \\
\text{Total} & \quad 3196 - 2 \\
\end{align*}
\]

In this Operation, the Aggregate, or Total, is multiplied by 2, because twice \(3\) is 6, the Number of half Bricks; and that reduces the Work to Standard-Measure, as by the Table above.

\[
272) 6392 - 4 (23, \frac{1}{2} \text{ Rods})
\]
This Brick Work is commonly agreed for by the Hearth, and also sometimes by the Rod; and the Method of taking Dimensions is thus: If the Chimney stands singly, not leaning against, or being in a Wall, and worked upright over the Mantle tree to the next Floor; it is girt about the Breast for the Length, and the Height of the Story is taken for the Breadth, and the Thickness of the Jaums for the Thickness. But if the Chimney stands against, or in a Wall, which is before measured with the rest of the Building; then the Breadth of the Breast or Front, together with the Depth of the two Jaums, is the Length; the Height of the Story the Breadth, and the Thickness of the Jaums the Thickness; but if the Chimney stands in the Corner of a Room, and has no Jaums, then the Breadth of the Breast is the Breadth, the Height of the Story the Length, and the Thickness the Thickness. And for the Shaft it is commonly girt in the smallest Part, for the Length; and the Thickness of both Sides, for the Thickness; in Consideration of the Widths, Pargeting, Scaffolding, &c.

Note, There is nothing to be deducted for the Vacancy between the Hearth and the Mantle-tree, because of the Widths and the Thickening for the next Hearth above.

Arches are measured by taking the Breadth and half the Breadth of the Arch, and add them together; and then to multiply the total by the Length, for the Content in Thickness of the Arch.

Gable Ends.

Take half the Perpendicular for the Breadth, and the Width of the House for the Length, or half the Width of the House for the Breadth, and the Perpendicular for the Length; which brings the Measure to an Oblong, which is easily measured by multiplying the Length by the Breadth, &c.

Note, A Perpendicular is a down or upright Line in the Work thus; There are several other Things in Bricklayers Work: as Cernice, Facias, Straight Arches, Scheme Arches, Hips and Valleys in Tiling, and Water Courses: All which are measured by the Foot Lineal, or Running Measure. Also Peers, Pilasters, Rustick Work, &c. which are valued by the Piece. English Prices in Sterling Money.

For Walls, finding Materials —— 5—00—0 per Rod.
Not finding Materials —— 1—10— ditto.
The Young Man's Best Companion.

Prices.  

<table>
<thead>
<tr>
<th>Description</th>
<th>l. s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>For Tylimg, finding Materials</td>
<td>1—05—0 per Square.</td>
</tr>
<tr>
<td>Not finding Materials</td>
<td>0—05—0 ditto</td>
</tr>
<tr>
<td>For Tylimg, finding Materials except Tiles that is 15 Feet square</td>
<td>0—10—0 per Rod,</td>
</tr>
<tr>
<td>For striping without taking down</td>
<td>0—05—6 ditto.</td>
</tr>
<tr>
<td>With taking down</td>
<td>0—07—0 ditto.</td>
</tr>
<tr>
<td>For Pointing</td>
<td>0—02—0 ditto.</td>
</tr>
</tbody>
</table>

Paving.

Pavement for Cellars, Wash-houses, &c. is measured by the Square Yard.

Example.

If a Cellar, Wash-house or Court-yard, be paved with Bricks, or pitched with Pebble, being 9 Yards 2 Feet long, and 6 Yards 2 Feet broad; how many Yards square doth it contain? Answer, 64 Yards 1 and 4 Feet, as by the following Work.

<table>
<thead>
<tr>
<th>Yds.</th>
<th>F.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9—2</td>
<td></td>
</tr>
<tr>
<td>6—2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>54—0</td>
<td></td>
</tr>
<tr>
<td>6—0</td>
<td></td>
</tr>
<tr>
<td>4—0</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>64—4</td>
<td>Answer.</td>
</tr>
</tbody>
</table>

Feet.

29
20
9|580

Yards 64½

Slating.

Is valued by the Square of 10; in some Places by the Rod of 18 Feet square; that is 36 square Yards, or 324 Feet.

In Tylimg and Slating, where there are Gutters and Valleys, there is commonly Allowance, which is to take the Length of the Roof all along upon the Ridge, which makes the
the Gutter double Measure; which in some Places is allow-
ed, in others not. Sometimes there is an Addition for hol-
low Ware, that is, Ridge Tiles, Gutter Tiles, Corner and
Dormer Tiles; and here Customs differ: For in some Places
they account one superficial Foot for every Foot lineal or
running Measure; then 100 Feet lineal is reckoned a
Square. In other Places, for every 100 of such Tiles they
reckon one Square.

**Plaistering.**

Is of two Kinds, *viz.* *First,* Work lathed and plaistered,
sometimes called Ceiling. *Secondly,* Plaistering upon Brick-
Work, or between the Quarters in Partitioning, by some
called Rendering; both which are measured by the Yard
square, as the Joiners and Painters do. In taking Dimen-
sions of Ceiling, if the Room be wainscoted, they consider
how far the Cornice bears into the Room, by putting up a
Stick perpendicular to the Ceiling, close to the Edge of the
uppermost Part of the Cornice; and measure the Distance
from the perpendicular Stick to the Wainscot; twice which
Distance must be deducted from the Length and Breadth of
the Room taken upon the Floor, and the Remainder is the
true Length and Breadth of the Ceiling: As suppose a Floor
is 24 Feet long, and 18 Feet broad, and the Cornice shoots
out 6 Inches; deduct a Foot for both Ends, and the Length
of the Ceiling is 23 Feet; and the same for the Breadth; it
leaves 17 Feet broad; which (if the Room be square) multi-
tplied together, the Content is 391 Feet, or 43 Yards and
a Half.

*Example 1.*

23 Feet the Length.
17 Feet broad.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td></td>
</tr>
<tr>
<td>161</td>
<td></td>
</tr>
<tr>
<td>391</td>
<td>(43 Yards, 4 Feet.</td>
</tr>
<tr>
<td>36</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td></td>
</tr>
</tbody>
</table>

If the Ceiling of a Room be 19 Feet 10 one Way, and 17
Feet 6 the other, how many square Yards does it contain?
By Cross Multiplication, thus.

\[
\begin{align*}
19 & : 10 \\
17 & : 6 \\
\hline
133 & \\
19 & \\
14 & : 2 \\
9 & : 6 \\
5 & \\
\end{align*}
\]

9) \(347 \cdot 1\) (38 Yds. 5 Feet 1 Inch.

Example 2.

How many Yards square are there in a Piece of Plaistering that is 47 Feet 4 Inches 7 Parts long, and 18 Feet broad?

F. I. Pls.

\[
\begin{align*}
47 & - 4 - 7 \\
3 & and 6 \\
\hline
142 & - 1 - 9 \\
6 & \\
\end{align*}
\]

9) \(852 - 10 - 6\) 94 Yds. 6 Feet, 10 Inch, 6 Parts, Answer.

In measuring Partitioning for Doors, Windows, and other Vacancies, there must be an Allowance or Deduction made, they being Deficiencies.

**Price per Yard in England.**

<table>
<thead>
<tr>
<th>Description</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>For every Yard of common Plaistering, finding Laths, Nails, &amp;c.</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Not finding Laths</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For White-washing with Size</td>
<td>0</td>
<td>1(\frac{1}{2})</td>
</tr>
<tr>
<td>Partitioning, finding all Materials</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

**Masons Work.**

The Masons Work, consisting of Stone, is of two Sorts, viz. Superficial and Solid. Pavement, and the Face of Stone Walls, Houses, &c. are measured as Brick Work. If the Work have Ornaments, as Capitals, Pilasters, Rails and Ballusters, &c. then they are valued by the Piece.

**English Price.**

<table>
<thead>
<tr>
<th>Description</th>
<th>s.</th>
<th>d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>For every Foot of Plain Work in Walls, &amp;c.</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>For plain Cornice, about</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For
For rough Stone Wall, with Lime, 16 Feet $\frac{1}{2}$ long \begin{align*}
\text{d.} & \quad \text{s.}
\text{per Rod} & \quad 1 - 2 \\
\text{and 1 Foot high, per Rod} & \quad 0 - 3
\end{align*}
Without Lime, per Rod \begin{align*}
\text{per square Foot} & \quad 0 - 3
\end{align*}

**Prices of Stone and Urns.**

Rough Paving 1 d. per Foot; Rough Asher, or Coping, 1d. $\frac{1}{2}$ per Foot; Fine Asher, 3d. per Foot; Base per Foot 4d. Carbe, per Foot, 6d. Urns 3 Feet high, 1l. 4 Feet high 1l. 10s. 5 Feet high, 2l. and 6 Feet, 3l.

**Glaziers Work.**

It may be done thus; Multiply the Length in Inches and Parts, by the Breadth in Inches and Parts, and separate the Decimals (if any) as before shewn.

**Example.**

*In. Pts.*

A Piece of Glazing 29,5 long and 7,0 broad.

\[
\begin{array}{c}
144) \quad 206,50 \ (1,5) \\
\hline
144 \\
12) \quad 62 \ (5) \\
\hline
60
\end{array}
\]

So the Contents is 1 f. 5 and $\frac{1}{6}$ of an Inch.

Or thus, as if Shillings and Pence.

\[
\begin{align*}
\text{s.} & \quad \text{d.} \\
2 & \quad 5 \ \frac{1}{4} \\
\hline
7 \\
\text{F. I.} \\
12) \quad 17 - 0 \ \frac{3}{4} \ (1,5 \ \frac{1}{4}) \ \text{Answer.}
\end{align*}
\]

**The Expeditious Way.**

When the Length of any Superficies, either of Board or Glass, is given in Feet, and the Breadth in Inches, then only multiply the one by the other, and divide by 12, and the Quotient will be the Answer in Feet, and the Ré-
Remainder will be the Parts of a Foot; as hath been spoken of before.

Example.

Admit a Window, to be 15 Feet long, and 12 Inches broad.

12) 180 (15 Feet Answer.

Of Board Measure.

Whenever the Breadth is given in Inches, and the Length of the Board in Feet, they only multiply one by the other, and divide the Product by 12, and the Quotient will be the Answer in square Feet: But if the Breadth and Length be given both in Inches, then multiply one by the other, and divide by 144, and the Quotient will be the Answer in square Feet.

Example 1.

Suppose a Board (or any other thing of flat Measure) be 15 Inches broad, and 16 Feet long, what is the Content in square Feet?

\[
\begin{array}{c}
192 \text{ Length in Inches.} \\
15 \text{ Breadth in Inches.} \\
15 \text{ Breadth in Inches.} \\
16 \text{ Length in Feet.}
\end{array}
\]

\[
\begin{array}{c}
144) 2880 (20 \text{ Feet.})
\end{array}
\]

\[
\begin{array}{c}
288 \\
120 \\
12 \\
0
\end{array}
\]

Here the Example is wrought both Ways, as above said, and the Answers are both alike.

Example 2.

Suppose a Board be 8 Inches and \(\frac{1}{4}\) in Breadth, and 16 Feet long; what is the Content in square Feet? The Work follows.

\[
\begin{array}{c}
8\frac{1}{4} \text{ Breadth} \\
4 \text{ and by 4}
\end{array}
\]

\[
\begin{array}{c}
33 \\
4
\end{array}
\]

\[
\begin{array}{c}
12) 132
\end{array}
\]

Answer. 11 Feet.

Example
Example 3.
Again admit a Board 17 Inches \(\frac{1}{2}\) broad, and 28 Feet long, what is the Content?

\[
\begin{array}{c}
17 \frac{1}{2} \\
7 \text{ and } 4 \\
124 \frac{1}{2} \\
4 \\
\hline
12) 497
\end{array}
\]

This Example is multiplied by 7 and 4, the Ratio's of 28 the Length.

Answer 41 Feet \(\frac{1}{2}\)

Once more by the other Way. Suppose a Board be 32 Inches broad, and 37 Feet, or 444 Inches in Length; what is the Content?

\[
\begin{array}{c}
1776 \\
8 \\
144) 14208 \ (98 \text{ Feet and } \frac{2}{3} \\
1296 \\
1248 \\
1152 \\
\hline
(96)
\end{array}
\]

The Parts of a Superficial Foot is 144 square Inches.

Inches.
72 half a Foot.
108 three Quarters.
126 three Quarters and half a Quarter.
36 a Quarter of a Foot.
18 half a Quarter.

In the last Work, I multiply 444, the Inches of the Length, by 4 and 8, the component Parts of 32, the Inches of the Breadth; and then divide the last Product by 144, and the Answer is 98 Feet, and 96 square Inches remain, which is two Thirds of a Foot.

Mr. Darling, in his Treatise of the Carpenter's Rule, hath with great Pains (and no doubt with as great Care) given a great many Tables for the Answer of sundry Dimensions in Board and Timber Measure; but he measures best, that doth it experimentally by Arithmetic, by those short and easy Rules.
Rules before and hereafter mentioned, and take not Things upon trust: for tho' Tables may be right, so perhaps they may be also wrong (for Error is endless) and then to be wholly guided by such Tables, it would be of sad and very pernicious Consequence; and if the Artist is ignorant of Arithmetick, he will be bewildered and plunged into inextricable Difficulties.—I must confess that Tables are of considerable Help in case of Expedition; but then you must be very well acquainted with them; otherwise I can in much less time cast up the Dimensions, than you shall be in finding out your several Numbers, and adding or subtracting them, &c. No Man that is wise, ought to depend upon any Table for his Government, till he hath proved the Truth of every Line, and he that is able to do that, is capable of making any Table for his own Use; which if he takes care that it be correct, he is well provided, and need not be led into Error or Confusion by false Tables.

Of Land Measure.

LAND is usually measured by the Acre; the Dimensions are taken with a Pole of 16 Feet and a Half; or a Chain called Gunter's Chain, consisting of 4 Poles in Length, and is divided into 100 equal Parts, called Links, answering to Decimal Arithmetick.

Note, 1 Acre contains 160 square Poles; 1 Rod or Quarter of an Acre, 40 square Poles.

Note also, In any Number of Chains are so many 100 Links, as 4 Chains are 400 Links, and 6 Chains 600 Links, &c. In a square Chain are 16 square Poles; and if you divide 160 (the square Poles in one Acre) by 16 (the square Poles in a Chain) the Quotient is 10, the square Chains in 1 Acre.

A square Chain contains 10,000 square Links, (or 100 multiplied by 100) and consequently 1 Acre contains 100,000 square Links.

To measure a Geometrical, or True Square.

A Square is contained under 4 Equal Sides, and 4 Right Angles.

Let Figure 7, represent a square Piece of Land to be measured, every Side whereof is 20 Poles; multiply 20 by 20, being both the Length and Breadth, and the Product
The Young Man's Best Companion.

is 400, for the Content in square Poles, which divide by 160 (the square Poles in 1 Acre) and the Remainder 80 by 40 (the square Poles in a Rod) quotes 2 Acres, and 2 Rods for the Content, as in the Operation.

\[
\begin{array}{c|c}
180 & 0 \\
0 & 40 \\
32 & 0 \\
40 & 80 \\
32 & 0 \\
80 & 0 \\
\end{array}
\]

(0)

Note, The square Root of the Area of any Square is the Side thereof; as in Fig. 7, the Area or Content is 400, whose square Root is 20, the Side of the Square.

To measure a Parallelogram, or Long Square.

A Parallelogram, is contained under 4 Right-angles, but not 4 equal Sides; yet the opposite Sides are equal.

Admit Figure 8, to be a Parallelogram, or Long-Square, whose Length is 21 Chains, 36 Links, and Breadth 11 Chains, 64 Links; what is the Content of that Piece of Land?

The method of casting up the Contents of any Dimensions taken with Gunter's Chain, is to multiply the Chains and Links together, and cutting off 5 Figures towards the Right-hand, the Remainder on the Left-hand will be Acres; then multiply those Figures towards the Right-hand by 4, and from that Product cut off 5 Figures as before; so will the Figure on the Left-hand be Rods: Again, multiply the Remainder last cut off by 40, cutting off also from the Product 5 Figures to the Right-hand, and the Figures towards the Left-hand will be Poles; and if there be any Remainder it will be Decimal Parts of a Pole. So in the present Example, the Answer is 24 Acres, 3 Rods, 18 Poles, and \( \frac{36}{4} \) Parts of a Pole.
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21,36 Length.
11,64 Breadth.

\[\begin{array}{c}
8544 \\
12816 \\
2136 \\
2136 \\
\end{array}\]

Acres 24\,86304
4

Rods 3\,45216
40

Poles 18\,08640

To measure a Rhombus.

A Rhombus or Diamond like Figure, is contained under 4 equal Sides, but not Right-Angles; yet the opposite Angles are equal.

Admit Figure 9 to be a Rhombus, whose Side is 16, and Perpendicular 14; which multiplied together, the Product is 224, for the Area.

To measure a Rhomboides.

A Rhomboides is contained under 4 Lines, whose opposite Sides are equal, and opposite Angles equal; yet not all equal Sides, nor any Right-Angles.

Admit Figure 10, to be a Rhomboides, whose Length is 22, and perpendicular, or parallel Distance, 8, which multiplied together, the Product is 176, for the Area.

To measure any Manner of Triangle.

Every Triangle is half that Long-square, whose Length and Breadth is equal to the Perpendicular and Base. Therefore from the greatest Angle, draw a Line perpendicular to the Base, which multiply by half the Base, and the Product is the Area.

Admit Figure 11 to be a Triangle, whose Base or longest Side is 26 Poles, and the Perpendicular 16 Poles, which multiply
multiply together, and the Product is 416, for the Area of
the Long-square \(EFCB\), half of which is 208, the Area
of the Triangle \(ABC\).

Or if you multiply the Base 26, by 8 the half Perpen-
dicular, the Product is 208, the Area as before.

Or else multiply half the Base 13, by the whole Perpen-
dicular 16, the Product is 208 as before.

To measure a Trapezium.

A Trapezium is contained under 4 unequal Sides, and 4
unequal Angles.

Admit Figure 12 represent a Field; to measure which
draw the Diagonal \(DB\); so is the Figure divided into two
Triangles, which you may measure according to the last
Example, by letting Perpendiculars fall from the Angles
\(A\) and \(C\), upon the Diagonal \(DB\), which will be the Base
Line to each Triangle.

But with more Brevity, you may add the two Perpendi-
culars together, and multiply the Sum of them by half the
Base, and the Product will be the Area of the Trapezium.

Suppose the Sum of the 2 Perpendiculars in 22 Poles, and
half the Base is 14 Poles, which multiplied together, the
Product is 308, the Area in square Poles; or 1 Acre, 3
Rods, and 28 Poles.

To measure any irregular Piece of Land.

First take care that the whole Plot be divided into Tra-
peziums and Triangles, according to your own Fancy, and
the Nature of the Thing will bear; then measure those
Trapeziums and Triangles, as is before directed, and add
the several Contents together; so will the Sum be the Con-
tent of that irregular Figure.

Admit Figure 13 represent a Field to be measured, which
is divided into one Trapezium, and two Triangles, as the
Figure directs.

Now to find the Content of this Figure, measure the
Trapezium and Triangles as before directed, and add them
together as followeth.

\[
\begin{align*}
\text{Trapezium } & \quad FRCE \quad 234 \\
\text{Triangle } & \quad \{ ABF \quad 69 \\
 & \quad \{ ECD \quad 46 \\
\end{align*}
\]

The Area of the Figure \(ABCDEF\), 349 square Poles.
A Circle is contained under one Line, called the Circumference or Periphery; as ABC. All right Lines drawn from the Center E to the Circumference, are equal, and called Radius's, or half Diameters; and the long Line through the Centre from A to C, is the Diameter.

To divide a Circle into 6 equal Parts, extend the Compasses to half the Diameter, as from A to the Centre E, and the Extent will do it.

Half the Semi-circle of the Circle, that is, half of the Half of the Circle, is called a Quadrant, or Quarter.

If the Diameter of a Circle be 7 Inches, or 7 Feet in Length; then is the Periphery or Compass 22 Inches, or 22 Feet about.

Example 1.

If the Compass of a Circle be 66 Feet, what is the Diameter?

Multiply 66 by 7, and divide the Product by 22, and the Quotient gives the Diameter.

\[
\begin{array}{c}
66 \\
7 \\
\hline
22 \text{) } 462 (21 \text{ Feet, Answer: } 44 \\
44 \\
\hline
22 \\
22 \\
\hline
0
\end{array}
\]

Example 2.

If the Diameter be 21 Inches, what is the Circumference?

The Operation is just the Reverse, viz.

\[
\begin{array}{c}
21 \\
22 \\
\hline
42 \\
42 \\
\hline
7 \text{) } 462 \\
\hline
\text{Inches 66 Answer.}
\end{array}
\]
If a Globe be 31 inches \( \frac{3}{4} \) in Compass, what is the Diameter?

*Work'd Fractionally thus:*

Say 7 times 1 is 7, and 3 the Numerator makes 10, 0 and carry 1; then 7 times three is 21, and 1 carried is 22: So the Product is 220 the Dividend; which divide by 22, agreeable to the Proportion before mentioned.

*Example of Operation.*

\[
\begin{array}{c}
31 \frac{3}{4} \\
7 \\
22 \\
220 \\
\hline
10, Answer, 10 Inches Diameter.
\end{array}
\]

*Example 3.*

Contra. If a Circle be 10 Inches Diameter, what is the Circumference?

*The Work.*

\[
\begin{array}{c}
22 \\
10 \\
7 \\
220 \\
\hline
31 \frac{3}{4} \text{ Answer and Proof.}
\end{array}
\]

To measure the superficial Content of a Circle, either in Inches or Feet.

*Rule.* Multiply half the Periphery or Compass, by half of the Diameter, and the Product will be the Content.

*Example.*

Admit a round Table to be 14 Inches Diameter, and 44 ditto in Compass; what's the superficial Content in square Inches?

\[
\begin{array}{c}
22 \text{ half the Compass.} \\
7 \text{ half the Diameter.} \\
\hline
154 \text{ Answer.}
\end{array}
\]

Or if the Diameter be squared or multiplied into itself, and that Product multiplied by 11, and the Result thereof divided by 14, gives the same Content.
Example. 14 multiplied.

\[
\begin{align*}
\text{by } & 14 \\
\text{produces } & 196 \\
\text{multiply by } & 11 \\
& 196 \\
& 196 \\
\text{divide by } & 43 \text{ (154 Quotient)}
\end{align*}
\]

&c. as before.

Figure the Fifteenth.

To measure half a Circle or round Table, \textit{viz.}

Rule. Square the Semidiameter \(CD\), and that Product multiply by 22, and divide by 14; so the Answer is 77 square superficial Inches.

\[
\begin{align*}
7 \\
7 \\
49 \\
22 \\
98 \\
98 \\
\text{(14) } 1078 \text{ (77)}
\end{align*}
\]

To measure the Quarter or Quadrant of a Circle.

Rule. Multiply the Line \(CE\) into itself, and proceed as before; but multiply the first Product by the Half of 22, \textit{viz.} 11.

Decimally ought to be thus.

\[
\begin{array}{c|c|c}
\text{By } & 11 & \\
\hline
3 & 3.5 & \\
3\frac{1}{2} & 3.5 & \\
\hline
10\frac{1}{2} & 12.25 & \\
\hline
1 & 11 & \\
\hline
12\frac{1}{2} & 1225 & \\
\hline
14) 134\frac{3}{4} \text{ (9 In. } \frac{3}{8} \text{, } \frac{3}{4}) & 13425 \text{ (9,62) } & 126 \\
\hline
& 87 & \\
& 87 & \\
& 35 & \\
& 28 & \\
\hline
& 7 & \\
\end{array}
\]
The Decimal Work produces \( \frac{9}{100} \text{ of } \frac{62}{100} = \frac{5.52}{100} \) equal to half an Inch, and \( \frac{1}{2} \text{ or } \frac{1}{4} \) or \( \frac{1}{8} \) of half an Inch.

By these Methods may a Piece of Timber, that is half round, or a Quarter round, at the Base or End, be measured; that is, by multiplying the square Inches at the End by the Inches of the Length.

**Solid Measure.**

Is that which hath Length, Breadth, and Thickness, as Timber, Stone, and such like, which are measured by the Foot; and herein you are to observe, that a Foot of Timber or Stone, is accounted a Foot square every Way, in the Form of a Dye, which hath six Sides.

The Rule for working is to multiply the Length and Breadth together, and that Product by the Depth or Thickness and the last Product will be the Content in Cubick Inches which if Timber or Stone, divide by 1728, (the Cubick Inches in a solid Foot) and the Quotient gives the Content in solid Feet.

**Example.**

Admit Figure the 16th to represent a Solid in Form of a Cube; whose Length, Breadth and Thickness, is 12 inches; multiply 12 by 12, and the Product is 144, which multiplied by 12, the Product is 1728, for the Content in Cubick Inches: Hence it appears that a cubick Foot is 12 Times more than a superficial Foot; so that a superficial Foot is 144 Inches, and a cubick Foot 1728 Inches.

The Dimensions of Timber are considered in Breadth, Thickness and Length; the Breadth and Thickness are commonly called the Square.

**Note.** The Parts of a Solid Foot, being 1728 Inches.

<table>
<thead>
<tr>
<th>Three Quarters</th>
<th>Half</th>
<th>A Quarter</th>
<th>Half a Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{9}{100} \times 1728 )</td>
<td>( \frac{1}{2} \times 1728 )</td>
<td>( \frac{1}{4} \times 1728 )</td>
<td>( \frac{1}{8} \times 1728 )</td>
</tr>
<tr>
<td>( 1296 )</td>
<td>( 864 )</td>
<td>( 432 )</td>
<td>( 216 )</td>
</tr>
</tbody>
</table>

40 Solid Feet of round or hewn Timber is a Tun or Load.

\( \frac{50}{2} \) Example.
Example.

If a Tree be 16 Feet long, and 18 Inches square, how many solid Feet doth it contain?

Multip. \( \{ \begin{array}{c} 18 \\ 18 \end{array} \) \( \{ \begin{array}{c} 16 \\ 12 \end{array} \)  

\[ 324 \]

192 the Length in Inches.

\[ 324 \] Breadth and Thickness.

\[ 768 \]

\[ 384 \]

\[ 576 \]

1728) 62208 (36 Feet.

\[ 5184 \]

\[ 10368 \]

\[ 0 \]

Decimally.

\[ \begin{array}{c} 1,5 \\ 1,5 \end{array} \] 

\[ 225 \] Breadth

\[ 16 \] Length

\[ 36,00 \] Answer.

By Practice.

\[ 1—6 \]

\[ 1—6 \]

\[ 1—6 \]

\[ 2—3 \]

4 and 4

\[ 9—0 \]

Feet 36—0 Answer.

Example 2.

Suppose there is given a Square Piece of Timber, whose Breadth is 2,25, and Thickness 1,64 Feet, and Length 36,5 Feet, how many solid Feet are contained therein?
Example.

Suppose a Piece of Timber be 15 Inches square; that is, 15 Inches broad, and 15 Inches thick, and 16 Feet, or 192 Inches long; what is the Content of that Piece of Timber or Stone (or any other Thing that is to be measured by cube or solid Measure) in solid Feet?

15 Broad.
15 Thickness.

\[
\begin{array}{c}
75 \\
15 \\
225 \\
192 \\
450 \\
2025 \\
225 \\
\end{array}
\]

\[
\begin{array}{c}
1728 \times 43200 \quad \text{(25 Feet:) } \\
3456. \\
8640 \\
8640 \\
\end{array}
\]

43200 solid Inches.

So the Answer is 25 Feet of solid Timber in such a Piece or in such a Stone of such Dimensions.

Or if you multiply the Content of the Square by the Length in Feet, and divide that Product by 144, the Quotient will give the same Content or Answer as before. See the following Work.
A second Example in this, may be after the second Example in Board Measure. That is, suppose a Piece to be 8 Inches one Quarter Square, and the Length 192 Inches; what is the Content?

\[ \text{1728) 13068 (7 Answer. 12096) } \]

Answer, 7 Feet and half, and 108 cubic Inches.

Decimally.

\[
\begin{array}{c|c}
8.25 & 68,0625 \\
8.25 & 192 \\
4125 & 1361250 \\
1050 & 6125025 \\
600 & 680025 \\
68.625 & 13068.0000 \\
\end{array}
\]

Another Example. Suppose a Piece of Timber to be 17 Inches three Quarters Square, and 28 Foot long, what is the Content?

17 Inches three Quarters multiplied into itself Decimally, the Product will be 315,0625; which multiplied by the Length 336, the Product will be 105,861, cutting off the four Cyphers, and the Answer will be 61 Feet, and 453 remains, being one Fourth of a Foot, and 21 Inches.

In superficial or flat Measure, having the Breadth of a Board, or Piece of Glass given, to find what Quantity in Length it will take to make a Foot square.

Rule. Only make the Breadth in Inches Divisor to 144, the square Inches in a superficial Foot, and the Quotient will be the Length in Inches that will make a Foot.

Example.

If a Board be 8 Inches broad, what Length of that Board (or Piece of Glass) will make a Foot?
An answer, 18 inches, or 1 foot and a half.

Again. If a board be 16 inches broad, what length of it will make a foot?

16) 144 (9 inches. Answer, 9 inches.

This method is manifestly true, from this observation: that a board a foot, or 12 inches broad, will require a foot, or 12 inches in length, to make it exactly square, or 144 inches. And this is known without operation. By this method, may a table of board or glass measure be proved.

Likewise in solid measure to know what length of the piece of timber will make a foot solid, you must make the inches square divisor to 1728, (the square inches in a foot solid) and the quotient will be the answer in inches of length, that will make a foot solid.

Example.

If a piece of timber be 8 inches square, what length of it will make a foot?

\[
\begin{array}{ccc}
64 & 1728 & 27 \\
128 & & \\
448 & & \\
448 & & \\
6 & & \\
\end{array}
\]

Here the square of 8 is 64, &c.

Again. Suppose a piece be 18 inches square, what length will make a foot? Answer, 5 inches and one third.

The square of 18 is 324) 1728 (5 \( \frac{108}{1620} \) equal to \( \frac{1}{3} \).

Once more: Admit a piece of timber be 2 feet, 2 inches square, i.e. 26 inches square, which is, &c.

\[
\begin{array}{ccc}
676 & 1728 & 276 \\
1352 & & \\
17 & & \\
\end{array}
\]

So if a piece be 10 inches square, the answer will be, that
Inches and \( \frac{\frac{3}{10}}{10^6} \) of an Inch is required for the Length. And thus may a Table of square Timber be proved.

In measuring of round Timber, the common Way is to take \( \frac{1}{4} \) of the Circumference for the true Square, but it is erroneous, and gives Solidity somewhat less than the true Content: But the true Way is to multiply half the Diameter by half the Compass, and then that Product multiply by the Length, which divide by 1728, and the Quotient is the Content. If you cannot come to measure the End of the Piece, you may know the Diameter by this Proportion, \( \text{viz.} \)

\[
\frac{3182}{66} \text{ the Compass.}
\]

as 22 is to 7, so is the Compass to the Diameter. Or you may find the Square of a round Piece of Timber by this Rule, \( \text{viz.} \)

\[
\frac{19092}{19092} \text{ and } \frac{210012}{10000} \text{ Anf. 21 In.}
\]

Having the Breadth and Depth of a Piece of Timber or Stone, to know how much in Length of it will make a solid Foot; multiply one by the other, and let it be a Divisor to 1728, thus:

<table>
<thead>
<tr>
<th>Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 broad.</td>
</tr>
<tr>
<td>18 thick.</td>
</tr>
</tbody>
</table>

\[
\frac{192}{432} \text{ 1728 (4 Inches in Length, Answer. 1728)}
\]

And thus you may make a Table to serve all Breadths and Depths, by which much Labour may be saved in multiplying and dividing, and yet measure any Piece of Timber thereby very exactly.

The usual Way of tapering Timber, is by this Method, \( \text{viz.} \) take the Dimensions in the Middle, and multiply that by the Length; which, though somewhat false, yet, if done at several Lengths, as at every 5 or 6 Feet, it will be very near.

\( \text{Digging} \)
The Young Man’s Best Companion.

Digging.

Is measured by the solid Yard of 27 Feet; that is, 3 times 3 is 9, and 3 times 9 is 27; by which are measured Vaults, Cellars, Clay for Bricks, &c. Other Things are measured by the Flore of 324 solid Feet.

Example.

If a Vault or Cellar be digged 9 Feet deep, 4 Feet \( \frac{1}{2} \) long, and 3 Feet 9 Inches broad; what is its Content in solid Yards?

\[
\begin{align*}
\text{Feet} & \quad \text{Feet} \quad \text{Feet} \\
4 \, \frac{1}{2} & \quad 9 & \quad 3 \, 9 \\
\end{align*}
\]

\[
\begin{align*}
40 & \quad \frac{1}{2} \\
3 \, F. & \quad 9 \text{ broad.}
\end{align*}
\]

\[
\begin{align*}
6 \text{ Inches} & \quad \frac{1}{4} \\
3 \frac{1}{2} \text{ of } 6 & \quad 10
\end{align*}
\]

\[
\begin{align*}
27) & \quad 151 \, \frac{3}{4} \text{ (5 Yards 16 Feet } \frac{3}{4} \text{).}
\end{align*}
\]

(16)

Example 2.

How many Yards of Digging will there be in a Vault that is 25 F. 4 long, 15 F. 8 broad, and 7 F. \( \frac{1}{2} \) deep, per 3 and 5 F. 8.

\[
\begin{align*}
76-0 & \quad 5 \\
380-0 & \quad 8-5 \, \frac{1}{4} \\
8 \text{ Inches} & \quad \frac{2}{3} \quad 8-5 \, \frac{1}{4} \text{ F. } \frac{1}{2} \text{ deep.}
\end{align*}
\]

\[
\begin{align*}
396-10 & \quad \frac{3}{2} \\
2778 & \quad 1 \, \frac{1}{2} \\
\frac{1}{4} & \quad 198-5 \, \frac{1}{4}
\end{align*}
\]

\[
\begin{align*}
27) & \quad 2976-6 \, \frac{3}{4} \text{ (110 Yards, 6 Feet and 6 Inches),}
\end{align*}
\]

\[
\begin{align*}
27 & \quad (6)
\end{align*}
\]

Example
Example 3.

There is a Mote that is 648 Feet long, 24 Feet broad, and 9 Feet deep; how many Flores?

\[
\begin{align*}
648 & \text{ long} \\
24 & \text{ broad} \\
2592 & \\
1296 & \\
15552 & \\
\end{align*}
\]

divide by 324) 139968 (432 Flores, Answer.

Solid Bodies being frequently painted, it is necessary to know how to find their Superficiality. To find the Superficial Content of a Square, or many sided or round Pillar; multiply the Sum of the Sides or Circumference by the Height in Feet; and the Product divided by 9, the Quotient will be all square Yards.

Of a Globe.

Multiply the Circumference in Feet by itself, and then that Product by this Decimal, 0.0354, and this last Product will be the Content in Yards.

Note, A solid Yard square of Clay will make about 7 or 800 Bricks; and the Price of making is 7 or 8s. Sterling a Thousand, 3 Bags (or Bushels) and half of Lime, and half a Load of Sand, to laying 1000 Bricks.

\[
\begin{align*}
500 \text{ Bricks} & \\
1000 \text{ Plain Tiles} & \} \text{ make a Load.} \\
25 \text{ Bags } 1 \text{ C. of Lime.} &
\end{align*}
\]

To measure a Pyramid.

If a Piece of Timber be right-lined, having but one Base, which is square, and ends in a Point, it is called a Pyramid; the solid Content of which is found by multiplying the superficial Content or Area of the Base, by one third Part of the Length. Or one third Part of the Area of the Base, multiplied by the whole Length, gives the Content also.

Example,
Example.
Suppose Figure the 17th, represent a Pyramid to be measured, whose Breadth at the Base is 5 Feet, and the Length 15 Feet; what is the Content in solid Feet?

\[
\begin{align*}
5 \frac{5}{2} & \quad \text{Side of the Base.} \\
25 & \quad \text{Area of ditto.} \\
5 \frac{1}{2} & \quad \text{Part of the Length.}
\end{align*}
\]

Answer \(125\) the Content in solid Feet.

To measure a Cone.

If a Piece of Timber be right-lined, having Length, and only one Base, which is round, equally decreasing, and ends in a Point, it is called a Cone; the solid Content of which is found, by multiplying the Area of the Base, by one third Part of the Length; where Note (and likewise in the Pyramid) the true Length is from the Centre of the Base to the terminating Point.

Admit Figure the 18th, represent a Cone, whose Diameter at the Base is 5 Feet; and the Length 15 Feet; what is the solid Content?

\[
\begin{align*}
5 \frac{1}{2} & \quad \text{the Diameter.} \\
25 & \quad \text{the Square of do.} \\
\end{align*}
\]

\[
\begin{align*}
\text{multiply by } 11 & \\
\text{divide by } 14 & \Rightarrow 275 \left(19 \frac{9}{14}\right) \quad \text{of the Length.}
\end{align*}
\]

Answer \(98 \frac{3}{14}\) the solid Content.

This Method may serve for tapering Timber, or of any other Thing of the Shape represented in Figures 17 and 18.

The next necessary Qualification that I shall touch upon, to introduce a young Man into the Knowledge of Business, is to say something in Relation to the Art.
THERE is a near Sort of Kindred or Affinity between the Art of Measuring of Timber, and that of Gauging or Measuring of Liquors; for both are performed by cube or solid Measure, and therefore not improper closely to follow one another; For as often as there are found 1728 solid or cubic Inches in a Piece of Timber (of what form soever) so many solid Feet it is said to contain. So likewise in the Art of Gauging, so many Times as 282 (the solid Inches in a Beer, or Ale Gallon) are found in any Vessel of such Liquor, so many Gallons is such a Vessel said to hold. And so of Wine; but in that the Divisor alters, it being 231 solid or cubic Inches.

And the Gallon of Dry Measure, contains $272 \frac{1}{4}$ cubic Inches.

Note, Every cubical Foot in Beer or Ale Measure, contains 6 Gallons, and almost a Pint.
The same in Wine Measure, is 7 Gallons, 2 Quarts, and almost a Pint.

A cubical Foot of dry Measure contains 6 Gallons, and somewhat above half a Gallon.

For 141 Inches make 2 Quarts of Beer or Ale; 70 Inches $\frac{1}{2}$ one Quart, and 35 Inches $\frac{1}{4}$ a Pint.

To find the Content of any Vessel that hath the Form of a Cube, that is, a Figure whose Breadth, Depth, and Length, are all equal, and is very well represented by the Shape of a Dye commonly play'd withal.

Rule, Multiply the Side into itself; and then again that Product by the Side; which last Product, if for Beer or Ale, divide by 282, the Inches in a Beer or Ale Gallon; and for Wine, Brandy, &c. by 231, the cubical square Inches contained in a Wine Gallon.

Example.

Suppose a Cube, whose Side is 79 Inches, I demand the solid Content in Beer and Wine Gallons?
To find the Content of a Parallelopipedon, which is a Figure contained under 6 Sides, of which the Opposites are parallel, and of the Form of Figure the 19th.

**Rule.** Multiply the Length by the Breadth, and that Product by the Depth; and then divide by 282 for Beer or Ale, and 231 for Wine.

**Example.**

Admit the Length of a Cistern to be 95 Inches; and the Breadth 62 Inches, and the Depth 23 Inches; what is the Content in Beer and Wine Gallons?

<table>
<thead>
<tr>
<th>Length</th>
<th>Breadth</th>
<th>Depth</th>
<th>Beer Gallons</th>
<th>Wine Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>95</td>
<td>62</td>
<td>23</td>
<td>190</td>
<td>570</td>
</tr>
</tbody>
</table>

**Rem.** (104).
The Young Man's Best Companions

To Gauge a Back, or Square Tun.

Example.

Suppose its Length 112 Inches, Breadth 72 Inches, and its Depth 48 Inches; what is its Content in solid Inches, and also in Beer Gallons?

<table>
<thead>
<tr>
<th>112 Length</th>
<th>282</th>
<th>387072 (1372 Gal. Ans.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>72 Breadth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>224</td>
<td>1050</td>
<td></td>
</tr>
<tr>
<td>784</td>
<td>846</td>
<td></td>
</tr>
<tr>
<td>8064</td>
<td>2047</td>
<td></td>
</tr>
<tr>
<td>48 Depth</td>
<td>1974</td>
<td></td>
</tr>
<tr>
<td>64512</td>
<td>732</td>
<td></td>
</tr>
<tr>
<td>32256</td>
<td>564</td>
<td></td>
</tr>
<tr>
<td>387072 solid Inches</td>
<td>(168)</td>
<td></td>
</tr>
</tbody>
</table>

To bring these Gallons into Barrels divide them by 36, the Gallons in a Barrel of Beer, thus.

36) 1372 (38 Answer, 38 Barrels and \( \frac{4}{9} \) or \( \frac{1}{2} \) of a Barrel; and as for the Remainder 168, it is something above half a Gallon.

To find the Content of any Right Cylinder in Gallons; that is, to compute the Content of any round Tun, Tub, &c. whose Diameters at Top and Bottom are equal, and at Right Angles with its Sides.

Rule, Square the Diameter, which Product multiply always by 11, and divide the Product by 14, and the Quotient will give the Content of the Tub at one Inch deep; then multiply the Quotient by the perpendicular Height of the Cask, and the Product is the Content in solid Inches.

Example.

Let Figure the 20th, represent a round Tub, whose Diameter is 72 Inches, and the Height 56 Inches, what is the Content in Beer Gallons?
72
72

144
504

5184 the Square of the mean Diameter.

14) 57024
56 • •

102
98

44
42

(2)

102
98

44
42

228088 solid Inches.

The aforesaid solid Inches brought into Gallons, make 808, and 232 solid Inches remain something above three Quarters of a Gallon; in all 22 Barrels, 10 Gallons, and \( \frac{1}{2} \) of Beer.

To find the Content of any round Tun, or Tub, whose Diameters at Top and Bottom are parallel, but unequal.

Rule, First square the two Diameters, then multiply the greater Diameter by the less, and to the Product add the two former Squares; multiply the Sum of these three by \( \frac{1}{3} \) of the Depth, and divide the Product by 359 for Beer Gallons, or by 294 for Wine Gallons.

Example.

Suppose the Diameter at the Top be 30 Inches, the Diameter at the Bottom 36 Inches, and the Depth 24 Inches, what is the Content in Beer Gallons?
The Square of 30 is 900
The Square of 26 is 676
30 multiplied by 26 = 780

The Sum is 2356
multiply by \( \frac{1}{3} \) of the Depth = 8

divide by 359 = 18848 (52 Gallons and \( \frac{5}{6} \).
1795
898
718
180

To gauge a Butt, Pipe, Hoghead, Barrel or any other close Cask.

In order to perform this difficult Part of Gauging, the three following Dimensions of the proposed Cask must be truly taken in Inches, and decimal Parts of an Inch, viz.: 1. The Diameter at the Bung within the Cask.
2. Either of the Head Diameters, supposing them both equal.
3. The Length of the Cask within.

In taking of these Dimensions, it must be carefully observed, that the Bung-hole be in the Middle of the Cask; and that the Heads of the Cask are equal and truly circular; if so, the Distance between the Inside of the Chine, and the Outside of its opposite Staff, will be the Head Diameter within the Cask, very near.

Having taken the Dimensions, the next Thing is to find such a mean Diameter, as will reduce the proposed Cask to a Cylinder, which may be found by the following Rules.

Subtract the Head Diameter from the Bung Diameter, and multiply the Difference by 0.7, or by 0.65, or by 0.6, or by 0.55, according as the Staves are more or less arching; add the Product to the Head Diameter, and the Sum will be the mean Diameter required.

Note, These first of the four Rules, (viz. 0.7) is commonly used amongst Gaugers for all Sorts of Casks, but there are very few Casks that will contain quite so much as this Rule will make it. But if the second and third of these Rules
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(viz. 0.65 and 0.6) be duly applied, they will answer very near amongst the common Sort of English made Casks; and the fourth Rule (viz. 0,55) will come pretty near the Truth in computing the Contents of Casks whose Staves are almost strait betwixt the Head and the Bung, viz. such as Wine Pipes, &c.

Having found the mean Diameter, the Content of the Cask may be computed by either of the two following Rules.

Rule 1. Multiply the Square of the mean Diameter by the Length of the Cask, and divide the Product by 359 for Beer Gallons, or by 294 for Wine Gallons. Or thus,

Rule 2. Multiply the Square of the mean Diameter by 11, and divide the Product by 14: then multiply the Quotient by the Length of the Cask, and divide the Product by 282, for Beer Gallons; or by 231 for Wine Gallons.

Example.

Admit Figure 20, represents a Hog's head to be gauged, whose Bung Diameter is 31.5, Head Diameter 24.5 and its Lengths 42 Inches, what is the Content in Beer and Wine Gallons.

Diameter at the Bung 31.5
Head 24.5

The Difference 7.0
multiply by .65

add 4.55
24.5

the mean Diameter, 29.05

the Square 143,9025
the Length 42

359)35443,905(98,729 98 Beer Gallons and
3231, &c. Answer, 98 Beer Gallons and

294)35443,905(120,557 10\frac{22}{28} of a Gallon.
294, &c. Answer, 120 Wine Gallons,

and 10\frac{55}{62} of a Gallon.

(147) Or
Or thus by the second Rule.

\[
\begin{align*}
\text{the Square} & \; 843,9025 \\
\text{multiply by} & \; 11 \\
\text{Divide by} & \; 14,9282,9275 (663,066 \\
& \; \; \; 84, \&c. \; \; \; 42 \\
\end{align*}
\]

\[
\begin{align*}
282) & \; 278,48,772 \; (98,754 \\
& \; \; \; 2533, \&c. \; \; \; \text{Beer Gallons.} \\
\end{align*}
\]

\[
\begin{align*}
231) & \; 278,48,772 \; (120,557 \\
& \; \; \; 231, \&c. \; \; \; \text{Wine Gallons.} \\
\end{align*}
\]

To find the Quantity of Liquor remaining in a spheroidal Cask standing on its Head.

From the Area of the Bung Diameter, subtract the Area of the Head Diameter, and multiply the Remainder by the Square of the Difference between the wet Inches and the Semi-length, and this Product divide by the tripple Square of the half Length, and subtract the Quotient from the Area of the Bung Diameter; then multiply the Remainder by the Difference between the wet Inches and the Semi-length, and the Product will be how much Liquor is contained in the Vessel above, or under its half Contents.

Example.

Suppose \[
\begin{align*}
\text{the Bung} & \; 40,8 \\
\text{the Heads} & \; 35,3 \\
\text{the Length} & \; 61,8 \\
\text{the Wet Inches} & \; 41,9 \\
\end{align*}
\] what is the Content in Beer Gallons?
61.8 the Length 11
30.9 the half Length 11

41.9 the wet Inches are 121
30.9 the half Length.

11.0 the Difference.
Area of the Bung Diameter 4,6362
Ditto of the Head Diameter 3,4705 sub.

The Square of the Difference

The triple Square of the \( \frac{1}{2} \) Length 2865) 141,0479(492
11460 ·

30.9 4,6362 Area of the Bung 26449
30.9 sub. 492 the Quotient 25785

27,81 45,870 6647
9270 11 5730

954,81 50,4570 (917)

2864,43

131.25 the half Content of the Vessel.
50.45 the Liquor qt. above the half Content.
181.70 the Quantity of Liquor qt. in the Vessel.

To gauge any Thing that hath the Shape of a wooden Hand-
Bowl, as the Bottom of a round Copper, &c.

Admit the Bowl to be full of Water; the first Thing is to
measure the Surface of the Water; that is done by multi-
plying half the Circumference by half the Diameter, and
that gives the Content in superficial square Inches. Then
find the Depth of the Water in different Places; then add
those different Depths together, and divide the Total by the
Number of Depths that you take, and the Quotient gives
the mean Depth: When you have found the mean Depth,
multiply it by the number of inches that you found on the
surface of the water, and the product gives the solid square
inches, which reduce to gallons, as taught before.

Example.

Suppose the circumference be 120 inches, the half of
which is 60 inches, and the diameter admit to be 60 inches,
the half of which is 30 inches; and suppose the several
depths to be 7, 8, 9 and 10, which put together make 34
inches; which divide by 4, the number of depths, quotes
the mean depth, viz. 8½

\[
\begin{array}{c}
60 \\
30 \\
1800 \\
8\frac{1}{2} \\
14400 \\
900 \\
\end{array}
\]

\[
231) 15300 \quad (66 \text{ Answer, 66 Wine Gallons, 3 Gal.})
\]

\[
\begin{array}{c}
1440 \\
1386 \\
\hline
282) 15300 \quad (\text{and 54 Beer Gallons, or})
\end{array}
\]

\[
\begin{array}{c}
1410 \\
1209 \\
1128 \\
\hline
72
\end{array}
\]

Some Uses of the Square and Cube Roots.

Rule. The root of the product of any given number, is the mean
proportional sought; so the mean proportional between 16 and 64, will be 32; this is of
good use in finding the side of a square equal to any parallelogram, rhombus, rhomboides, triangle, or regular polygon.

2. To find the side of a square equal to the area of a given superficies.

Rule. The square root of the content of any given superficies is the side of the square.—So if the content of a given circle be 160, the side of the square equal will be

\[
12\frac{6}{49}, \text{ or in decimals } 12.649.
\]
3. The Area of a Circle being given, to find the Periphery.
   Rule. Say as 113 to 1420, or 1 to 12,56637; so is the
   Area to the Square of the Periphery—So if the Area of a
   Circle be 160, the Periphery will be found to be 44.84.

4. The Area of a Circle being given, to find the Diameter;
   Rule. As 355 to 452, or as 1 to 1,273239, so is the
   Area to the Square of the Diameter.

5. Any two Sides of a Right Angled Triangle being given,
   to find the third Side.
   In this useful Problem lies hid a great Part of the Ma-
   thematicks; it being ascertained and proved, that the Square
   of the Hypotenuse, or longest Side of a Right Angled Tri-
   angle is equal to the Sum of the Squares of the Base and
   Perpendicular, that is, of the other two Sides.

   Example by the Adjacent Figure.

   Let the Base or Ground \( AB \) represent the Breadth
   of a Moat or Ditch, and the Perpendicular \( BC \) re-
   present the Height of a Castle, Tower, or City-
   Wall; and the Hypotenuse or Longest Side, represent the
   Length of a Scaling Ladder.

   In this Figure, the Base \( AB \) is supposed to contain 40
   Yards and the Perpendicular, or Height of the Tower or
   Wall, 30 Yards; What Length will the Hypotenuse \( AC \),
   or the Scaling Ladder, be?

   Rule. The Square Root of the Sum of the Squares of the
   Base and Perpendicular, is the Length of the Hypotenuse,
   as per Work.

   \[
   \begin{align*}
   1600 & \text{ the Square of the Base 40.} \\
   900 & \text{ the Square of the Perpendicular 30.}
   \end{align*}
   \]

   The Sum 2500 (50 Yards the Root or Length of the
   Scaling Ladder.

   \[
   \begin{align*}
   125 & \text{ (0)}
   \end{align*}
   \]

   And if the Length of the Base, or Breadth of the Ditch,
   were required; then the Square Root of the Difference of
   the Squares of the Hypotenuse and Perpendicular is the
   Length of the Base, or Breadth of the Ditch or Moat.

   Example per Work.
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2500 the Square of the Hypoten, \( AC \),
900 the Square of the Perpendicular \( BC \).

The Differ. 1600 (40 Yards the Root, or Breadth of
the Ditch.

16

(0)

And if the Height of the Tower or Perpendicular \( BC \)
were required; then the Square Root of the Difference of
the Distance of the Square of the Hypothenufe and Bafe,
is the Height of the Perpendicular \( BC \), representing a
Tower, a Wall, a Steeple, or any Thing else.

Again. Any Number of Men given to be formed into a
Square Battalia, to find the Number of Rank and File.

Rule. The Square Root of the Number of Men given,
will be the Number of Men to be placed in Rank and File.

Example. Admit an Army of 32400 Men were to be
formed into a Square Battalia; the Square Root of 32400
will be found 180; and so many Men must be placed in
Rank and also in File.

The Uses of the Cube Root are to find out a Proportion
between like Solids, as Globes, Cylinders, Cubes, \&c.

Example.

Suppose a Bullet of 8 Inches Diameter weigh 72 Pounds,
what will a Bullet weigh whose Diameter is 4 Inches?

Rule. Since like Solids are in triple Proportion to their
Sides, Diameters, Lines, \&c. it holds; as the Cube of the
Diameter given is to the Weight thereof, so is the Cube of
the Diameter sought to the Weight thereof; as per Work.

\[
\begin{array}{cccc}
C D & 4608 & C D.
\end{array}
\]

\[
\begin{array}{cccc}
512 & 72 & 64
\end{array}
\]

\[
\begin{array}{cccc}
4608 & 432 & 432
\end{array}
\]

\[
\begin{array}{cccc}
512 & 4608 (9 Pounds).
\end{array}
\]
Example 2.

If a Ship of 100 Tons be 44 Feet long at the Keel, of what Length must the Keel be of a Ship that carries 220 Tons?

Say, as 100 is to the Cube of 44, that is, 85184; so is 220 to 187404,8; whose Cube Root is 57,225, the Length of the Keel sought.

Example 3.

There is a Cubical Vessel whose Side is 12 Inches, and it is required to find the Side of a Vessel that holds three Times as much. Here the Cube of 12 is 1728, which multiplied by

produces

and the Cube Root of which is 17,306; the Answer required, or Side sought.

An easy Rule to find the Length of the Masts of a Ship, viz.

Two Thirds of the Length of the Keel, and the Breadth of the Beam, is the Length of the Main-mast; and the Rule is therefore, to multiply the Length of the Keel by 2, and to divide the Product by 5, and then to the Quotient add the Breadth of the Beam, and the Total is the Length of the Main-mast.

Example.

Suppose a Ship to be 108 Feet by the Keel, and 40 Feet by the Beam, what is the Length of her Main-mast?

\[
\begin{align*}
108 & \quad 2 \\
3 & \quad 216 \\
\text{Add} & \quad 72 \text{ two Thirds of the Keel.} \\
& \quad 42 \text{ the Breadth of the Beam.} \\
\text{Answer,} & \quad 112 \\
\end{align*}
\]

Answer, The Length of her Main-mast is 112 Feet, as in the Work.

Again.

Admit a Ship to be 84 Feet by the Keel, and 31 Feet by the Beam, what is the Length of her Main-mast?

\[
\begin{align*}
84 & \quad 2 \\
3 & \quad 168 \\
\text{Add} & \quad 56 \text{ two Thirds of the Keel.} \\
& \quad 31 \text{ the Breadth of the Beam.} \\
\text{Answer,} & \quad 87 \text{ Feet, the Length of the Main-mast.} \\
\end{align*}
\]
If you divide first by 3, and then multiply the Quotient by 2, it gives the two Thirds of any Thing as well as the other Way.

Another Way to find the Length and Thickness of Masts in Yards, viz.

The Way to find the Length of the Main-Mast, is to add the Breadth of the Beam, and the Depth of the Hold together, and divide the Total by 1, 5, and the Quotient will be the Length of the Main-Mast in Yards.

**Example.**

Admit a Ship whose Keel in Length is 73 Feet, and the Breadth of the Beam 28, s Feet, and the Depth of the Hold 12 Feet, what is the Length of the Main-Mast?

<table>
<thead>
<tr>
<th>Feet.</th>
<th>Breadth of the Beam</th>
<th>Depth of the Hold</th>
</tr>
</thead>
<tbody>
<tr>
<td>28,5</td>
<td>12,0</td>
<td></td>
</tr>
</tbody>
</table>

1,5) 40,5 27 Yards, Answer.

30

105

105

(0)

Answer, 27 Yards, or 81 Feet, as per Work.

Or if, instead of dividing, you multiply by this Multiplier, viz. .6666 and point of the Decimals, you will have the same Answer.

**Example.**

Here the Answer is 26 .6666 Yards and $\frac{1}{16}$ of a Yard, not wanting one Second

33330 to make it 27 Yards, as 266640 before.

I here multiply the under by the upper Number, to have both Figures and Room.

To find the Thickness of the Mast, having the Length, say, by the Rule of Proportion, (or Rule of Three) if 84 Feet long require 28 Inches thick, what 81 Feet long? as in the following Work.
By Trigonometry, or the Doctrine of Triangles, or a Multitude of Questions solv'd, relating to failing on the Seas; to give one Instance.

Suppose two Ships set Sail at one Time, from one Place, the one failing directly East 48 Leagues, as from C to B; and the other directly North, from C to A, 36 Leagues; the Question is, how many Leagues are they distant or asunder one from the other?

48 multiplied by 48, produces 2304
36 multiplied by 36, gives 1296

which two Numbers added, give for Total 3600 (60 the square Root of which is 60; and so many Leagues are the two Ship's asunder or 36 distant one from the other.

Here the Distance of each Ship's failing is squared, and their Squares added together, and Total is 3600; the square Root of which is 60, and the Answer to the Question, as in the Work.

And being here speaking something relating to Sea Affairs, it may not be improper to say something concerning the Mariner's Compass.

Before the Invention of this excellent and most useful Instrument, it was usual in long Voyages to fail by, or keep along the Coast, or at least to have it in Sight; as is manifest and plainly evident, by the Voyages of St. Paul, Acts xx, 12 and 27; which Course made their Voyages long,
and very dangerous, by being so near the Shore. But now, by the Help of a Needle touched by the Magnet or Loadstone, which by a wonderful and hidden Quality, inclines its Point always northerly, the ingenious Mariner is directed in his proper Course of Sailing, through the vast Ocean, and unfathomable Depths, to his intended Port: And if the Wind is favourable, can sail near 333 Leagues, or 1000 Miles in a Week, tho' in the darkest Weather, or darkest Night, when neither Land, Moon, nor Stars, are to be seen; which before, were the only Guide; and, if not seen, the Sailors were at a great Loss, and exposed to the most imminent Danger.

Behold the Figure or Representation of the said Compass, with the Cardinal and other Winds that followeth.
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dly, The Letters N by E on the Right of the said Flower-de-erce, signifies, and is to be read North by East; and the next after it N N E. that is North North East; and the next N E by N. to be read North East by North; and so round the Circumference, which Mariners usually have by Heart, particularly, the Pilot who guides the Ship accordingly; and sometimes he is helped by the Sight of the North Pole Star when on this Side the Equator; and by the South Pole, on the other Side.

The next Thing I shall proceed to, is to give the Sense and Meaning of some few Terms used in Dialing, Geography, &c.

A small Representation of the Globe.

The Poles of the Equinoctial (commonly called the Poles of the World) are two fixed Points in the Heavens, opposite one to the other; one pointing to the North, which is therefore called the North, or Artic Pole, marked with the Letters N. P. and the other pointing Southward, and therefore is called the South, or Antartic Pole, marked with S. P.
The Axis of the World, is a Line imagined to pass through the Center of the Earth from one Pole to the other, as the Line N. P. S. P.

The Equinoctial in the Heavens, or Equator on the Earth, is an imaginary great Circle of the Sphere, which divides it into two equal Parts, to which the Sun apparently comes the 10th of March and 12th of September, and then makes equal Day and Night; it is noted by the Letters æ. q.

The Ecliptick is a great Circle intersecting the Equinoctial in two opposite Points, the Beginning of Aries, and the Beginning of Libra, and makes an Angle therewith of 23 Deg. 29 Min. represented by the Line æ v : It is divided into 12 equal Parts called Signs, each containing 30 Deg. which are as follow.

Aries \( \varphi \) | Libra \( \varphi \) | called | Scorpio \( \varphi \) | called
---|---|---|---|---
Taurus \( \varphi \) | Sagittarius \( \varphi \) | called | Capricornus \( \varphi \) | Southern
Gemini \( \varphi \) | Capricornus \( \varphi \) | called | Aquarius \( \varphi \) | Signs.
Cancer \( \varphi \) | Pisces \( \varphi \) | Northern | Signs.
Leo \( \varphi \) | Virgo \( \varphi \) | called

The Zodiac is a Zone or Girdle, having about 9 Degrees in Breadth on each Side of the Ecliptick, and limits the Latitudes of the Planets in their Revolutions.

The Meridian, from Meridies, Noon, or Mid-day, is a Circle passing through the Poles of the World, exactly in the Middle between the East and West; to which when the Sun comes every Day it is Noon. The Stars are also said to be South, when they are upon the Meridian.

The Tropicks are two Circles parallel to the Equinoctial, and 23 Deg. 29 Min. distant therefrom, being the Bounds of the Sun's greatest Declination North and South. The North Tropick is marked with æ C, called the Tropick of Cancer; and the South Tropick with B \( \varphi \), called the Tropick of Capricorn.

The Zenith or Vertex, is an imaginary Point in the Heavens directly over our Heads, as Z.

The Nadir is the Point opposite to the Zenith, and directly under our Feet, as N.

The Horizon is a great Circle 90 Deg. distant from the Zenith and Nadir, which encompasses the Earth exactly in the Middle, and appears to every One standing in an open Plain, to divide the visible from the invisible Part of the Heavens. It determines the Rising and Setting of the Sun, Moon, and Stars, in any particular Latitude; as H. O.
The Latitude in Geography, or on the Earth, is the Height of the Pole of the World above the Horizon, which is always equal to the Arch of the Meridian between the Zenith and Equinoctial.

Longitude on the Earth, is an Arch of the Equator, contained between the Meridian of the Place where the Longitude is assigned to begin, and the Meridian of any other Place, and is accounted Easterly and Westerly.

Every Circle circumscribing the Earth, or Terrestrial Globe, is supposed to be divided into 360 equal Parts, called Degrees; each of which is accounted 60 Miles; and if you multiply 90 the Quadrant or Quarter of the Globe, by 60, the Product will be 5400, which multiplied by 4, gives 21600 Miles for the Circumference of the Earth and Sea.

The next Thing I shall proceed to, is to say something in Relation to the Art of making Dials: But it may, and is very proper, to describe and speak of the Use of a very necessary Instrument called a Quadrant, the Shape of which is here represented.
The Young Man's Best Companion.

This Quadrant or Quarter of a Circle, is variously useful, on sundry Accounts, viz. To take Heights and Distances, whether accessible or inaccessible; to find the Hour of the Day, &c.

Its Description.

The outward Arch is divided into 90 Parts or Degrees, (being the fourth Part of the Circle of the Sphere) and figured from 10, 20, &c. to 90; above which Figures, are Letters signifying the 12 Calendar Months of the Year, as J. for January, F. for February, &c. And again, over those Letters for the Months are Lines to know the Hour of the Day; and upon the Line CD, are Sights of thin Brass to be spied through, or for the Sun to shine through, from one to the other. Lastly, in the Middle, or Point of the Quadrant, viz. at A, is a Line or Thread of Silk fixed through a Hole, with a Plummet of Lead at the End of it, and also a small Bead in the Middle.

Some of the many Uses of this Instrument are as follow.

Of Heights.

Suppose you would know the Height of a Steeple, Tower, or Tree; hold up the Quadrant, and view through the Sights the Top of the Steeple, Tower, or Tree, and then step forwards or backwards, till you find the Plummet hang at Liberty just at 45 Degrees, that is, just in the Middle of the Quadrant; then is the Height of the Steeple, Tower, or Tree, equal to the Distance of your Standing-place from the Bottom of the Steeple, adding for the Height that you hold the Quadrant from the Ground.

If the Plummet interfet one Quarter of the Quadrant, or 22 Degrees and a Half, then twice the Distance of your Standing is the Heighth; and if three Quarters of the Quadrant, or 67 Degrees and a Half, then Half the Distance of your Standing is the Height.

To find the Hour of the Day.

Lay the Thread just upon the Day of the Month, then hold it till you slip the small Bead or Pins-head to rest on one of the 12 a Clock Lines; then let the Sun shine from the Sight at C to the other at D, the Plummet hanging at Liberty, the Bead will rest on the Hour Line of the Day.

To find the Latitude of a Place.

Hold up the Quadrant, and thro' the Sights thereof (or along the Edge) spy (in a clear Star light Night) the North-
Pole Star; the Plummet hanging at Liberty, the Thread will rest on the Degrees of Latitude of the Place you be in, or where you take your Observation. If at London, you will find it 51 Degrees and 32 Minutes. If at Bristol, 51 Degrees 27 Minutes. If at York, 53 Degrees 58 Minutes; and if at Berwick, 55 Degrees 54 Minutes, &c.

When it is said that such a Kingdom, Country, City, Town, or Place, lieth from 40 to 50 Degrees North Latitude, it is to be understood, that it lieth on the North Side of the Tropick of Cancer, or North Boundary of the Sun towards England, to which the Sun comes about the 10th or 11th of June, and makes our Days the longest. And about the 10th or 11th Day of December, the Sun enters the Tropic of Capricorn, its South Boundary, and is then the farthest from us, and makes our Days the shortest.

Of Dialling.

Dialling is a very ancient Art, even as old as the Time of King Hezekiah, where mention is made of the Dial of Abaz, in the 2d Book of Kings, Chap. xx. Verse 11.

The Gnomon or Subtile of a Post or Horizontal Dial, should point directly South, and its Back will be then directly North. The South may be truly known by a good Watch or Clock, just at Noon; for then the Sun is always at the Meridian; and makes just 10 o'Clock; so that knowing the South, it will not be difficult to find the North, it being its Opposite.

To fix a Dial North and South.

Fasten your Board on the Top of a Post, and then with your Compasses make 4, or 5, or 6, Circles, one within the other, from the Center or Middle, where place a large Pin perpendicular or upright, and nicely observe when the Sun shines in the Forenoon, on which Circle the Head of the Pin shadoweth; then there make a Mark; and do the same in the Afternoon, when the Shade of the Pin's Head comes on the same Circle; and from the Mid-way of the two Marks, draw a Line to the Center, on which place your Meridian or 12 o'Clock Line, so will the Post Dial point North and South.

By the Meridian Line, you may also know when the Moon, or a Star of Magnitude, comes to the South; which when they do, they are always at the highest, whether by Night or Day.
But to proceed to Dialing, the following Figure represents an Horizontal Dial, described for the Latitude of New-York, at 41 deg. 44m. North.

First, Draw the Meridian or 12 o'Clock Line \( BAC \), and cross the same with the Line \( DE \), at right Angles in the Point \( A \), which must be the Center of your Dial, and the Line \( DE \) is the 6 o'Clock Line; then take with your Compasses 60 Degrees from a Line of Chords, and with that Extent, setting one Foot in the Center at \( A \), with the other describe the Circle \( DOE \), which done, take from the same Line of Chords, all the Hour Arches in the following Table; and placing one Foot of your Compasses in \( O \), (where the Circle crosses the Meridian) with the other set off the Hour Arches both Ways upon the Circle \( DOE \).

Latitude 41 Degrees 44m. North.

<table>
<thead>
<tr>
<th>Hours.</th>
<th>Afternoon.</th>
<th>Hour.</th>
<th>Arches</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>9</td>
<td>46</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>32</td>
<td>44</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>48</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>67</td>
<td>22</td>
</tr>
</tbody>
</table>
Against 11 and 1, is 9 Degrees and 46 Minutes, which take with your Companys from the Line of Chords, and setting one Foot in the 12 o’Clock Line at O, with the other make a Mark in the Circle both Ways; then draw straight Lines from the Center A, crossing the Circle in those two Marks, and you will have the true Hour Lines of 11 o’Clock in the Forenoon, and one in the Afternoon. Then to draw the Hour Lines of 10 and 2 o’Clock, look in the Table for 10 and 2 Hours, against which you will find 20 Degrees and 22 Minutes, which take from the Line of Chords, and mark as the other from the 12 o’Clock Line both Ways on the Circle. The same is to be done for 9 and 3 o’Clock; and also for 8 and 4 o’Clock; and the like for 7 and 5 o’Clock.

Note, For 5 o’Clock in the Morning, and 7 in the Afternoon, which are below the 6 o’Clock Line, set off the same Distance as 5 and 7 above it.

Lastly, For the Height of the Gnomon or Stile, take from the Scale of Chords the Poles Elevation, which at New-York, is 41 Degrees 44m. and set that Distance from O to P on the Circle, then draw the dotted Line APH, which shall represent the upper Edge or Height of the Stile to be erected over the 12 o’Clock Line, and so your Dial is finished.

Of Upright Planes.

Those Planes are said to be Erect or Upright which stand perpendicular to the Horizon of the Place, whose upper Part pointeth to the Zenith, and their lower Part to the Nadir; and such are the Walls of Houses, Churches, Steeples, &c. against which Dials are commonly made.

Of Upright or Erect Planes, there are two Sorts, viz. Direct and Declining.

How to draw the Hour-Lines on a Direct South Plane, in the Latitude of 41 Degrees 44m. as described in the following Representation.
First, draw the Meridian or 12 o’Clock-Line $A B$, and cross it with the Line $D E$, for the 6 o’Clock-Line, then with your Compasses take 60 Degrees from a Scale of Chords, and placing one Foot at $A$, (where the 6 o’Clock Line crosses the Meridian) with the other draw the Semi-Circle $D O E$.

Next for the Hour-Arches, you must take them out of the following Table, and project them into the Dial, after the same Manner as in the Horizontal, only in this you must insert but 12 Hours.

LATITUDE 40 Degrees North.

<table>
<thead>
<tr>
<th>Hours.</th>
<th>Afternoon.</th>
<th>Hours.</th>
<th>Arches</th>
<th>D. M.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forenoon.</td>
<td>11</td>
<td>11 28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Afternoon.</td>
<td>10</td>
<td>23 5 1/2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>5 2 33</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>37 0 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>19 17</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Lastly,
Lastly, for the Height of the Stile, take from the Scale of Chords 50 Degrees (the Compliment of the Pole's Elevation at Philadelphia) and setting that Distance from O to P, on the Semi-Circle, draw the dotted Line APH, which shall represent the Height of the Stile as in the Figure.

In making this Dial, you make two Dials; for the Erect Direct North Dial, is but the Back-side of the South; for as this beholdeth the South Part of the Meridian, so the other faceth the North Part of the Meridian; and as the Meridian Line in the South Dial shews when it is 12 a Clock at Noon, so the Back-side thereof, viz. the North-side, represents the Hour Line at 12 a Clock at Midnight, and therefore not expressed, nor the Hour-lines of 8, 9, 10, 11 at Night, or of 1, 2, 3, or 4 in the Morning, the Sun being never seen by us above the Horizon at those Hours: So that the North Dial is capable of only receiving the Hours of 5, 6, and 7 in the Morning, and 5, 6, and 7 in the Afternoon, and (in this Latitude) not of all them neither, for it shines not in this Plane at 8 a Clock in the Morning, nor at 4 in the Afternoon.

An Erect Direct North Dial.
To draw Hour-lines on an Erect Direct East or West Plane—Hour lines in these Dials must be parallel to one another, and the Dial not have any Center, but drawn as follows.

**An East Direct Dial in Latitude 40 Degrees.**

Let $ABCD$ be the Dial Plane, on which is to be drawn a Direct East Dial, upon the Point $D$, if an East Dial; and on the Point $C$, if a West. With the Radius (or 60 Degrees) of the Line of Chords, describe the obscure Arch $EF$; then from your Chords take 50 Degrees, the Compliment of the Latitude of the Place, and set them from $E$ to $F$, and draw the Line $DF$ quite thro’ the Plane; then that you may proportion the Stile to the Plane, so that you may bring on all the Hours from Sun-rising to 11 a Clock, assume two Points in the Line $FD$, one towards the End $D$ (as the Point $G$) for the Hour Line of 11, and another at $H$, for the Hour Line of 6; and thro’ the Points $G$ and $H$, draw the Lines 11 $G11$, and 6 $H6$, then set one Foot of the Compasses at $I$ (open’d to 60 Degrees) and describe the obscure Arch $IK$; from your Scale of Chords take 15 Degrees, and set them from $I$ to $K$, and draw the Line $GK$, extending it to the 6 a Clock Line in the Point $L$; so shall $LH$ be of the Height of the Perpendicular Stile proportioned to this Plane.
For the drawing of the Hour-lines, set one Foot of the Compasses (opened to 60 Degrees of the Chords) in \( L \), and with the other describe the Arch \( MN \), between the Hour-line of \( 6 \), and the Line \( GL \); which divide into five equal Parts in the Points \( O \to O \to O \to O \to O \) and a Ruler laid from the Point \( L \), to each of these Points \( O \to O \), &c. will cut the Equinoctial Line \( HL \) in the Points \(*\*\*\*\); thro' which Points draw Lines parallel to \( 6H6 \), as the Lines \( 7*7, 8*8, \&c. \) as may be seen in the Figure.

And thus you have made two Dials, viz. a West Dial as well as an East; only the Arch \( EF \), through which the Equinoctial passeth in the East Dial, is drawn on the Right-hand of the Plane; but in the West it must be drawn on the Left; and the Hour Lines \( 5, 6, 7, 8, 9, 10, \) and \( 11 \) in the Forenoon, on the East Dial, must be \( 7, 6, 5, 4, 3, 2, \) and \( 1 \) in the Afternoon, upon the West Dial, as in the Figure.

An Erect and Direct West Dial.

The Stile of the East or West-Dials, may be either a straight Pin of the just Length of the Line \( HO \) in the other Figure, which is equal to \( HL \) in the East-Dial fixed in the Point \( H \), on the Hour Line of \( 6 \), and exactly perpendicular to the Plane, shewing the Hours by the Shadow of the Apex, or very near the Top thereof. Or it may be a Plate of Brass of the same Breadth with the Distance of the Hour-lines of \( 6 \) and
The Young Man's Best Companion.

6 and 3; which Plate must be set perpendicular upon the Hour Line of 6, and so it will shew the Hour by the Shadow of the upper Edge thereof, as in the foregoing West Dial.

An easy Way how to fix a Dial North and South.

Fix a square Piece of Board like a Trencher on the Top of a Post, and with your Compasses draw 4, 5 or 6 Circles, one within another from the Center; in which Center fix a large Pin perpendicularly, and when the Sun shines in the Forenoon, note which Circle the Pin's Head shadeth, and there make a Mark: Do so in the Afternoon, when the Shadow of the Pin's Head comes on the same Line; and from the Midway of those two Marks, draw a Line to the Center; upon which Line lay your 12 a Clock or Meridian-line of your Post Dial, because it directly points North and South. Thus by this plain Way, without any other Instrument, find the Situation of your Dwelling, whether full North or South, or whether it declines East or West, &c.

Of Beautifying and Colouring Dials.

FIRST, the Boards are to be brushed over with Linseed Oil, thinly ground with Spanish Brown done over 3 or 4 times (drying between each time) a little thicker each Time with the Colour; and this is called Priming.

To make the Fat Oil for Dials.

Boil Red Lead, and Linseed Oil, and a little Litherage of Gold (about a Pennyworth) together, till almost as thick as Syrup; and when cold, and well settled, pour the clearest into a Bottle or Bladder for Use.

The Gold Size for Dials.

Mix fine ground yellow Oker with the aforesaid fat Oil, to such a Consistency, as when used, it may settle smooth of its elf.

A Mixture for Hour-Lines.

Grind Vermillion or Lamp-Black with the fat Oil.

To draw Golden Letters or Figures for the Hours.

First draw them with a Pencil dipped in the Gold Size before mentioned; which when so dry as just to stick to your Fingers, then with a smooth-edg'd Pen-knife shape your Leaf Gold to your Mind; take it up with a Piece of Cotton Cloth fixt to the End of a Stick, and lay it on the Size, pressing it down with the same Cotton, and when dry, brush off the loose Gold with a Feather, and smooth the rough Edges.
Of the Dial Plane.

Let the Board be of the best season'd, finest, clearest Oak, one, two or more Feet square, and about three Inches thick. Take two Boards, and get them planed on both Sides, and then laid in the Sun-shine, or near a moderate Fire 2 or 3 Days together; then plane them again, and fix them with good Joints; and fasten them in gluing with wooden Pegs, as I have seen Coopers fix their Pieces of Heading for their Casks; and when thus glued and dried, plane them again, and then fasten them, by nailing two small Plates of Iron or Tin on the Back. If you cannot get season'd Wood, but green, then boil it about an Hour in Water, to make it tough, and keep it from warping. In the general, Wood is accounted better than Stone, because it keeps the Colouring more stanch or firm.

Before you colour your Dial-plate or Board, fix your Iron Stile, and having marked your Hour-lines with Ink, and fastened a Nail at the End of each Hour-line, that the Head of each Nail may shadow or direct you to the Center when it is coloured; and as it may happen that Golden Letters or Figures may decay in a few Years, you may on that Account make them with White-lead Paint, pointed with Red in a Black Margin—When your Dial is finished, and dry, dip a Feather in your Oil, and anoint it thinly; for the finer you mix or grind the Colouring with the Oil, the more beautiful it appears, though not so lasting.

These Hints of colouring Dials, puts me in mind of some other necessary Touches, relating to sundry Mixtures of Colours and dying of Stuffs, &c. collected from Mr. Salmon's Polygraphy.

Of Colours and Dying.

Whites, are Ceruse, Flake-white, and White-lead.
Blacks, are Lampblack, burnt Cherry-stones, and old Ivory burnt.
Reds, are Red-lead, Vermilion, Red Oker, and Indian Oxide.
Greens, are Verdigrease, Verditer, and Sap-green, made of the Juice of Buckthorn Berries.
Yellows, are Saffron, yellow Pink, and Gambogia.
Browns,
Browns, is Umber burnt.  
Gold Colour, is Orpiment.  
Again, Verdigrase, with a little Sap-green, makes a good and a right Green.  
Blues, are Ultamarine, Smalt, Indigo, and Blue-Bice.

Of mixing Colours.  
Colours are mixt by being ground on a Stone with fair Water, severally, and dried and kept in Paper Bags for Use; except Lamp-black, Saffron, Smalt, Gambogia, and Sap-green.  
Blue, to compound, temper a little Indigo and Smalt with Oil.  
A light Blue; mix Smalt and White-lead together.  
Red Colour, mix Lamp-black and White-lead together on a Marble.  
A Fox Colour, is Umber burnt.  
Gold Colour, is Orpiment mixt with fat Oyl, by a Knife on an Earthen Plate, or Gally-Tile rather.  
To hinder Colours from cracking, put Oil of Walnuts to them.  
Yellow Colour, beat Saffron to Powder, and steep it in Vinegar.—Or take the Yellow Chives in white Lillies and Gum Water mixt for Writing.  
Red, Vermillion with Gum-Water mixt for Writing.  
Golden Letters, to write, mix Vermillion and Gum-Armoniack with Yolks of Eggs.

Of Dying Wool, Stuff, &c.  
To die Blue, Take Woad 1 Pound, and mix it with 4 Pints of boiling Water, and dip Whites in it 24 Hours.  
To die Red of a clear Colour, take 60 Pints of Water wherein Bran has been steeped 24 Hours, and when strained, dissolve 2 Pound of Allom, and a Pound of Tartar; in which Water boil what you have to dye for 2 Hours; then take it out, and boil it in half as much fresh Water made of Bran, viz. 30 Pints; to which add Madder 3 Pound, and so perfect the Colour with moderate Warmth, without Boiling.  
To die Green, First make a Yellow by the Direction underneath; then take 60 Pints of Water wherein Bran hath been soaked, as aforesaid, then strain it, let 3 Pound of Allom be dissolved in it, and then boil what you have to dye in it, for 2 Hours.
To dye Yellow, Take Woad 2 Pound, of the said Water of Bran, and boil till the Colour is good. And if you would have the said Yellow to be Green, put the Stuff into the aforesaid Blue Lye.

To dye a Sad Colour, add Logwood to the Black Dye before mentioned.

To dye Linen or Thread, &c. like Red: Take Powder of Brazil and Vermilion, of each 1 Ounce, boil'd in Allom Water.

To dye Linen or Thread Yellow; dissolve Gambogia in Allom Water, &c.

To stain Skins blue; Boil Eldern Berries, and with the Liquor brush over the Skins, and wring them; then boil the Berries in Allom-water, and wet them twice over.

A Hint of Generals, or Things proper to be known and remember'd on proper Occasions.

A Ream of Paper, 20 Quires.
A Quire of Paper, 24 or 25 Sheets.
A Bale of Paper, 10 Reams.
A Roll of Parchment, 5 Dozen, or 60 Skins.
A Dicker of Hides, 10 Skins.
Ditto of Gloves, 10 Dozen Pair.
A Last of Hides, 20 Dickers.

A Load of Timber unhewed, 40 Feet.
A Chaldron of Coals, 36 Bushels.
A Hogshead of Wine, 63 Gallons.
Ditto of Beer, 54 Gallons.
A Barrel of Beer, 36 Gallons.
Ditto of Ale, 32 Gallons.
A Grofs, 144, or 12 Dozen.
A Weigh of Cheese 256 Pounds.

Days in a Year, 365, Weeks, 52, and Hours, 8766. Pence in a Pound 240, Farthings 960.

An Acre of Land, 160 square Poles or Perches.
A Last of Corn or Rape Seed, 10 Quarters.
Ditto of Pot Ashes, Cod-fish, White-herrings, Meal, Pitch and Tar, 12 Barrels.

Ditto of Flax and Feathers 17 C. of Gun-powder 24 Barrels, or 2400 lb. of Wool 4368 lb.
A Tun of Wine, 252 Gallons, Oil of Greenland, 252 Gallons; and sweet Oil of Genoa, 236 Gallons.
A Tun in Weight, 20 C. of Iron, &c. but of Lead there is but 19 C. and a Half, called a Fodder or Fother.
A Todd of Wool, 28 Pounds.
A Pack of ditto, 364 Pounds.
A Load of Bricks 500; and of Plain-Tiles, 1000.
A Stone of Fish, 8 lb. and of Wool 14 lb. the same for Horseman's Weight, and also Hay; but Pepper, Cinnamon, and Alum, have but 13 lb. ½ to the Stone.
Ditto of Glass, 5 Pounds; and a Sear of ditto, 24 Stone.
A Truss of Hay, 56 Pounds, and a Load of ditto, 39 Trusses.

Note, New Hay, in June and August ought to be 60 Pounds to the Truss; as per Statute of 2 of William and Mary, 1693.
A Cade of Red Herrings, 500; and of Sprats, 1000.
Iron and Shot, 14 lb. to the Stone.

Barrels of sundry Commodities.

Anchovies, 30 lb. | Raisins, 1 C. wt.
A double Barrel, 60 lb. | Oil, 31 Gallons and Half.
Nuts or Apples, 3 Bushels. | Spanish Tobacco, 2 C. to 3 C.
Pot-ash or Barrilla, 200 lb. | Gun Powder, 1 C. wt.
White or Black Plates, 300. | Soap, 240 lb.
Candles 10 doz. lb. | Butter, 224 lb.
Salmon or Eel, 42 Gall. | Herrings, 32 Gallons.
Figs, 3 qrs. 14 lb. to 2 C. ½

Things in Wholesale Trade, bought and sold by the Thousand.
Cuttle Bones. | Bricks.
Oranges and Lemmons. | Clinkers, or Flanders Tiles.
Chair Nails. | Billets and Leaves of Horn.
Tacks and Tenter-Hooks. | Barrel Hoops.
Pomgranates and Tazels: | Squirrel Skins.
Goose Quills and Thimbles. | Slat and Hilling Stones.
Pins and small Needles, by the 1000 Dozen. | 

Things sold and bought at Six Score to the Hundred.
Bauks and Barlings, | Nails, Eggs, and Cod-fish,
Bomspars and Bow-staves. | Ells of Canvas, and most For- reign Linnens.
Canpars and Caprevans. | And Hhd. Staves.
Herrings and Deal Boards. | Of Money.

The Current Coin of England, is made either of Copper, Silver, or Gold. Of Copper is made the Farthings and Half-pence. Of Silver, the Pennies, Two
pences, Three-pences, Groats, Six-pences, Shillings, Half Crowns, and Crowns: But there is very little Silver coined below the Sixpence. Of Gold is made the Half-Guinea, the Guinea, and the 5 Guinea Piece: Besides, there are Foreign Pieces of Gold, that pass, tho' with some Scruple, as the Portuguese Moire, at 27s. and the Milled or French Piéce as 18s. There are also some few ancient Pieces of Gold of a pale Colour, as being alloyed with Silver, and therefore may be reckoned the best, and sometimes called Angel or Crown Gold; whereas the old Gold or Broad Pieces are mostly alloy'd with Copper, which makes them of a reddish Colour.

**Imaginary Money.**

We appropriate several Names to Money, of which there is no Coin; as, s. d.
The Pound of 20 0
The Mark 13 4
The Noble, or half Mark 06 8
The Angel, or 10 0

In England and its Colonies, Accounts are kept in Pounds, Shillings, and Pence; and their Marks are derived from their Names in Latin, viz. l. for Librae or Pounds, s. for Solidi or Shillings, d. for Denarii or Pence, qr. for Quadrantes or Farthings, 4 making a Penny; and expressed or set down thus. l. s. d. qr.

4 16 8 2

but better thus, l. 4 16 8 ¼; the Mark for Pound standing before the Sum denominates the first Number, and the others are known of Course; for after Pounds follow Shillings, and after Shillings succeed Pence, &c. When the Price of any Thing is Shillings and Pence, it is set down thus;
s. d.
4 6

or thus. 4/6: And when Shillings and Pence, and Parts of a Penny, expressed thus, s. d.

4 6½

or thus, 4/6½. The latter Way by some is accounted the neatest, and best Method to express Parts of a Penny or Farthings; thus,
\[ \frac{1}{4} \text{ a Farthing, or one fourth Part of what it follows.} \]
\[ \frac{1}{2} \text{ a Half-penny, or one Half of what it follows.} \]
\[ \frac{3}{4} \text{ three Farthings, or } 3\text{-4ths, or qrs. of what it follows.} \]

And being thus set Fraction-wise the under Figure shews how many Parts the Quantity before it is divided into, and the upper Figure shews how many of those under Parts the Fraction stands for; as thus, \( \frac{1}{4} \) of an Ell, \( \frac{1}{2} \) of a Foot or 9 Inches, and the same of a Shilling is 9 Pence; of a Pound is 25s.

If you are to set down 6 Yards and a Half, write thus, \( 6\frac{1}{2} \) C Yds.

Nineteen Hundred three Quarters thus,

Sixteen Pounds and a Quarter thus,

or else thus, 16 C. \( \frac{3}{4} \), 16 lb. \( \frac{1}{2} \), 5 Feet \( \frac{1}{2} \), 14 Days \( \frac{1}{2} \). Here the Name is put between the whole Number and the Fraction, which I think is the plainer and better Way: For Example, \( 6\frac{1}{2} \) Hhd. may through Ignorance or Wilfulness, be read, \( 6 \) Half Hhds. as well as \( 6 \) Hhds. and a Half; and at a certain Place where I have had Business, the Wharfinger Clerks expressed their half Hhds. in this Manner.

\[ \text{A Table of the Value of Gold and Silver.} \]

\[
\begin{array}{l|l|l|l|l}
\hline
\text{Gold.} & \text{Silver.} \\
\hline
\text{1 Pound is worth} & \text{1 Pound is worth} \\
\text{1 Ounce} & \text{1 Ounce} \\
\text{1 Penny Weight} & \text{1 Penny Weight} \\
\text{1 Grain} & \text{1 Grain} \\
\hline
38 & 30 & 0 & 0 & 0 \text{ s. d.} \\
4 & 3 & 0 & 0 & 0 \\
0 & 0 & 0 & 2 & 2 \\
3 & 3 & 0 & 0 & 0 \\
0 & 0 & 3 & 3 & 3 \\
0 & 0 & 0 & 0 & 0 \\
\hline
\end{array}
\]

Instrumental Arithmetick.

\[ \text{A 6 Problems or Questions in Measurement, } \&c. \text{ are solved or answered arithmetically by the Pen, so are they also instrumentally taken by Compasses from certain Lines, } \&c. \text{ or Rules made for that Purpose, for the Help of those that are deficient in Arithmetick, or for a quicker Dispatch of Business; and such Performances are called instrumental Arithmetick; and of the Instruments, the most in Vogue} \]
The Young Man's Best Companion.

Vogue or Use, are these Three: 1. The Carpenter's Plain Rule. 2. Gunter's Line. 3. Coggeshall's Sliding-Rule.

1. The Carpenter's Plain Rule.

I shall describe and say something of the Carpenter's Plain Rule in Relation to its Uses, &c.

Its Description.

This Rule is made Use of in measuring Board and Timber, being two Feet in Length, and divided into twenty-four Parts or Inches, and every one of those Parts or Inches subdivided into half Inches, and each of those Halves into Quarters, and each Quarter into two Parts; so that every Inch is divided into eight Parts, and the whole Length into 192 Parts.

This Rule is well known, and therefore not absolutely necessary of Representation, but however, for the better understanding it, I shall give one thus:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Under Board Measure thus described,

This Line begins at 6, and goes on to 36, within 4 Inches of the End of the Rule on the Right-hand.

Its Use.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

A Board being thus described,

By this Table it is manifest, and easily understood, That a Board of 4 Inches requires 3 Feet in Length to make a Foot Square, and a Piece of 3 Inches broad will require 4 Feet in Length to make a Foot Square.

At the other End of this Rule is a Table called Under Timber Measure; and thus described.
This Line begins at 8 and a Half, and goes on (by Divisions) to 36.

<table>
<thead>
<tr>
<th>In Square.</th>
<th>Feet.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>144, 0</td>
</tr>
<tr>
<td>2</td>
<td>36, 6</td>
</tr>
<tr>
<td>3</td>
<td>16, 10</td>
</tr>
<tr>
<td>4</td>
<td>9, 0</td>
</tr>
<tr>
<td>5</td>
<td>5, 9</td>
</tr>
<tr>
<td>6</td>
<td>4, 0</td>
</tr>
<tr>
<td>7</td>
<td>2, 11</td>
</tr>
<tr>
<td>8</td>
<td>2, 3</td>
</tr>
</tbody>
</table>

By this Table it is plain. That if a Piece of Timber be 6 Inches Square, then 4 Feet in Length of that Piece will make a solid Foot.

It is a common Method with Carpenters, to add the Breadth and Thickness of a Piece of Timber in Inches together, and call the Half thereof the Square of that Piece; but this Method gives the Content more than it is; and the greater the Difference, the larger the Error: But the true Square may be found in Gunter’s Line, thus; place one Point of the Compasses upon the Line for the Thickness, half Way of that Extent, and that will be the true Square in Inches.

2. Gunter’s Line.

This Line is commonly set on the Carpenter’s plain Rule, and consists of two Lines, one set at the End of the other, and Distances taken by Compasses, as aforesaid; and it is somewhat of the following Form.
To prove the Line by the Compasses, observe,

<table>
<thead>
<tr>
<th>1 to 2</th>
<th>equal</th>
<th>2 to 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 to 10</td>
<td>Distance</td>
<td>4 to 8</td>
</tr>
<tr>
<td>4 to 8</td>
<td>to</td>
<td>3 to 6</td>
</tr>
</tbody>
</table>

To Number on the Line.

Observe, That the Figures 1, 2, 3, 4, 5, 6, 7, 8, 9, sometimes signify themselves simply or alone; at other Times, 10, 20, 30, 40, &c. Again at other Times, 100, 200, 300 or 1000, &c.

To find a Number on the Line, as suppose 134.

For the Figure 1, account 1 on the Line; and for 3, take 3 of the large Divisions; and for 4 take 4 of the smaller Divisions; and that is the Point. Again, to find 750 on the Line; for 7 take 7 on the Line, for 50 take 5 of the greater Divisions, and that is the Point.

To find a small Number on the Line, as suppose 12.

For 1, take 1 as before, and for 2, take 2 of the larger Division, and that is the Point.

In measuring Board or Timber, it is best to have a Line of 2 Foot long, and Compasses 1 Foot long.

Note, Let the Measurement be by the Inch, Foot, Yard, Pole, Rod, &c. it is best to have it decimaly divided, or so suppos’d, that is, into 10 Parts, as the Measurement should require, and on the Carpenter’s Rule, the Foot so divided.

Note also, That if the Point of the Compasses fall off the Line in the Work, remove it to the same Figure or Place on the other Line; and the lesser Extent you take with the Compasses is frequently the best.

Multiplication by the Line.

To multiply 5 by 7, set one Foot of the Compasses in 1, and extend the other to 5 upwards, and with the same Extent place one Foot in 7, and the other Foot will fall on 35, the Answer.
Example 1. Divide 63 by 3; extend from 3 to 1 downwards, and the Extent will reach the same Way from 63 to 21, the Quotient.

N. B. In multiplying you must always extend upwards, that is, from 1, to 2, 3, to 4, &c. and on the contrary in dividing extend downwards.

Example 2. Divide 288/. equally among 16 Men: Extend from 16 to 1 downward; and that Extent will reach the same Way, from 288/. to 18/. for each Man.

Again,

Example 3. Suppose 750/. were to be divided among 25 Men; Extend from 25 to 1 downward; and that Extent will reach the same Way, from 750 to 30/. each Man's Share.

The Rule of Three direct.

Example 1. If a Bushel of Barley cost 3s. what will 40 Bushels cost? Extend from 1 to 3 upwards, and that Extent will reach the same Way from 40 to 120 Shillings, the Answer.

Example 2. If one Ell of Holland cost 3s. 6d. what will 40 Ells cost? Extend from 1 to 3 and a Half upwards; and that Extent the same Way will reach from 42 to 140.; the Answer.

Rule of Three Inverse.

Example 1. Admit the Bushel of Wheat to be worth 3s. 4d. or 40 d. and then the Two-penny Loaf to weigh 20 oz. what shall the said Two-penny Loaf weigh when Wheat is worth 5s. the Bushel? Extend from 60 to 20 downwards, and that Extent the same Way will reach from 40 to 13 Ounces and ⅓ for the Answer.

Example 2. If 136 Workmen fortify a Place in a Month or 28 Days, how many must be employed to do it in eight Days? Extend from eight downwards, to 136, and that Extent the same Way will reach from 28 to 476 Workmen, the Answer.

The Use in Board Measure.

Example. If a Board be 9 Inches broad, and 19 Feet long, what is the Content in superficial Square Feet? Extend from 12 (the Center of Foot Measure) to 9 downwards,
wards, and that Extent the same Way will reach from 19 to 14 and \( \frac{1}{2} \).

**In Timber Measure.**

*Example.* A Piece of Timber 24 inches square, and 8 Feet long, what is the Content in solid Feet? Extend from 22 (the Center) to 24 upwards, and that Extent twice the same Way will reach from 8 to 32 Feet, the Content.

**Brick Work.**

How many Rods of Work are there in 4085 Feet? Extend from 272 downwards to 1, and that Extent the same Way from 4085, will reach to 15 Rods, the Answer.

3. Coggesbal's Sliding Rule.

The next Instrument I shall speak of, is that which goes by the Name of Coggesbal's Sliding Rule. And first of,

**Its Description.**

This Rule is framed 3 Ways, sliding by one another as the Glaziers Rule; sliding on one Side of a two Foot Joint Rule; and one Part sliding on the other, in a Foot of Length; the back Part being flat, on which are sundry Lines and Scales.

Upon the aforesaid sliding Side of the Rule, are 4 Lines of Numbers, three are double Lines; and one a single Line of Numbers, mark'd (as in the Representation by and by annexed) with \( ABC \) and \( D \), the three marked \( AB \) and \( C \), are called double Lines of Numbers, and figured 1, 2, 3, 4, 5, 6, 7, 8, 9. Then 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 at the End. That mark'd \( D \), is the single Line of Numbers, and figured 4, 5, 6, 7, 8, 9, 10, 20, 30, and at the End 40, even with and under 10, in the double Line next to it, and that is called the Girt Line, and so marked in the Figure.

The Figures on the three double Lines of Numbers, may be increased or decreased at Pleasure; thus one at the Beginning may be called 10, 100, 1000; the 2 is 20, 200, or 2000; so that when 1 at the Beginning is 10, then 1 in the Middle is 100, and 10 at the End is 1000; but if 1 at the Beginning is counted for 1, then 1 in the Middle is 10, and 10 at the End is 100.

And as the Figures are altered so must the Strokes or Divisions between them be altered in their Value according
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ding to the Number of the Parts they are divided into; as
thus from 1 to 2, 'tis divided into 10 Parts, and each
Tenth is divided into 5 Parts; and from 2 to 3, it is di-
vided into 10 Parts, and each Tenth into 2 Parts, and so
on from 3 to 5; then from 5 to 6 it is divided into 10 Parts
only; and so on unto 1 in the Middle of the Rule, or the
first Part of the double Line of Numbers. The second Part
or Radius is divided into the like Radius.

The Girt-Line marked D, is divided from 4 to 5 into 10
Parts, and each Tenth into 2 Parts, and so on from 5 to
10; and then from 10 to 20, it is divided into 10 Parts, and
each Tenth into 4 Parts, and so on all the Way from 20 to
40 at the End, which is right against 10 at the End of the
double Line of Numbers.

The Lines on the back Side of this Rule that slide on one
Side, are these, viz. A Line of the Inch Measure from 1 to
12, each divided into Halves, Quarters, and Half Qua-
ters; another Line of Inch Measure from 1 to 12, each di-
vided into 12 equal Parts, and a Line of Foot Measure,
being one Foot divided into 100 equal Parts, and figured 10
20, 30, 40, 50, 60, 70, 80, 90, and 100, even with 12
on Inch Measure.

And the back Side of the sliding Piece is divided into
Inches, Halves, Quarters, and Half Quarters, and figured
from 12 to 24, so that it may be slid out to 2 Foot, to mea-
sure the Length of a Tree, or any Thing else you have Oc-
casion to measure.

The Use of the Double Scale.

Example 1.

Suppose there is a Geometrical Square whose Sides are 3
Feet \( \frac{1}{2} \) each; set one Foot on the Line B, to 3 \( \frac{1}{2} \) on the
Line A; and then against 3 \( \frac{1}{4} \) on the Line B, is 12 Feet \( \frac{1}{4} \)
on the Line A, which is the Content of such a Square.

\[
\begin{align*}
F. & \quad \text{Pts.} \\
3-6 & \\
3-6 & \\
10-6 & \\
1-9 & \\
12-3 & \text{Proof.}
\end{align*}
\]
In this Work by Arithmetic I multiply 3 F. 6 Parts by 3, and it produces 10 Feet 6 Inches; then I take the Half of 3 F. 6 for the 6 Inches (by the Way of Practice) because 6 Inches is the \( \frac{1}{2} \) of 12, &c. Again, Suppose there is a Board 27 Feet and \( \frac{1}{2} \) long and 16 Feet \( \frac{1}{4} \) wide, what is its Content?

\[
\begin{array}{c|c|c}
\hline
\text{Length} & \text{Area} & \text{Answer} \\
\hline
27 \frac{1}{2} & 446 & 446,8750 \\
16 \frac{1}{4} & & \\
\end{array}
\]

F. Pts. 27,50 Length.
16,25 Prod.

Suppose the Side of a Rhombus to be 8 Feet 6 Inches \( \frac{1}{4} \), and the Breadth, or Line \( AB \), 8 F. 4\( \frac{1}{6} \), what is the Content? Set 1 Foot on the Line \( B \), to 8 Feet \( \frac{8}{9} \), on the Line \( A \), then against 8 Feet \( \frac{8}{9} \) on the Line \( B \) is 71 Feet \( \frac{4}{9} \) Parts of a Foot on the Line \( A \). And to know the Value of the Decimal, or Part of the Foot, look for \( \frac{4}{9} \) on the Rule, and you will find against it 4 Inches \( \frac{3}{4} \), so that the Content of this Rhombus is 71 Feet 4 Inches \( \frac{3}{4} \).

Again, Suppose the Length of a Rhomboides to be 17 F. 3, or 17 \( \frac{3}{10} \), and the Breadth 8 F. 7 or 8 \( \frac{8}{10} \), what is the Content? Set 1 Foot on the Line \( B \), to 17,25, on the Line \( A \), then against 8,58 on the Line \( B \), is 148 Feet on the Line \( A \). The Figure hath been presented before, and operated arithmetically, therefore here unnecessary.

To measure a Triangle by the Rule.

Every Triangle is half of that long Square, whose Length and Breadth are equal to the Perpendicular and Base; therefore from the greatest Angle or Corner let fall a perpendicular Line to the opposite Side (as hath been said before) of the Base, and to find its Content take half the Length of the Base, and the whole Perpendicular, or \( \frac{1}{2} \) the Length of the Perpendicular, and the whole Base, and then multiply, &c.

Example.

Let the Base of a Triangle be 4 Feet 1 Inch \( \frac{1}{2} \), and the Perpendicular 2 Feet 1 \( \frac{1}{4} \); the Half of the one, is 2 Feet 7 Parts; and of the other, 1 Foot 7 Parts. Set one on the Line \( B \), to 4.15 on the Line \( A \); then against 1.07, Half the Perpendicular on the Line \( B \), is 4 Feet and almost \( \frac{1}{2} \) a Foot, for the Content. Or if you set 1 on the Line \( B \), to M 3

| 3 | 5 | 1.07 |
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1,07 on the Line $A$, against 4,15 on the Line $B$, is 4, and almost $\frac{1}{2}$ a Foot on the Line $A$.

Again, another Way. If you set one on the Line $B$, to 4, 1 on the Line $A$, then against 2.15 on the Line $B$, is 8 Feet $\frac{1}{10}$ (which is about 11 Inches) on the Line $A$, the Half whereof is 4 Feet 5 Inches $\frac{1}{2}$, which is the Content of the Triangle.

Of the Girt Line.

Suppose the Diameter of a Circle be 2 Feet $\frac{23}{24}$, what is its Content? Set 11 on the Girt Line $D$, to 95 on the double Line $C$; then against 2 Feet $\frac{23}{24}$ on $C$, the Girt Line is 3 Feet $\frac{23}{24}$ on the double Scale of Numbers $D$, which is the Content.

Board Measure.

Suppose a Board be 27 Inches $\frac{1}{2}$ broad, and 15 Feet $\frac{1}{2}$ long, what is its Content? Set 12 on the double Scale $B$, to 27 $\frac{1}{2}$ on the double Scale $A$; then against 15 Feet $\frac{1}{2}$ on the double Scale $B$, is 35 Feet the Content on the double Scale $A$.

When Dimensions are Feet and Parts, and the Content required in Feet and Parts.

Admit a Board be 24 $\frac{3}{4}$ long, and 1 Foot $\frac{1}{2}$ broad, what is the Content? Set 1 on the double Scale to 1 $\frac{1}{2}$ on the double Scale $A$; then against 24 $\frac{3}{4}$ on the double Scale $B$, is 37 Feet $\frac{7}{10}$ on the double Scale $A$, and is the Content.

Suppose a Piece of Glazing be 29 Inches $\frac{1}{2}$ long, and 7 Inches broad, what is the Content? Set 144 (represented by 1,44) on the Line $B$, to 7 Inches on the Line $A$; then against 29 $\frac{1}{2}$ on the Line $B$, is 1 Foot and almost $\frac{1}{2}$ on the Line $A$.

Suppose a Room Wainscotted be 44 Feet in Compass, and 9 Feet $\frac{3}{4}$ high, what is the Content? Set one on the double Scale $B$, to 44 Feet $\frac{1}{2}$ on the double Scale $A$; then against 9 Feet $\frac{3}{4}$ on the double Scale $B$, is 433 Feet $\frac{7}{10}$ on the double Scale $A$, the Content.

Admit a Piece of Painting be 13 Feet $\frac{1}{2}$ broad, and 23 Feet $\frac{1}{2}$ long, what is the Content? Set 9 on the double Scale $B$, to 13 $\frac{1}{2}$ on the double Scale $A$, then against 23 $\frac{1}{2}$ on the double Scale $B$, is 35 Yards $\frac{1}{4}$ on the double Scale $A$, and is the Content.
A Bond is a Writing Obligatory, for Payment of Money, &c. consisting of two Parts. 1st, The Obligation, wherein are inserted the Names of the Parties and their Additions, the Penalty, Date, &c. And 2dly, The Condition, which expressly mentions what Money is to be paid, or Thing to be performed, and the limited Time for Performance thereof; for which the Obligation is peremptorily binding.

When the Matter or Thing to be done, or not to be done, by a Condition, is unlawful or impossible, or the Condition is repugnant, insensible or uncertain, it is void: And if a Thing be possible at the Time of making the Obligation, but afterwards becomes impossible by the Act of God, or of the Law, or of the Obligee, it will be void. Also, if a Man or Woman is compell'd, for Fear of Imprisonment, to enter into a Bond, &c. such Compulsion will frustrate the Bond. Co. Lit.

But an Obligation may be good, altho' it contains false Latin, or false English, if the Intent of the Parties appears, and may be made certain.

Where no Place is mentioned for the Payment of Money on a Bond, the Obliger is to find out the Obligee. And if a Day is not set for the Payment of Money, the Debt is due presently; but if it be on a Mortgage, the Party shall have Time during Life, unless hastened by Request. 1 Inst. 208, 209.

In Obligations, he to whom the Obligation is made, is called the Obligee, and he who is bound is called the Obligor. In other Writings the Parties are stiled according to the legal Terms, as Vendor, Vendee, Leslor, Lessee, Mortgagor, Mortgagee, Gantor, Grantee, Donor, Donee, &c. But all Parties must be of the full Age of Twenty-one Years; for Infants cannot make any Obligation or Covenant, &c. unless it be for Necessaries, Apparel, Schooling, &c. Persons of full Age must also be of found Mind, and not Lunatics, Ideots, &c. Co. Lit. 171. 4 Rep. 126.

A Bond from One to One.

KNOW ALL MEN by these Presents, That I, John A. of the Township of, &c. in the County of, &c. Gentleman, am held and firmly bound unto William B. of, &c. in the County of, &c. Esquire, in One Hundred Pounds M 4
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of good and lawful Money of Great-Britain, to be paid to
the said William B. or to his certain Attorney, his Execu-
tors, Administrators or Assigns; for which Payment well
and truly to be made, I bind myself, my Heirs, Executors
and Administrators, firmly by these Presents, sealed with my
Seal: Dated this fifth Day of October, in the 9th Year of
the Reign of our Sovereign Lord George the Third, by the
Grace of God, of Great-Britain, France and Ireland, King,
Defender of the Faith, &c. and in the Year of our Lord
One Thousand Seven Hundred and Sixty-nine.

THE CONDITION of this Obligation is such, That
if the Above-bound J. A. his Heirs, Executors or Admi-
nistrators, do well and truly pay or cause to be paid unto
the above nam'd W. B. his Executors, Administrators or
Assigns, the full Sum of Fifty-two Pounds and Ten Shillings,
of lawful Money of Great-Britain, on or before the fifth
Day of January next ensuing the Date hereof; then this
Obligation shall be void, otherwise it shall remain in full
Force and Virtue.

Sealed and Delivered
in the Presence of

A Bond wherein two Persons are bound to one.

KNOW ALL MEN by these Presents, that we William
A. of, &c. in the County of, &c. Gentleman, and
John B. of &c. in the County of, &c. Yeoman, are held
and firmly bound to Thomas C. of, &c. Esquire, in Two
Hundred Pounds, of good and lawful Money of Great-Britain,
to be paid to the said Thomas C. or his certain Attorney,
Executors, Administrators or Assigns; for which Payment
to be well and truly made, we bind ourselves and each of
us, jointly and severally, for, and in the whole, our and
each of our Heirs, Executors and Administrators, firmly by
these Presents, sealed with our Seals; dated the Day of,
&c. in the Year of the Reign, &c.

THE CONDITION of this Obligation is such,
That if the Above-bound, W. A. and J. B. or either of
them, their, or either of their Heirs, Executors or Admi-
nistrators, do and shall well and truly pay, or cause to be
paid, unto the said T. C. his Executors, Administrators, or
Assigns, the Sum of One Hundred Pounds, of lawful Money
of Great-Britain, with Interest for the same, at the Rate
A Condition of a Counter Bond, or a Bond of Indemnity, where one Man is bound for another.

The Condition of this Obligation is such, That whereas the above-named A. B. at the Request, and for the only proper Debt and Duty of the above-bound C. D. with him the said C. D. is in and by one Bond or Obligation, bearing equal Date with the Obligation above written, held and firmly bound unto E. F. of, &c. in the penal Sum of Five Hundred Pounds, lawful Money of New-York, conditioned for the Payment of Two Hundred and Fifty Pounds, with legal Interest for the same, &c. next ensuing the Day of the Date of the said recited Obligation, as in and by the said Obligation and Condition thereof may more fully and at large appear. If therefore the said C. D. his Heirs, Executors, or Administrators, do and shall well and truly pay, or cause to be paid, unto the said E. F. his Executors, Administrators or Assigns, the said Sum of Two Hundred and Fifty Pounds, with legal Interest on the said Day, &c. next ensuing the Date of the said recited Obligation, according to the true Intent and Meaning, and in full Discharge and Satisfaction of the said recited Obligation: Then, &c. or else, &c.

A Condition to perform Covenants in a Deed.

The CONDITION of this OBLIGATION is such, That if the Above-bound A. B. his Heirs, Executors and Administrators, and every of them, do and shall in all Things well and truly observe, perform, fulfil, accomplish, pay, and keep all and singular the Covenants, Grants, Articles, Clauses, Provisions, Payments, Conditions and Agreements, which on the Part and Behalf of the said A. B. his Heirs, Executors and Administrators, are, or ought to be observed, performed, fulfilled, accomplished, paid and kept, comprised or mentioned, in certain Indentures bearing even Date with the above-written Obligation, made or mentioned to be made, between the said A. B. of the one Part, and the above-named C. D. of the other Part for in one Pair of Indentures of Lease made between, &c.] according to the true Intent and Meaning of the same Indentures; Then, &c.
A Condition of an Arbitration Bond, with an Umpirage.

THE CONDITION of this Obligation is such, That if the Above-bound A. B. his Heirs, Executors and Administrators, and every of them, do and shall, for his and their Parts and Behalts, in all Things well and truly stand to, obey, observe, perform, fulfill and keep the Award, Abitrament, Order and Determination of E. F. of, &c. and G. H. of, &c. Arbitrators indifferently chosen, as well on the Part of the said A. B. as on the Part and Behalf of the above-named C. D. to arbitrate, award, judge of, determine and agree for, upon, touching and concerning all and all Manner of Action and Actions, Cause and Causes of Action and Actions, Debts, Accounts, Differences, Quarrels, Disputes, Reckonings, Agreements, and all Dues and Demands whatsoever, both in Law and Equity, or otherwise howsoever, which between them the said A. B. and C. D. or either of them, at any Time heretofore have been, or at the Time of the Sealing hereof had, moved, stirred up, or in any wise depending, so always as the said Award, Abitrament, Judgment, final End, Determination and Agreement, between the said Parties, be made in Writing, indented under the Hands and Seals of the said Arbitrators, ready to be delivered to the said Parties, at or in, &c. next ensuing the Date of the above-written Obligation; Then, &c.

The Umpirage.

And if the said Arbitrators shall not make and draw up the said Award in Writing, as aforesaid, on or before, &c. and the same deliver to the said Parties, as aforesaid; if then the said A. B. his Executors and Administrators, and every of them, do and shall stand to, abide, observe, perform and keep the Award, Umpirage, final End and Judgment of L. M. of, &c. Umpire indifferently elected between the said Parties, for ending and composing of all the Differences aforesaid, so as the said Umpire do make and draw up his said Award, Umpirage and Determination, in Writing, indented under his Hand and Seal, ready to be delivered to the Parties, on or before, &c. Then, &c. or else, &c.

Of Releases of Rights, Actions, Claims and Demands.

A Release is the Discharge of a Right or Action, Debt, Duty or Demand; and all Actions, real, personal and mix'd, may be discharged by Release; also all Debts, Legacies,
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gacies, and other Duties, Annuities, Lands, Rights and Titles to Lands, &c.

A Release of all Actions or Suits bars all Actions and Suits, and Bonds and Statutes, where the Cause of Action is subsisting at the Time of the Release. A Release of all Quarrels, discharges all Actions real and personal, and the Causes of such Actions. A Release of all Debts discharges all Debts then owing from the Relesee upon Specialties, Executions, &c. A Release of all Duties bars all Actions, Judgments, Executions, Obligations, Rents, &c. and by a Release of all Demands, all Rights and Titles to Lands, Conditions, Bonds, Statutes, Recognizances, Contracts, Covenants, and all Manner of Actions, real and personal, Debts, Duties, Judgments, Executions, Rents, Annuities, &c. are released and discharged. Co. Lit. 286, 291, 292, &c.

A Release of all a Man's Right to Lands, all Actions, Entry, Title of Dower, Rents, &c. are discharged; but a Right descending to the Relesee afterwards, it is not thereby released. A Release of Title to Lands is equally extensive to a Release of Right; and a Release of all Entries, or Right of Entry, bars all Right or Power of Entry into Lands. Co. Lit. 289, 345.

If a Creditor be made Executor by his Debtor, or if the Creditor being a Woman, marries her Debtor, these are Releases in Law of the Debts. Co. Lit. 264.

A General Release of all Demands.

NOW ALL MEN by these Presents, That I A. B. of, &c. Gent. have remitted, released, and for ever quit-claimed, and by these Presents do for me, my Heirs, Executors and Administrators, remit, release, and for ever quit claim unto C. D. of, &c. Gent. his Heirs, Executors and Administrators, all and all Manner of Action and Actions, Cause and Causes of Action and Actions, Suits, Bills, Bonds, Writings, Obligations, Debts, Dues, Duties, Reckonings, Accounts, Sum and Sums of Money, Judgments, Executions, Extents, Quarrels, Controversies, Trespasses, Damages and Demands whatsoever, both at Law and in Equity, or otherwise howsoever, which against him the said C. D. I ever had, now have, or which I, my Heirs, Executors and Administrators, shall or may have, claim, challenge or demand, for or by Reason or Means of any
A Letter of Attorney.

KNOW all Men by these Presents, That I Charles Careful, of Lewis in the County of Sussex, Apothecary (for divers Considerations and good Caufes, me hereunto moving) have made, ordained, constituted and appointed, and by these Presents do make, ordain, constitute and appoint, my trusty Friend Timothy Wagstaff, of Remfey, in the County aforesaid, Gent. my true and lawful Attorney, for me, in my Name, and to my Use, to ask, demand, recover, or receive, of and from A. B. of Rye, in the said County,
County, the Sum of Forty Pounds, giving, and by these Presents granting to my said Attorney, my sole and full Power and Authority, to take, pursue, and follow such legal Courtes, for the recovery, receiving and obtaining the same as I myself might or could do, were I personally present; and upon the Receipt of the same Acquittances, and other sufficient Discharges, for me, and in my Name, to make, sign, seal and deliver; as also one more Attorney or Attorneys under him, to substitute or appoint, and again at his Pleasure to revoke, and further to do, perform, and finish for me, and in my Name, all singular Thing or Things, which shall or may be necessary touching and concerning the Premises, as fully, thoroughly, and entirely, as I the said Charles Careful, in my own Person ought or could do, in and about the same: Ratifying, allowing, and confirming, whatsoever my said Attorney shall lawfully do, or cause to be done, in and about the Execution of the Premises, by Virtue of these Presents. In Witness whereof, I have hereunto set my Hand and Seal, the 6th Day of May, in the ninth Year of our Sovereign Lord George III. by the Grace of God, King of Great-Britain, &c. in the Year of our Lord God, 1769.

A Letter of Attorney by a Seaman.

KNOW all Men by these Presents, That I Timothy Tar-paulin, Mariner, now belonging to his Majesty's Ship the Rye, for divers good Causes and Considerations me thereunto moving, have, and by these Presents do make my truly Friend [or beloved Wife] Henry Hearty, Citizen and Baker of London, my true and lawful Attorney, for me, and in my Name, and for my Use, to ask, demand and receive, of, and from the Right Honourable the Treasurer or Paymaster of his Majesty's Navy, and Commissioners of Prize-Money, and whom else it may concern, as well all such Wages, and Pay, Bounty Money, Prize Money, and all other Sum and Sums of Money whatsoever, as now are, and which hereafter shall and may be due or payable unto me; also all such Penions, Salaries, Smart Money, or all other Money and Things whatsoever, which now are, or at any time hereafter shall or may be due to me, for my Service, or otherwise, in any one of his Majesty's Ship or Ships, Frigates or Vessels: Giving and hereby granting,
unto my said Attorney, full and whole Power, to take, pursue and follow such legal Ways and Courses, for the Recovery, receiving and obtaining, and discharging upon the said Sum or Sums of Money, or any of them, as I myself might or could do, were I personally present; and I do hereby ratify, allow and confirm, all and whatever my said Attorney shall lawfully do, or cause to be done, in and about the Execution of the Premises, by Virtue of these Presents. In Witness whereof, I have hereunto set my Hand and Seal, this 22d Day of January, &c.

Timothy Tarpaulin, ©

Of Articles of Agreement.

ARTICLES of Agreement are mutual Covenants entered into by Parties, where both of them are obliged to do something, one in Return to the other. They are of various Kinds, as business falls out; and some of them are the following.

Articles for the taking down an old House, and building up a new One, for a certain Sum of Money.

Articles of Agreement made, &c. between A. B. of, &c. and C. D. of, &c.

FIRST, The said C. D. for himself, his Executors, Administrators and Assigns, doth covenant, promise and grant, to and with the said A. B. his Executors, Administrators and Assigns, by these Presents, in Manner following (that is to say): that he the said C. D. his Executors, Administrators and Assigns, or some of them, for the Considerations herein after mentioned, shall and will forthwith take down, or cause to be taken down, the now Dwelling-House of the said A. B. situate, &c. and in the Room and Stead thereof shall, on or before, &c. next, make, erect, build and set up, in a Workman-like Manner, one new Tenement or Dwelling House, Thirty Feet wide in Front, Fifty Feet long or deep Backwards, and Three Story high, &c. each Story being, &c. Feet; together with a Cellar of the Dimensions of, &c. And shall also make four Rooms, &c. on each Floor. And also that he the said C. D. his, &c. shall find and provide, at his or their own Charges and Expense, all Manner of Tiles, Bricks, Laths, Nails, Lead, Iron, Sand and Lime, Timber, and all other Materials whatever.
whatsoever, which shall be fit and necessary to be used in or about the said Building, and shall carry away all Rubbish that shall any way arise by Reason of the said Building.

And the said A. B. for himself, his Executors and Administrators, in Consideration of the said Building to be built and finished in Manner aforesaid, by the said C. D. his, &c. doth covenant and grant to and with the said C. D. his Executors, Administrators and Assigns, by these Presents, That he the said A. B. his Executors, Administrators and Assigns, or some of them, shall and will well and truly pay, or cause to be paid unto the said C. D. his Executors, Administrators or Assigns, the Sum of 300 l. of, &c. at three several Payments, viz. 100 l. thereof, &c. (or in Hand at his Beginning of the Work, &c.) 100 l. more when the Roof of the said Building is framed, timbered and tiled; and 100 l. more, Residue, and in full Payment of the said Sum of 300 l. when the whole Building is fully compleated in a Workman-like Manner, as aforesaid.

And for the Performance of all and every the Articles of Agreements above-mentioned, the said A. B. and C. D. do hereby bind themselves, their Executors, Administrators, and Assigns, each to the other, in the Penal sum of 600 l. of, &c. firmly by these Presents.

In Witness, &c.

Of Bills of Sale, and Bargains and Sales.

A Bill of Sale is an Instrument used for the Transferring of the Property of Goods; but a Bargain and Sale transfers Lands, Tenements, Rents, Advowsons, Tithes, &c. in Fee simple, Fee tail, for Life or Years, as well as Goods and Chattels.

A Man may bargain and sell his Goods at any Time; and if the Bargain is that you shall give me to much for a Horse and you give me a Shilling or a Penny in Earneft, which I accept, this is a perfect Sale. Nov. Max. 87.

Where Lands are conveyed by Bargain and Sale, there must be a good Consideration given; and where the Freehold is to pass, Inrollment is necessary (within six Months) as it is provided by Stat. 27. H. 8. and it needs no Livery of Seisin, &c. to perfect it. But a Bargain and Sale may be made of Goods and Chattels, Leaves, &c. without Consideration or Inrollment, with Livery and Seisin. 5 Co. 1, 2. Cro. 240.
NOW all Men, &c. That I I. K. of, &c. for and in Consideration of the Sum of, &c. to me in Hand paid at and before the Sealing and delivery of these Presents, by T. S. of, &c. the Receipt whereof I do hereby acknowledge, have bargained and sold, and by these Presents do bargain and sell, unto the said T. S. all the Goods, Household-Stuff, and Implements of Household, and all other Goods whatsoever, mentioned in the Schedule hereunto annexed, now remaining and being in, &c. in the Possession of, &c. To have and to hold all and singular the said Goods, Household-Stuff and Implements of Household, and every of them, by these Presents, bargained and sold unto the said T. S. his Executors, Administrators and Assigns, for ever. And I the said I. K. for myself, my Executors and Administrators, all and singular the said Goods and Household stuff unto the said T. S. his Executors, Administrators and Assigns, against me the said I. K. my Executors, Administrators and Assigns, and against all and every other Person and Persons whatsoever, shall and will warrant, and for ever defend by these Presents. Of which Goods, I the said I. K. have put the said T. S. in full Possession, by delivering him one Silver Tankard, &c. at the Sealing hereof. In Witness, &c.

A Bill of Sale of Part of a Ship, with its Furniture, &c.

To all People, &c. I H. I. of, &c. send Greeting. Know ye, that I the said H. I. for and in Consideration of the Sum of, &c. to me in Hand paid by T. S. of, &c. the Receipt whereof I do hereby acknowledge, &c. have granted, bargained and sold, and by these Presents I the said H. I. do grant, bargain and sell, unto the said T. S. one eighth Part (the Whole in eight equal Parts to be divided) of the Ship called, &c. of the Port of, &c. and Burthen of, &c. now lying and being within the Harbour of, &c. together with one full eight Part of all the Mails, Sails, Sail-yard, Anchors, Cables, Ropes, Cords, Boats, Oars, Pieces of Ordnance, Guns, Gunpowder, Shot, Yacque, Apparel, Ammunition, and Furniture to the said Ship belonging, or appertaining: To have and to hold the said eighth Part of the said Ship, and all other the Premises hereby granted, with the Appurtenances, unto the said T. S. his Executors, Administrators and Assigns, as his and their own
own proper Goods, and to his and their own proper Use and Uses for ever. And I the said H. I. do for myself, my Heirs, Executors and Administrators, covenant and grant to and with the said T. S. his Executors, and Assigns, by these Presents, that I the said H. I. at the Time of Sealing and Delivery of these Presents, am the true and lawful Owner and Proprietor of the said eighth Part of the said Ship, and Premises hereby granted, with the Appurtenances. And that I have full Power and Authority to grant, bargain and sell the said eighth Part of the said Ship, with the Premises hereby mentioned to be granted, with the Appurtenances, unto the said T. S. his Executors, Administrators and Assigns, in Manner aforesaid. And also, That it shall and may be lawful to and for the said T. S. his Executors and Assigns, from Time to Time, and at all Times hereafter, quietly and peaceably to have, hold, possess and enjoy, the said eighth Part of the said Ship, and all other the Premises hereby granted or mentioned, or intended to be granted, with the Appurtenances, without the Lett, Trouble, Denial, Molestation, Hindrance or Disturbance, whatsoever, of me the said H. I. my Executors, Administrators or Assigns, or of any other Person or Persons whatsoever, lawfully claiming, or to claim from, by or under me, them, or any of us, and that freed and discharged of and from all former and other Bargains, Seals and Incumbrances, whatsoever made, done, or committed by me the said H. I. &c. In Witness, &c.

A Bargain and Sale of Lands.

This Indenture made, &c. between H. I. of, &c. of the one Part, and T. R. of, &c. of the other Part, witnesses, That the said H. I. for and in Consideration of the Sum of, &c. to him in Hand paid by the said T. R. the Receipt whereof the said H. I. doth hereby acknowledge, he the said H. I. hath granted, bargained and sold, aliened and confirmed, and by these presents doth grant, bargain and sell, alien and confirm unto the said T. R. his Heirs and Assigns for ever, all that Messuage, &c. and that Piece or Parcel of Land, &c. situate, &c. and also all Trees, Woods, Under-woods, Tithes, Commons, Common of Pature, Profits, Commodities, Advantages, Hereditaments, Ways, Waters and Appurtenances whatsoever, to the said Messuage and Lands above-mentioned belonging, or any wife
wife appertaining: And also the Reversion and Reversions, Remainder and Remainders, Rents and Services, of the said Premises, and of every Part thereof; and all the Estate, Right, Title, Interest, Claim and Demand, whatsoever of him the said H. I. of, in and to the said Messuage, &c. and Premises, and every Part thereof. To have and to hold the said Messuage or Tenement, and all and singular the Premises above-mentioned, and every Part and Parcel thereof, with the Appurtenances, unto the said T. R. his Heirs, and Assigns, to the only proper Use and Behoof of the said H. I. for him and his Heirs, the said Messuage or Tenement, and Premises, and every Part thereof, against him and his Heirs, and against all and every other Person and Persons whatsoever, to the said T. R. his Heirs and Assigns, shall and will warrant, and for ever defend by these Presents. In Witness, &c.

Of Gifts, Grants, Exchanges, &c.

A Deed of Gift may be made of Lands or Goods; but Care must be taken that it be not fraudulent; for a Deed of Gift made with Intent to defraud Creditors of their just Debts, as against such Creditors, &c. is void. Stat. 27 El.

When a Woman is married, all her Goods and Chattels become the Goods of the Husband by Gift in Law; but he is liable to the Payment of her Debts. And when a Man is made Executor, the Law gives the Goods and Chattels of the Testator to the Executor; but subject to Payment of the Testator's Debts. 3 Rep. 27.

All Grants must be of Things certain; and Office, or any Goods or Chattels personal, may be granted by Word, without Deed. And if a Man make Apparel for another, and put it upon him to use and wear, this amounts to a Gift or Grant in Law, of the Clothes itself. 1 H. 4. 31.

A Deed of Gift of Goods and Chattels.

To all People, &c. I A. B. of, &c. send Greeting, Know ye, That I the said A. B. for and in Consideration of the natural Love and Affection which I have and bear unto C. D. &c. and also for other good Causes and Considerations me thereunto moving, have given and grant ed, and by these Presents do give, grant and confirm unto the
the said C. D. all my Goods, Chattels, Leaves, Debts, Plate, Jewels, &c. and all my other Substance whatsoever, moveable and immovable, of what Kind, Nature and Quality ever the same are, and in what Place or Places ever the same shall be found, as well in my own Custody or Possession, as in the Possession, Hands, Power and Custody of any other Person or Persons whatsoever (or all those Goods and Chattels in the Schedule hereunto annexed mentioned) To have and to hold all and singular the said Goods, Chattels, Leaves, Debts, and all other the aforesaid Premises unto the said C. D. his Executors, Administrators and Assigns, to his and their own proper Use and Uses ever. And I the said A. B. all and singular the aforesaid Goods, Chattels and Premises to the said C. D. his Executors, Administrators and Assigns against all Persons, do Warrant, and do for ever Defend by these Presents. In Witness, &c.

Livery and Seisin must be endorsed thus: Memorandum the Day, &c. Livery and Seisin was delivered by the within named A. B. unto the said C. D. of one Piece of Plate, &c. in the Name of all the Goods and Chattels within mentioned, to hold to him the said C. D. his Executors, &c. for ever, according to the within written Deed.

A Deed of Gift of Lands, &c.

THIS Indenture made, &c. between A. B. of, &c. of the one Part, and C. B. of, &c. Son of the said A. B. of the other Part, witnesseth, that the said A. B. for and in Consideration of the natural Love and Affection which he hath and beareth unto the said C. B. And for the better Maintenance and Livelihood of him the said C. B. hath given, granted, aliened, infeoffed and confirmed; and by these Presents doth give, &c. unto the said C. B. his H'irs and Assigns, All that Messuage or Tenement, situate, &c. and also all those Pieces or Parcels of Land lying, &c. containing, &c. in the Tenure and Occupation of, &c. and all and singular the Houses, Edifices, Buildings, Barns, Stables, Courts, Gardens, Orchards, Feedings, Woods, Under-woods, Commons, Common of Pasture, Ways, Paths, Passages, Waters, Water-courses, Easements, Profits, Commodities, Advantages, Hereditaments, and Appurtenances whatsoever to the said Messuage or Tenement, Lands and Premises above-mentioned, or any Part thereof, belonging, or in any ways appertaining, or therewithal commonly used,
used, occupied or enjoyed, or accepted, reputed, taken or known as Part, Parcel, or belonging of or to the same: And the Reversion or Reversions, Remainder and Remainders, Rent and Services of all and singular the said Premises; and all the Estate, Right, Title, Interest, Property, Claim and Demand whatsoever, of him the said A. B. of, in and to the said Messuage, Lands and Premises, and of, in and to every Part and Parcel thereof, with their and every of their Appurtenances, and all Deeds, Evidences and Writings concerning the said Premises only, or only any Part thereof, now in the Hands or Custody of the said A. B. To have and to hold the said Messuage or Tenement, Lands, Hereditaments, and all and singular the Premises hereby granted and conveyed, or mentioned or intended to be granted and conveyed, with their Appurtenances, unto the said C. B. his Heirs and Assigns, to the only proper Use and Behoof of him the said C. B. his Heirs and Assigns for ever: And the said A. B. for himself, his Heirs, Executors and Administrators, doth covenant, promise and grant to and with the said C. B. his Heirs and Assigns, by these Presents, that he the said C. B. his Heirs and Assigns, shall and lawfully may, from henceforth for ever hereafter, peaceably and quietly have, hold, use, occupy, possess and enjoy the said Messuage or Tenement, Lands and Premises above-mentioned to be hereby granted, with their and every of their Appurtenances, free, clear and discharged, or well and sufficiently saved and kept harmless of and from all former and other Grants, Bargains, Sales, Gifts, Jointures, Feoffments, Leases, Dowlers, Estates, Entails, Rent Charges, Arrearges of Rents, Statutes, Judgments, Recognizances, Executions, and of and from all other Titles, Troubles, Charges and Incumbrances whatsoever, had, made, committed, done or suffered, or to be had, made, &c. by him the said A. B. his Heirs, Executors or Administrators, or any other Person or Persons lawfully claiming or to claim, by, from or under him, them, or any, or either of them. In Witness, &c.

Of Indentures.

Indentures are Deeds indented, cut at the Top one into the other, and are sometimes of many Parts. When a Deed is of two Parts, it is called Bipartite; when there are three Parts, Tripartite; when there are four Parts, Qua-
Quadrupartite; when five Parts, Quinquepartite; and when it is of six Parts, Sextipartite. And every Party to the Deed is to have a Part of it: The Grantor, &c. signs the Original, and the Rest are Counterparts.

There are other Indentures, smaller in their Nature, as Indentures of Apprenticeship, Partition, &c.

An Indenture for placing forth an Apprentice.

His Indenture made, &c. witnesses, That A. B. Son of, &c. hath of his own free and voluntary Will (or by and with the Consent of his Father) placed and bound himself Apprentice unto D. E. of, &c. Pewterer, to be taught in the said Trade, Science or Occupation of a Pewterer, which he the said D. E. now useth, and with him as an Apprentice to dwell, continue and serve from the Day of the Date hereof until the full End and Term of seven Years from thence next ensuing, and fully to be compleat and ended; During all which Term, the said Apprentice his said Master well and faithfully shall serve, his Secrets keep, his lawful Commands gladly do, Hurt to his said Master he shall not do, nor wilfully suffer to be done by others, but of the same to his Power shall forthwith give Notice to his said Master. The Goods of his said Master he shall not imbezle or waste, nor them lend without his Consent to any; at Cards, Dice, or any other unlawful Games he shall not play; Taverns or Alehouses he shall not frequent; Fornication he shall not commit; Matrimony he shall not contract; from the Service of his said Master he shall not at any Time depart or absent himself without his said Master's Leave; but in all Things, as a good and faithful Apprentice, shall and will demean and behave himself towards his said Master, and all his, during the said Term. And the said Master his said Apprentice the said Trade, Science, or Occupation of a Pewterer, with all Things thereunto belonging, shall and will teach and instruct, or cause to be well and sufficiently taught and instructed, after the best Way and Manner that he can; and shall and will also find and allow unto his said Apprentice, Meat, Drink, Washing, Lodging and Apparel, both Linen and Woolen, and all other Necessaries fit and convenient for such an Apprentice during the Term aforesaid. And at the End of the said Term shall and will give to his said Apprentice, one new Suit of Apparel, &c. In Witness, &c.

Licence.
A Licence.

Licence is a Power to do and execute some Act or Thing; or to enjoy some Benefit, Privilege or Protection.

A Licence to a Debtor.

To all People, &c. We A. B. C. D. E. F. &c. whose Names are here under written, and Seals affixed, Creditors of L. M. of, &c. Merchant, lend Greeting. Whereas the said L. M. on the Day of the Date hereof, is indebted unto us the said Creditors in divers Sums of Money, which, by Reason of great Loses and Misfortunes, he is not at present able to pay unto us without Reprieve of Time to be given for that Purpose: Know ye therefore, that we the said Creditors do, by these Presents, give and grant unto the said L. M. free Licence, and our sure and safe Conduct to come and go, and retort unto us, and every of us, to compound and take Order with us, and every one of us, for our and every of our said Debts; and also to go about his or other Business and Affairs at his free Will and Pleasure, from the Day of the Date hereof unto the full End and Term of one whole Year next coming, without any Lett, Suit, Trouble, Arrest, Attachment or other Disturbance to be offered or done unto him the said L. M. his Wares, Goods, Money or Merchandizes whatsoever, by us, or any of us, or by the heirs, Executors, Administrators, Partners or Assigns of us, or any of us, or by our or any of our Means and Procurement. And we the said Creditors severally and respectively, each for himself, his Executors and Administrators, doth severally and apart, and not jointly covenant and grant to and with the said L. M. by these Presents, That if any Trouble, Vexation, Wrong, Damage, or Hindrance shall be done unto him the said L. M. either in his body, Goods or Chattels, within the said Term of one whole Year from the Date hereof, by us, or any of us, the said Creditors, or by any Person or Persons, by or thro' the Commandment, Procurement or Consent of us, or any of us, against the Tenor and Effect of this our Licence, that then he the said L. M. by Virtue of these Presents, shall be discharged and acquitted for ever towards and against him and them of us, his and their Executors, Administrators, Partners and Assigns, and every of them, by whom, and by whose Means he shall be vexed, arrested, troubled, imprisoned,
imprisoned, attached, grieved, or damned, of all manner of actions, suits, quarrels, debts, duties and demands, either in law or equity whatsoever, from the beginning of the world to the day of the date of these presents. In Witness, &c.

Of Leases, Distress for Rent, &c.

A lease is a deed whereby lands and tenements, &c. are demised and letten for a less time than he that doth let them hath therein: And leases are either for life or for years: Leases for life are called freehold, and require livery of seisin: Leases for years are called chattels, and are not inheritable by heirs, but go to the executors, &c. and a lease for a thousand years is but a chattel.

A lease may be made for weeks, months, quarters, &c. until such a term is expired: But in every lease for years the term must have a certain commencement and determination, or by reference to a certainty be made certain.

If a tenant for years let up wainscot, doors, windows, benches, &c. they may be taken down by such tenant, so as it be done before the end of the term, and he leave the freehold in as good condition as he found it. Co. Lit. 55, 272.

Tenants in tail, bishops, &c. may make leases for lives or years, upon certain conditions; they are to be made by deed indented, to begin from the making; they are not to exceed three lives, or twenty-one years; they must be of lands commonly let to farm; and the accustomed yearly rent, or more, is to be reserved. Stat. 32 H. 8.

A lease of a house for a term of years.

This indenture made the fifth day of October, in the year of our Lord, 1769, and in the ninth year of the reign of our sovereign lord George the third (by the grace of God) king of Great-Britain, France and Ireland, defender of the faith, &c. between A. B. of the parish of, &c. in the county of, &c. gentleman, of the one part, and C. D. of, &c. in the county of, &c. Mercer, of the other part, witnesseth. That the said A. B., for and in consideration of the yearly rent and covenants herein after reserved and contained, on the part and behalf of the said C. D., his executors, administrators and assigns, to be paid, observed and performed, hath demised, granted,
The Young Man's Best Companion.

granted, and to Farm letten; and by these Presents doth demise, &c. unto the said C. D. all that Messuage or Tenement called, &c. now in the Possession of, &c. situate and lying in, &c. with all and singular Ways, Waters, Lights, Basements and Appurtenances, to the said Messuage or Tenement belonging; or in any Ways appertaining; together with the Use of the Goods in the Schedule hereunto annexed mentioned; to have and to hold the said Messuage or Tenement, and Premises above mentioned, with the Appurtenances, unto the said C. D. his Executors, Administrators and Assigns, from &c. next, for and during the Term of seven Years thence next ensuing, and fully to be compleat and ended; Yielding and Paying therefore yearly during the said Term unto the said A. B. his Heirs and Assigns, the yearly Rent of 30l. of, &c. in and upon the Feasts of, &c. by even and equal Portions. And if it shall happen the said yearly Rent above reserved, or any Part thereof, to be behind and unpaid in Part or in All, by the Space of Twenty-one Days next after any or either of the said Days appointed for Payment thereof, then and from thenceforth it shall and may be lawful to and for the said A. B. his Heirs and Assigns, into the said Premises to re-enter, and the same to have again, reposeless and enjoy, as in his and their first and former Estate, Right and Title; any Thing herein contained, to the contrary thereof in any wise notwithstanding. And the said C. D. for himself, his Executors, Administrators and Assigns, doth covenant and grant to and with the said A. B. his Heirs and Assigns, that he the said C. D. his Executors, Administrators and Assigns, shall and will well and truly pay, or cause to be paid unto the said A. B. his Heirs and Assigns, the said yearly Rent above reserved, at the Days and Times, and in Manner and Form above expressed, clear off, and over and above all Taxes, Rates and Payments whatsoever (except &c.) and also that he the said C. D. his Executors, Administrators and Assigns, shall and will from Time to Time, and at all Times during the said Term hereby granted, well and sufficiently repair, maintain, sustain, uphold, amend and keep the said demised Premises, and every Part thereof, with the Appurtenances, in, by and with all and all Manner of needful and necessary Reparations whatsoever, when and as often as Need shall require; And the same so well and sufficiently repaired, maintained, sustained, upheld and kept, at the
End of the said Term unto the said A. B. his Heirs and Assigns shall and well peaceably and quietly leave and yield up; and also shall and will then leave unto the said A. B. his Heirs and Assigns, all such Goods as are mentioned in the Schedule hereto annexed, in as good Condition as they are now in (reasonable Usage of them, and the Casualty of Fire in the mean Time excepted.) And the said A. B. for himself, his Heirs and Assigns, doth covenant and grant to and with the said C. D. his Executors, Administrators and Assigns, that he the said C. D. his Executors, Administrators and Assigns, shall and may, by and under the yearly Rent and Covenants herein before reserved and contained, peaceably and quietly have, hold, occupy, possess and enjoy, all and singular the said Messuage or Tenement and Premises above-mentioned, with the Appurtenances, for and during the said Term hereby granted, without the Lett, Trouble, Hindrance, Molestation, Interruption and Denial of him the said A. B. his Heirs and Assigns, or of any other Person or Persons claiming, or to claim by, from or under him. In Witness whereof the Parties first above named, have to these present Indentures interchangeably set their Hands and Seals, the Day and Year above written.

Of Assignments.

An Assignment is the setting over all a Man’s Right, in Land or Goods, to another Person. There is an Assignee in Deed, and an Assignee in Law; An Assignee in Deed, is he to whom a Lease, Estate or Interest, is assigned by Deed: And an Assignee in Law, is such as the Law appointeth without Deed, as an Executor is an Assignee in Law. Dy. 5.

If a Lessee for Years assign over his Term, the Landlord may charge which of them he will; but an Acceptance of the Rent from the Assignee (knowing of the Assignment) determines the Election. 3 Co. 24.

An Assignment of a Bond.

WHEREAS A. B. of, &c. in and by one Bond or Obligation, bearing Date, &c. became bound to C. D. of, &c. in the Penal Sum of 500 l. conditioned for the Payment of 250 l. and Interest, at a Day since past, as by the said Bond and Condition thereof may appear. And whereas
there now remains due to the said C. D., for Principal and Interest on the said Bond, the Sum of 275 l. of, &c. Now know all Men by these Presents, that the said C. D. for and in Consideration of the said Sum of, &c. to him in Hand paid by E. F. of, &c. the Receipt whereof the said C. D. doth hereby acknowledge, he the said C. D. hath assigned and set over, and by these Presents doth assign and set over unto the said E. F. the said recited Bond or Obligation, and the Monies thereupon due and owing. And all his Right, and Interest of, in and to the same. And the said C. D. for the Considerations aforesaid, hath made, ordained, constituted and appointed, and by these Presents doth make, &c. the said E. F. his Executors and Administrators, his true and lawful Attorney and Attornies irrevocable, for him and in his Name, and in the Name and Names of his Executors and Administrators, but for the sole and proper Use and Benefit of the said E. F. his Executors, Administrators, and Assigns, to ask, require, demand, and receive of the said A. B. his Heirs, Executors and Administrators, the Money due on the said Bond; and on Nonpayment thereof, him his Heirs, Executors, and Administrators, to sue for, recover and receive the same. And on Payment thereof, to deliver up and cancel the said Bond, and give sufficient Releases and Discharges thereof; and one or more Attorney or Attornies under him to constitute; and whatsoever the said E. F. or his Attorney, shall lawfully do in the Premises, the said C. D. doth hereby allow and confirm. And the said C. D. doth covenant with the said E. F. That he the said C. D. hath not received, nor will receive the Monies due on the said Bond, or any Part thereof, neither shall or will release or discharge the same, or any Part thereof, but will own and allow of all lawful Proceedings for Recovery thereof, he the said E. F. saving the said C. D. harmless of and from any Costs that may happen to him thereby. In Witness, &c.

Of Mortgages, &c.

A Mortgage is defined to be a Pawn of Lands, Tenements, &c. for Money borrowed: And may be made by Leafe for a long Term of Years (the usual Way) Leafe and Release, Assignment, &c. It is a Deed upon Condition, and until Failure in Payment of the Money borrowed, the Mortgagor is to enjoy the Lands; and tho' Failure be made he has a Right of Redemption.
If any Person, who has once mortgaged Lands, mortgage the same to any other Person, without discovering to the second Mortgagee the prior Mortgage, the Mortgagor shall forfeit his Right of Equity of Redemption; and the second Mortgagee may redeem. Stat. 4. & 5. W. & M.

Besides Mortgages of Lands, Goods may be granted on Condition, in the Nature of Mortgage.

A Mortgage of Goods.

THIS Indenture made, &c. between L. M. of, &c. of the one Part, and W. H. of, &c. of the other Part, witnesseth, That the said L. M. for and in Consideration of the Sum of, &c. to him in Hand paid by the said W. H. at and before the Sealing and Delivery of these Presents, the Receipt whereof the said L. M. doth hereby acknowledge; He the said L. M. hath bargained and sold, and by these Presents doth bargain and sell unto the said W. H. One Wagon, with the Horse-Tackle and other Appurtenances thereto belonging, &c. To have and to hold the said Wagon, and all other the Goods and Chattles above, by these Presents bargained and sold unto the said W. H. his Executors, Administrators and Assigns for ever. Provided always, and upon Condition, That if the said L. M. his Executors, Administrators and Assigns, do and shall well and truly pay, or cause to be paid unto the said W. H. his Executors, Administrators and Assigns, the full Sum of, &c. in and upon, &c. next coming. That then these Presents, and every Thing herein contained, shall cease, determine, and be void; any Thing herein contained, to the contrary in any wise notwithstanding. And the said L. M. for himself, his Executors and Administrators, doth covenant and grant to and with the said W. H. his Executors, Administrators and Assigns, that he the said L. M. his Executors, &c. shall and will well and truly pay, or cause to be paid unto the said W. H. his Executors, &c. the said Sum of, &c. at the Day and Time, and in Manner and Form aforesaid, according to the true Intent and Meaning of these Presents. In Witness, &c.

A Mortgage of Lands.

THIS Indenture made, &c. between A. B. of, &c. of the one Part, and C. D. of, &c. of the other Part, witnesseth that the said A. B. for and in Consideration of the
the Sum of, &c. to him in Hand paid by the said C. D. the Receipt whereof the said A. B. doth hereby confess and acknowledge; he the said A. B. hath granted, bargained and sold, and by these Presents doth grant, bargain and sell unto the said C. D. All that Messuage or Tenement, &c. situate, lying and being, &c. And also the Reversion and Reversions, Remainder and Remainders, Rents and Services of all and singular the said Premises above-mentioned, and of every Part and Parcel thereof, with the Appurtenances. To have and to hold the said Messuage or Tenement, Lands and Premises above-mentioned, and every Part and Parcel thereof, with the Appurtenances, unto the said C. D. his Executors, Administrators and Assigns, for and during the Term of 500 Years next and immediately ensuing and following, and fully to be compleat and ended; Yielding and paying therefore yearly during the said Term, one Pepper Corn in and upon the Feast of, &c. if demanded. Provided always, and upon Condition, that if the said A. B. his Heirs, and Assigns, do and shall well and truly pay or cause to be paid unto the said C. D. his Executors, Administrators or Assigns, the Sum of, &c. with legal Interest for the same, in and upon, &c. next ensuing the Date hereof; then these Presents, and every Thing herein contained, shall cease, determine, and be void; any Thing herein contained to the contrary notwithstanding. And the said A. B. for himself, his Heirs and Assigns, doth covenant and grant to and with the said C. D. his Executors, Administrators and Assigns, that he the said A. B. his Heirs and Assigns, shall and will well and truly pay, or cause to be paid unto the said C. D. his Executors, Administrators or Assigns, the said full Sum of, &c. in and upon the said, &c. next coming, according to the true Intent and Meaning of these Presents. And also, in case Failure shall be made, that he the said C. D. his Executors, &c. shall and may at all Times after Default, in Performance of the Proviso or Condition herein contained, peaceably and quietly enter into, have, hold, occupy, possess and enjoy all and singular the said Messuage, Lands, and Premises above-mentioned, and every Part and Parcel thereof, with the Appurtenances, for and during the Remainder of the said Term of 500 Years hereby granted, which shall be then to come and unexpired, without the Lett, Hindrance, Molestation, Interruption and Denial of him the said A. B. his Heirs and Assigns, and of all and every other Person and Persons.
Persons whatsoever. And further, That he the said A. B. and his Heirs, and all and every other Person and Persons, and his and their Heirs, any Thing having or claiming in the said Messuage or Tenement and Premises above mentioned, or any Part thereof, shall and will at any Time or Times, after Default shall be made in Performance of the Provifo or Condition aforesaid, make, do and execute, or cause or procure to be made, &c. All and every such further and other lawful and reasonable Grants, Acts and Assurances in the Law whatsoever, for the farther, better and more perfect granting and affuring of all and singular the said Premises above-mentioned, with the Appurtenances, unto the said C. D. To hold to him the said C. D. his Executors, Administrators and Assigns, for and during all the Rest and Residue of the said Term of 500 Years above-mentioned, which shall be then to come and unexpired, as by the said C. D. his Executors, Administrators or Assigns, or his or their Council learned in the Law, shall be reasonably devis’d, advised and required. And lastly, It is covenanted, granted, concluded and agreed upon by and between the said Parties to these Presents, That until Default shall be made in Performance of the Provifo or Condition herein contained, he the said A. B. his Heirs and Assigns, shall and may hold and enjoy the said Messuage or Tenement and Premises above-mentioned, and receive and take the Rents, Issues and Profits thereof to his and their proper Use and Benefit; any Thing herein contained to the contrary thereof in any wife notwithstanding. In Witness, &c.

Of Conveyances, Feoffments, Wills.

The usual Conveyance of Lands at this Time, is by Leafe and Release. A Lease for a Year, or a Bargain and Sale, is first drawn to give Possession, by Force of the Statute 27 H. 8. and then the Release is made to convey the Fee of the Premises to the Person intended.

A Release made by one that hath no Right to the Lands, is void: And a Release to one, that at the Time of the Release had nothing in the Lands, is also void; for he ought to have a Freehold, Possession or Privity. A Release of a Man’s Right in Fee-simple, is not sufficient to pass the same; but a Release to a Man and his Heirs, will pass as a Fee-simple, and to the Heirs of his Body, as in Estate Tail. Co. Lit.
A Feoffment was our ancient Conveyance of Lands; to which Livery and Seisin is necessary, the Possession being thereby given to the Feoffee: And this Deed is said to exceed a Fine or Recovery, it clearing all Difficulties, and other wrongful Estates, which no other Conveyance doth; and for that it is so solemnly and publickly made it has been of all other Conveyances the most observed. Plowd. 554.

By Lease and Release, Feoffment to Uses, Fine and Recovery of Lands, &c. Marriage Settlements and Jointures are made to Women (in Consideration of their Fortunes) which the Law is ever careful to preserve; and whereof the Woman may not be divested, but by her own Fine. 2 Co. Rep.

All Grants, Conveyances, &c. made of Lands or Tenements, to defraud any Purchaser of the same for valuable Consideration as against such Purchaser, and all claiming under him, shall be void. Stat. 27 Eliz.

A Lease or Bargain and Sale for a Year, as the Foundation of a Release.

THIS Indenture made, &c. between A. B. of, &c. of the one Part, and C. D. of, &c. of the other Part, witnesseth, That the said A. B. for and in Consideration of the Sum of Five Shillings of, &c. to him in Hand paid by the said C. D. the Receipt whereof is hereby acknowledged, he the said A. B. hath granted, bargained and sold, and by these Presents doth grant, &c. unto the said C. D. all that Messuage, &c. and the Reversion and Reversions, Remainder and Remainders, Rents and Services of the said Premises above mentioned, and of every Part and Parcel thereof, with the Appurtenances; To have and to hold the said Messuage or Tenement, Lands, Hereditaments and Premises aforesaid, and every Part and Parcel thereof, with the Appurtenances, unto the said C. D. his Executors, Administrators and Assigns, from, &c. for and during unto the full End and Term of one whole Year from thence next and immediately ensuing and following, fully to be compleat and ended; Yielding and Paying therefore one Pepper-Corn in and upon the Feast of St. Michael the Archangel (if demanded) To the Intent that by Virtue of these Presents, and by Force of the Statute for transferring of Uses into Possession, he the said C. D. may be in the actual Possession of all
A Release or Conveyance of Lands.

THIS Indenture made, &c. between A. B. of, &c. of the one Part, and C. D. of, &c. of the other Part, witnesseth, That the said A. B. for and in Consideration of the Sum of, &c. to him in Hand paid by the said C. D. the Receipt whereof the said A. B. doth hereby confess and acknowledge, and for divers other good Causes and Considerations him thereunto moving; he the said A. B. hath granted, bargained and sold, aliened, released and confirmed, and by these Presents doth fully, freely and absolutely grant, bargain, &c. unto the said C. D. (in his actual Possession now being, by Virtue of a Bargain and Sale to him thereof made for one whole Year, by Indenture bearing Date the Day next before the Day of the Date of these Presents, and by Force of the Statute for transferring of Uses into Possession) and to his Heirs and Assigns for ever, all that Messuage or Tenement, situate, &c. with the Rights, Members and Appurtenances thereof, and all Houses, Edifices, Buildings, Orchards, Gardens, Lands, Meadows, Commons, Pastures, Feedings, Trees, Woods, Under-Woods, Ways, Paths, Waters, Water-courses, Easements, Profits, Commodities, Advantages, Hereditaments and Appurtenances whatsoever, to the said Messuage or Tenement belonging, or in any wise appertaining, or which now are, or formerly have been accepted, reputed, taken, known, used, or occupied or enjoyed to or with the same, or as Part, Parcel or Member thereof, or of any Part thereof, situate, lying and being in, &c. aforesaid: And also the Reversion and Reversions, Remainder and Remainders, Rents and Services, of all and singular the said Premises above-mentioned, and of every Part and Parcel thereof, with the Appurtenances: And also all the Estate, Right, Title, Interest, Claim and Demand whatsoever, as well in Equity as in Law of him the said A. B. of, in and to all and singular the said Premises above-mentioned, and of, in and
to every Part and Parcel thereof, with the Appurtenances; and also all Deeds, Evidences and Writings, touching or concerning the said Premises only, or only any Part thereof, together with true Copies of all other Deeds, Evidences and Writings, which concern the said Premises, or any Part thereof, jointly with any other Lands or Tenements, now in the Custody or Possession of him the said A. B. or which he can or may get or come by without Suit in Law; the same Copies to be made and written at the Request, Costs and Charges, of the said C. D. his Heirs and Assigns: To have and to hold the said Messuage or Tenement, Lands, Hereditaments, and all and singular the Premises above-mentioned, and every Part and Parcel thereof, with the Appurtenances, unto the said C. D. his Heirs and Assigns, to the only proper Use and Behoof of the said C. D. his Heirs and Assigns, for ever. And the said A. B. for himself, his Heirs and Assigns, doth covenant and grant to and with the said C. D. his Heirs and Assigns, That he the said A. B. now is the true lawful and rightful owner of all and singular the said Messuages, Lands, Tenements, Hereditaments and Premises above-mentioned, and of every Part and Parcel thereof, with the Appurtenances: And also, that he the said A. B. now is lawfully and rightfully seized, in his own Right, of a good, sure, perfect, absolute and indefeasible Estate of Inheritance in Fee-simple, of and in all and singular the said Premises above-mentioned, with the Appurtenances, without any Manner of Condition, Mortgage, Limitation of Use or Uses, or other Matter, Cause or Thing, to alter, change, charge or determine the same: And also, that he the said A. B. now hath good Right, full Power, and lawful Authority, in his own Right to grant, bargain, sell and convey, the said Messuage, Lands, Tenements, Hereditaments and Premises above-mentioned, with the Appurtenances, unto the said C. D. his Heirs and Assigns to the only proper Use and Behoof of him the said C. D. his Heirs and Assigns, for ever, according to the true Intent and Meaning of these Presents; and also, that he the said C. D. his Heirs and Assigns, shall and may at all Times for ever hereafter, peaceably and quietly have, hold, occupy, possess and enjoy, all and singular the said Messuage, Lands, Tenements, Hereditaments and Premises above-mentioned, with the Appurtenances, without the
the Lett, Hindrance, Molestation, Interruption and Denial, of him the said A. B. his Heirs and Assigns, and of all and every other Person or Persons whatsoever; and that freed and discharged, or otherwise well and sufficiently saved and kept harmless and indemnified, of and from all former and other Bargains, Sales, Gifts, Grants, Leases, Mortgages, Jointures, Dowers, Uses, Wills, Entails, Fines, Poit fines, Issues, Amerciaments, Seizures, Bonds, Annuities, Writings Obligatory, Statutes Merchant, and of the Staple, Recognizances, Extents, Judgments, Executions, Rents and Arrearages of Rents, and of and from all other Charges, Estates, Rights, Titles, Troubles and Incumbrances whatsoever; had, made, committed, done or suffered, or to be had, made, &c. by the said A. B. or any other Person and Persons whatsoever, claiming or to claim, by, from or under him, them or any of them; and further, that he the said A. B. and his Heirs, and all and every other Person and Persons, and his and their Heirs, any Thing having or claiming in the said Premises above-mentioned, or any Part thereof, by, from or under him, shall and will, from Time to Time, and at all Times hereafter, upon the reasonable Request and at the Costs and Charges of the said C. D. his Heirs and Assigns, make, do and execute, or cause or procure to be made, &c. all and every such farther and other lawful and reasonable Act and Acts, Thing and Things, Device and Devices, Conveyance and Conveyances, in the Law whatsoever, for the further, better and more perfect granting, conveying and assuring of all and singular the said Premises above-mentioned, with the Appurtenances, unto the said C. D. his Heirs and Assigns, to the only proper Use and Behoof of the said C. D. his Heirs and Assigns, for ever, as by the said C. D. his Heirs or Assigns, or his or their Council learned in the Law, shall be reasonably devised, or advised and required. And lastly, It is covenanted, granted and agreed upon, by and between the said Parties to these Presents, and the true Meaning hereof also is, and it is hereby so declared, that all and every Fine and Fines, Recovery and Recoveries, Assurance and Assurances, Conveyance and Conveyances, in the Law whatsoever, already had, made, levied, suffered, executed and acknowledged, or at any Time hereafter to be had, made, &c. by or between the said Parties to these Presents, or either of them, or by or between
between them, or either of them, and any other Person or Persons whatsoever, of the said Messuage, Tenement, Lands and Premises above-mentioned, with the Appurtenances, either alone by itself, or jointly with any other Lands, Tenements, or Hereditaments, shall be and endure, and shall be adjudged esteemed and taken to be and endure, as for and concerning all and singular the said Premises above-mentioned, with the Appurtenances, to and for the only proper Use and Behoof of the said C. D. his Heirs and Assigns, for ever, according to the true Intent and Meaning of these Presents, and to and for none other Use, Intent or Purpose whatsoever. In Witness, &c.

A Deed of Feoffment of a Messuage.

This Indenture made, &c. between H. I. of, &c. of the one Part, and K. L. of &c. of the other Part, witnesseth, That the said H. I. for and in Consideration of the Sum of Five Hundred Pounds of lawful Money of Great-Britain, to him in Hand paid by the said K. L. the Receipt whereof the said H. I. doth hereby confess and acknowledge, and for other good Causes and Considerations him thereunto moving, he the said H. I. hath granted, bargained and sold, aliened, enfeoffed, released and confirmed, and by these Presents doth grant, &c. unto the said K. L. All that Messuage, &c. now in the Possession of, &c. situate and lying, &c. and also the Reversion and Reversions, Remainder and Remainders, Rents and Services thereof; and also all the Estate, Right, Title, Interest, Claim and Demand, whatsoever, of him the said H. I. of, in and to the same Premises, and of, in and to every Part and Parcel thereof; To have and to hold the said Messuage, &c. and Premises above-mentioned, with the Appurtenances, unto the said K. L. his Heirs and Assigns, to the only proper Use and Behoof of him the said K. L. his Heirs and Assigns, for ever, under the yearly Rent of Four-pence; (or to be holden of the Chief Lord or Lords of the Fee of the Premises, by the Rents and Services therefore due, and of Right accustomed.) And the said H. I. for himself, his Heirs and Assigns, doth covenant and grant to and with the said K. L. his Heirs and Assigns, that he the said H. I. now is lawfully and rightfully, seised in his own Right of a good, sure, perfect, absolute and indefeasible
indefeasible Estate of Inheritance in Fee-simple, of and in all and singular the said Messuage and Premises above-mentioned, and of every Part thereof, with the Appurtenances, without any Manner of Condition, Mortgage, Limitation of Use or Uses, or other Matter, Cause or Thing, to alter, change, charge or determine the same: And also that he the said H. I. now hath good Right, full Power, and lawful Authority, in his own Right to grant, bargain, sell and convey, the said Messuage and Premises above-mentioned, with the Appurtenances, unto the said K. L. his Heirs and Assigns, to the only proper Use and Behoof of the said K. L. his Heirs and Assigns for ever, according to the true Intent and Meaning of these Presents. And also, that he the said K. L. his Heirs and Assigns, shall and may, from Time to Time, and at all Times hereafter peaceably and quietly have, hold, occupy, possess and enjoy, all and singular the said Premises above-mentioned to be hereby granted, with the Appurtenances, without the Lett, Trouble, Hindrance, Molestation, Interruption and Denial, of him the said H. I. his Heirs or Assigns, and of all and every other Person and Persons, whatsoever, claiming or to claim by, from or under him, them, or any of them. And further, that he the said H. I. and his Heirs, and all and every other Person and Persons, and his and their Heirs, any Thing having or claiming in the said Messuage and Premises above-mentioned, or any Part thereof, by from or under him, shall and will at all Times hereafter, at the Request and Costs of the said K. L. his Heirs or Assigns, make, do and execute, or cause or procure to be made, done and executed, all and every further and other lawful and reasonable Grants, Acts and Assurances in the Law whatsoever, for the further better, and more perfect granting, conveying and affuring of the said Premises hereby granted, with the Appurtenances, unto the said K. L. his Heirs and Assigns, to the only proper Use and Behoof of the said K. L. his Heirs and Assigns, for ever, according to the true Intent and Meaning of these Presents, and to and for none other Use, Intent or Purpose whatsoever. And lastly, the said H. I. hath made, ordained, constituted and appointed, and by these Presents doth make, ordain, constitute and appoint M. N. of, &c. and O. P. of, &c. his true and lawful Attorneys jointly, and either of them severally, for him, and in his Name, into
into the said Messuage and Premises, with the Appurtenances hereby granted and conveyed, or mentioned to be granted and conveyed, or into some Part thereof, in the Name of the whole, to enter, and full and peaceable Possession and Seisin thereof for him, and in his Name, to take and have, and after such Possession and Seisin so thereof taken and had, the like full and peaceable Possession and Seisin thereof, or of some Part thereof, in the Name of the whole, unto the said K. L. or to his certain Attorney or Attornies, in that Behalf, to give and deliver; to hold to him the said K. L. his Heirs and Assigns. for ever, according to the Purport, true Intent and Meaning of these Presents; ratifying, confirming and allowing all and whatsoever his said Attornies, or either of them, shall do in the Premises. In Witnefs, &c.

A Will with Devise of Lands, Goods and Chattels.

In the Name of God, Amen. I H. I. of, &c. being weak in Body, but of sound Memory (blessed be God) do this Day, &c. in the Year, &c. make and publish this my last Will and Testament in Manner following; (that is to say) First I give to my Son K. I. the Sum of Five Hundred Pounds. Also I give and bequeath to my Daughter M. I. the Sum of Four Hundred Pounds. Also I give to my dear Wife E. I. the Sum of Three hundred Pounds. Also I give to my Brother T. I. and Cousin L. I. each the Sum of One Hundred Pounds, to be paid within six Months next after my Decease. Also I give all that Messuage or Tenement, situate, &c. wherein I now live, to my said Son K. I. to hold to him during his Life; and after his Decease I give the same to my Daughter M. I. during the Remainder of my Estate and Interest therein. Also I give all my Lands in the Parish of, &c. to my Wife E. I. to hold to her during her natural Life, she making no Waste or Destruction thereupon; and from and after her Decease, I give and devise the same to my said Son K. I. for the Term of his natural Life; and after his Death I devise the same to my Daughter M. I. during her natural Life; and after the Determination of that Estate, I give and devise the same to my loving Friends C. D. and E. F. and their Heirs, during the Life of my said Daughter M. to the Intent to preserve and support the contingent Uses and Remainders
mainders herein after limited; but nevertheless, in Trust, to permit my Daughter M. to receive the Rents and Profits, thereof during her Life; And from and after the Decease of my said Daughter M. then to remain to the first Son of my said Daughter M. and the Heirs of the Body of such first Son lawfully issuing; And for Default of such Issue, then to the Use and Behoof of the second, third, fourth, fifth, and all and every other Son and Sons of my said Daughter M. begotten; the elder of such Son and Sons, and the Heirs of his Body, lawfully issuing, to be always preferred, and to take before the Younger of such Sons, and the Heirs of his Body: And for Default of such Issue, then I give the same to, &c. for and during the Term of his natural Life; And after his Decease, to remain to his Issue in Tail, in such Manner as I have limited the same to my Daughter M. and for Default of such Issue, then to remain to, &c. and the Heirs Male of his Body begotten, &c. And for Default of such Issue, to remain to my own right Heirs for ever. All the rest of my Lands and Tenements whatsoever, whereof I shall die seised, in Possession, Reversion or Remainder, I give to my said Son K. J. his Heirs and Assigns, for ever. Also I give to, &c. Eight Guinea a Piece to buy them Mourning, &c. Also, I give to my Servant Man, &c. and the two Servant Maids that shall be living with me at the Time of my Decease, Ten Pounds a Piece. Also, I give to the Poor of the Parish of, &c. Fifty Pounds. Also, I give my Wife E. J. during her Life, the Use of all my Plate and Household-fuff; And after her Death the same to remain to, &c. Also, All the Rest and Residue of my Goods, Chattels, and personal Estate whatsoever, I give to my said Wife E. J. And I make and ordain her my said Wife sole Executrix of this my Will, in Trust for the Intent and Purposes in this my Will contained. And I make my loving Friends, &c. Overfeers of this my Will, to take care and see the same performed according to my true Intent and Meaning; and for their Pains, I give each of them, &c. In Witness whereof, I the said H. J. have to this my last Will and Testament set my Hand and Seal, the Day and Year above written.

Signed, sealed and delivered by the said H. J. as and for his last Will and Testament, in the Presence of us, who were present at the Signing and Sealing thereof.
A Will gives and conveys Estates, and alters the Property of Lands and Goods, in like Manner as a Deed executed in a Man's Life-time. It was ordained by Statute 32 H. 8. and by 29 Car. 2. all Devises of Lands, &c. are to be made in Writing, and signed by the Devisor in the Presence of three Witnesses.

Wills are to be governed by the Intention; and the Intent in Devises may sometimes make Estates to pass contrary to the Rules of the Law, with Respect to other Deeds. The first Grant and last Will stand in Force. Co. Lit. 25. Plowd. 162.

There must be three Witnesses to the Signing and Sealing of a Will.

A short but comprehensive Account of all Arts and Sciences.

ALCHEMY, is that sublime Part of Chymistry, which teaches the Art of transmuting Metals, and making the Grand Elixir, or Philosopher's Stone, as some are weak enough to believe. But the best Definition of it is, that it is an Art without Art, which begins with Lying, is carried on with Labour, and ends with Beggary.

ALGEBRA, commonly called the Analytick Art, because it teaches how to resolve Questions, and demonstrate Theorems, by searching into the fundamental Nature and Frame of the Thing. It is the Science of Quantity in General, or a peculiar Method of Reasoning, which takes the Quantity sought, as if it were known, and then by the Help of another, of more Quantities given, proceeds by undeniable Consequences, till at length the Quantity first only supposed to be known, is found to be equal to some Quantity or Quantities certainly known.

ANATOMY, is that Art which teaches to dissect or take to Pieces any Animal Body, in a curious and dexterous Manner, in order to discover and explain the Original, Nature and Use, of its several Parts, for the Improvement of Physick and natural Philosophy.

ARCHITECTURE, is the Art of erecting Edifices proper for Habitations. The Antients have established five Orders of Architecture, called the Tuscan, the Dorick, the Ionick, the Corinthian, and the Composite, or Roman Order, the Difference between which Orders consists in the Column,
lumn, with its Base and Capital, and the Entablature, that is, the Architectural, Frise and Cornice; for these are the Parts which constitute the Order, and each one hath its proper and peculiar Measures. The Rules of Architecture require Solidity, Convenience and Beauty. Solidity implies the Choice of a good Foundation, and good sound Materials to work with. Convenience consists in ordering and disposing the Parts of an Edifice, that they may not hinder or embarrass one another. Beauty is that due ranging and agreeable Union and Symmetry of all the Parts, which, upon the Whole, exhibits to the Eye of the Spectators a beautiful Form and Appearance. Architecture may likewise be divided into Civil, Military and Naval. Civil Architecture teaches to contrive and erect commodious Buildings for the Uses of Civil Life; such as Churches, Palaces and private Houses. Military Architecture shews the best Way of raising Fortifications about Cities, Towns, Camps, Sea Ports, &c. Naval Architecture is employed about the Building of Ships, Galleries, and other Vessels for the Water, together with Ports, Moles, Docks, &c. on Shore.

A R I T H M E T I C K, is the Art of numbering truly, and of finding all the Properties and Powers of Numbers.

A S T R O L O G Y, is that foolish Science which pretends to foretel future Events from the Motions of the heavenly Bodies, and their Aspects one to another; or from some imaginary, hidden Qualities, which the weak Admirers of this Cheat will have to be in the Stars.

A S T R O N O M Y, is a mathematical Science, which teaches us the Knowledge of the Stars or heavenly Bodies, viz. Their Magnitudes, Distances, Motions and Eclipses.

B O O K - K E E P I N G, is the Art of keeping so distinctly all the Transactions of a Man's Business, that he may know at any Time the true State of his Affairs with Ease and Certainty.

B O T A N Y, as it relates to the Science of Medicine, teaches to discover and enumerate the several Virtues of Plants and Simples: As it relates also to Natural History, it teaches to distinguish the several Kinds and Species of Plants, Trees, Shrubs, &c. one from another, and to give just Descriptions of them.

C H Y M I S T R Y,
The Young Man’s Best Companion.

CHYMISTRY, teaches how to separate the different Substances that are found in mixed Bodies, as Animals, Plants or Minerals, and to reduce them to their first Principles.

CHIROLOGY, the Art of dumb Language, or a Method of talking by Signs made with the Hands.

CHIRURGY (or, as it is commonly written, Surgery) is the third Branch of the curative Part of Medicine, and teaches how several Diseases and Accidents, incident to the Body of Man, may be cured by manual Operation. It is divided by some into five Parts. 1. Synthesis, a setting together Things that are separated. 2. Diacesis, a separating Things that were before connected. 3. Diortesis, a correcting of Things squeezed together and contorted. 4. Exerethis, the taking away of Superfluities. 5. Anapleresis, the restoring of that which was deficient. It is a common Saying, that a good Surgeon should have an Eagle’s Eye, a Lion’s Heart, and a Lady’s Hand.

CHRONOLOGY, is the Art of computing Time from the Creation of the World for historical Uses, and preserving an Account of remarkable Transactions, so as to date truly the Beginnings and the Ends of Reigns of Princes, the Revolutions of Kingdoms and Empires, signal Battles, &c.

COSMOGRAPHY, teaches to describe the whole Frame of the Universe, with the several Parts thereof, according to their Number, Positions, Motions, Magnitudes, Figures, &c. The Sciences of Astronomy and Geography are comprehended in this.

DIALING, is the Art of drawing Lines on a given Plane, in such a Manner as to shew the Hour of the Day when the Sun shines. Pappius Carfor set up the first sundial in Rome, about the Year of the City 447; and before that, according to Pliny, there was no Account of Time, but the Sun’s rising and setting.

ETHICS, is the Science of Morality, by which we are taught the Rules and Measures of human Action; the Writers upon it usually divide it into two Parts: The first contains an Account of the Nature of moral Good and Evil: The other enumerates the several Virtues in which the Practice and Exercise of Morality consists, and which are the proper Means for us to obtain true Felicity, the End of all Moral Actions.
GEOGRAPHY, teaches to describe the whole Globe of the Earth and all its Parts. It is usually divided into General and Particular. General, or Universal Geography, considers the whole entire Globe of Earth and Water, as to its Figure, Magnitude, Motions, Land, Sea, &c. without any Regard to particular Countries. Particular, or Special Geography, considers the Constitution of the several Countries, or Regions, their Figure, Bounds, Parts, &c. The Forests, Mountains, Mines, Rivers, Animals, Plants, &c. As also the Climate, Seasons, Weather, Heat, Cold, Distance from the Equinoctial, &c. the Inhabitants, Arts, Communities, Cities, Commodities, Foods, Language, Customs, Policy, Religion, &c.

GEOMETRY, originally signifies the Art of measuring the Earth, or any Distances or Dimensions on, or belonging to it; but it is now used for the science of Quantity, Extension or Magnitude, abstracted considered, without any Regard to Matter. Geometry may be divided into four Parts. 1. Planimetry, or the Mensuration of plain Surfaces. 2. Altimetry, or the taking and measuring of Heights, whether accessible or inaccessible. 3. Longimetry, or the Art of taking the Distances of Things afar off, as Steeples, Houses, Trees, &c. 4. Stereometry, or the Art of measuring solid Bodies.

GRAMMAR, is the Art of Speaking or Writing properly, or of expressing the Relation of Things in Construction, with due Accent in Speaking, and Orthography in Writing; according to the Custom of those whose Language we learn.

HERALDRY, is the Art of Armoury, or Blazoning. It consists in the Knowledge of what relates to royal Solemnities, Cavalcades and Ceremonies at Coronations, Interviews of Kings, Infolamts, Creation of Peers, Funerals, Marriages, &c. and also in giving the proper Coat-armour to all Persons, regulating their Right of Precedency in Point of Honour, and restraining those from bearing Coat-armour that have not a just Claim thereto, &c. The Herald's College is a Corporation established by Richard III. consisting of Kings at Arms, Heralds, and Pursuivants, who are employed to denounce War, proclaim Peace. &c.

HUSBANDRY, is the Art of tilling or cultivating the Earth, in order to render it fertile, and to assist Nature in bringing to greater Perfection the Products thereof.

HYDRAU-
HYDRAULICKS, the Art of making all Sorts of Engines to carry or raise Water, or which are moved by Water, and serve for other Uses.

HYDROGRAPHY, is that Part of Geography which considers the Sea, and teaches the Art of making Sea Charts, measuring and describing the Sea, accounting for its Tides, Counter-tides, Currents, Bays, Soundings, Gulfs; also its Sands, Shallows, Shelves, Rocks, Promontories, Distances from Port to Port, with whatsoever is remarkable either out at Sea, or on the Coast.

HYDROSTATICS, is the Doctrine of Gravitation in Fluids, or that Part of Mechanicks that considers the Weight or Gravity of fluid Bodies, especially Water, and also of solid Bodies immersed therein.

LAW, applied to the several Policies and States of People, is the Maxims and Rules they have agreed upon, or received from their Magistrates, in order to live in Peace and mutual Society; or it is a Command or Precept coming from some Superior Authority, which an inferior is obliged to obey. Aristotle defines it to be a Declaration determined by the Common Council of a City, shewing in what Manner Things are to be done; But Chambers, in his Dictionary, thinks this is not so properly a Law as a Covenant.

LOGICK, is the Art of conducting the Understanding in the Knowledge of Things and the Discovery of Truth. It may be divided into four Parts, Apprehension, Judgment, Discourse, and Method; as in order to think aright it is necessary to apprehend, judge, discourse and methodize rightly. My Lord Bacon divides Logick into four Branches, according to the Ends proposed in each; for a Man reasons either to find what he seeks, or to judge of what he finds, or to retain what he judges of, or to teach what he retains; and from hence arise so many Arts of Reasoning, viz. 'The Art of Inquisition or Invention, the Art of Examining or Judgment, the Art of Preserving, or of Memory, and the Art of Elocution or Delivering.

MATHEMATICS, is the Science of Quantity, and comprehends whatever is capable of being numbered or measured. It may be divided into Speculative, which rests in the bare Contemplation of the Properties of Things; and Practical, which applies the Knowledge of these Properties to some Uses in Life, as in Astronomy, Architecture, Geography, Mechanicks, Music, Opticks, Perspective, &c.
MECHANICKS, is a mix'd, mathematical Science, which considers the Nature and Laws of Motion and moving Powers, with the Effects thereof in Machines, &c.

METAPHYSICKS, may be called the Science of natural Theology; it considers Being in general, abstracted from all Matter, viz. The Essence of it, which seems to have a real Being, though it does not exist, as a Rose in the Depth of Winter. It is so sublime, or rather so abstruse a Science, that there is a great Difference among Authors about its Nature and Ideas.

MUSICK, is the Science of Sound, or the Art of disposing and conducting Sounds, of proportioning them among themselves, and separating them by just Intervals in such a Manner, as to produce Harmony and Melody.

NAVIGATION, is the Art of sailing or conducting a Ship or Vessel from one Place to another, the shortest and most commodious Way. It likewise comprehends the Art of building and loading of Ships.

OPTICKS, is a mixed, mathematical Science, which explains the Manner wherein Vision is performed in the Eye; treats of Sight in general, gives the Reasons of the several Modifications or Alterations which the Rays of Light undergo in the Eye; and shews why Objects at different Distances, and in different Situations, appear greater, smaller, more distinct, more confused, nearer, or more remote.

PAINTING, is the Art of representing natural Bodies, and giving them the Appearance of Life. It may be divided into four Parts, Invention, Design, Disposition and Colouring.

PERSPECTIVE, is that Part of the Mathematicks which gives Rules for the representing of Objects on a plain Superficies, after the same Manner as they would appear to our Sight, if seen through that Plain, it being supposed as transparent as Glass.

POETRY, is the Art of inventing and compositing Fables, Stories, Allegories, &c. in Verse. It is related to Painting, as it describes the Passions and Manners of Men; and to Musick, as its Stile consists of Numbers and Harmony.

PHILOSOPHY, is the Knowledge or Study of Nature and Morality, founded on Reason and Experience. Philosophy owes it Name to the Modesty of Pythagoras, who refused the Title of Wise given to his Predecessors, and contented himself with the Appellation of a Friend, or Lover of Wisdom.
PHYSICK or MEDICINE, is the Art of healing Diseases. According to Boerhaave, it consists in the Knowledge of those Things by whose Application Life is either preserved healthy or found; or when disordered, again restored to its Health and Vigour.

PHYSIOGNOMY, is the Art of knowing (or rather guessing) the Humour, Temper, or Disposition of a Person, by the Lines and Characters of his Face.

RHECTORICK, is the Art of speaking in the most elegant and persuasive Manner; or as my Lord Bacon defines it, the Art of applying and addressing the Dictates of Reason to the Fancy, and of recommending them there so as to attract the Will and Desires.

SCULPTURE, is the Art of cutting or carving Wood, Stone, Marble, &c. and of forming various Figures and Representations therein, particularly of Men, Beasts, Birds, &c.

THEOLOGY or DIVINITY, is that Science which instructs us in the Knowledge of God and divine Things. It is generally divided into five Parts. 1. Natural Theology, is the Knowledge we have of God from his Works by the Light of Nature and Reason. 2. Supernatural Theology, is that which we learn from Revelation. 3. Positive Theology, is the Knowledge of the Holy Scriptures, and of the Signification thereof, conformably to the Opinions of the Fathers and Councils, without the Assistance of any Argumentation. 4. Moral Theology, is that which teaches the divine Laws relating to our Manners and Actions. 5. Scholastic Theology, is that which proceeds by Reasoning, and taking certain established Principles of Faith for granted, from thence deduces Abundance of strange Things, and has made a fine Piece of Work of it indeed. The Antients had a Three-fold Theology. The first Fabulous, which flourished among the Poets, and was chiefly employed in the Genealogies of the Gods, &c. The second Political, which was embraced by the Politicians, Priests and People, as most suitable and expedient to the Safety, Quiet, and Prosperity of the State. The third, Natural, chiefly cultivated by the Philosophers, as most agreeable to Nature and Reason. This last acknowledged only one Supreme God.
THE Pagans did commonly boast of seven stately Structures, that were named, The Seven Wonders of the World.

I. The greatest Wonder, and most incomparable Work, was the Temple of Ephesus, dedicated to Diana. It was first begun by Ctesiphon, and seated (for Fear of Earthquakes) in marsh Ground; it was 425 Feet long, and 220 Feet broad; it had in it 127 stately Marble Pillars, each of which had been the sole Enterprize and Work of a King who was resolved to make his Piety and Magnificence appear upon his Pillar. It was 200 Years in building, though many Thousands of Men were employed in the Work; it was rebuilt at the Command of Alexander the Great, by Dinocrates, his Engineer.

II. the Walls of Babylon, and the pleasant Gardens which Queen Semiramis planted; about this Work 300,000 Men were continually employed many Years. These Walls were 300, or 350 Stadia about, which make about 22 English Miles; they were 50 Cubits high and so broad, that two or three Chariots might go upon them abreast, without any Danger.

III. The Labyrinth of Egypt, built by Maros, or Me- nis, for his Tomb, in which 16 large Apartments, or sump- tuous Palaces, were built, to equal the 16 Governments, or Provinces of Egypt; there were in it so many Ways and artificial Walks, that it was no easy Matter to find the Way out of it. Daedalus took his Model from this, to build his Labyrinth in Crete.

IV. The Pyramids of Egypt, which remain to this Time; there were three of them; the greatest was built by Chemnis, King of Egypt, as a stately Monument of his Power, and to be his Sepulchre after his Death: It was placed about 16 English Miles from Memphis, or Grand Cairo, and was about 1440 Feet in Height, about 143 Feet long on each Side of the square Bais, and 600,000 Men were employed in building it, during the Space of 20 Years. It is built of hard Arabian Stones, every one about 30 Feet long. Chemnis was torn in Pieces in a Mutiny of his People, and could never obtain the Honour of being interred in this Sepulchre. Cephus, his Brother, succeeded him, and imitated his vain glorious Actions, in erecting another less than the former.
former. The last was built by King Mycerinus, or (as some say) by the famous Strumpet Rhedope; upon this appears a great Head of black Marble, of 102 Feet round about the Temples, and about 60 Feet high from the Chin to the Crown of the Head.

V. The Mausolœum of Caria, which Queen Artemis built, as a Sepulchre for her deceased Husband Mausolus; she enriched it with so many rare Ornaments, that it was esteemed one of the greatest Wonders of the World; and all Monuments of this Kind have since been called Mausolœa. This Queen did love her Husband so much, that besides this Edifice, which she erected for him, she caused the Ashes of his consumed Body to be put into a Cup of Wine, and drank it, to give him a Lodging next to her Heart.

VI. The Colossus of Rhodes was made by Chares of Asia Minor, of Brafs, in the Space of 12 Years, and was dedicated to the Sun. It cost about 44,000l. English Money, and was placed at the Entrance of the Harbour of the City, with the right Foot standing on one Side of the Land, and the Left on the other; between the Legs the tallest Ships, with their Masts, did enter into the Haven. When it fell to the Ground by an Earthquake, few Men were able to embrace the litter Finger of this prodigious Statue. It was 800 Feet high, and of a proportionable Bigness; and when broken down and beat to Pieces by the Saracens, that took the Island, Anno Dom. 684, they loaded above 900 Camels with it.

VII. The Statue of Jupiter Olympius was the neatest of all these Works: It was erected by the Eleens, a People of Greece, and placed in a Temple dedicated to Jupiter, which was enriched afterwards with many curious Representations and excellent Statues; This of Jupiter was sitting in a Chair half naked, but from the Girdle downwards he was covered; in the right Hand he held an Eagle, and in the Left a Scepter. Caligula endeavouring to transport it to Rome, but those that were employed about it were frightened from their Enterprise, by some unexpected Accident. This Statue was made by Phidias, and was 150 Cubits high; the Body was of Brafs, but the Head was of pure Gold.

Among the many renowned Buildings and Errections of the Antients, the Capitol at Rome may justly claim a Place; it was consecrated to Jupiter Imperator; upon Mount Tarpeia it...
it was built, and was a famous Edifice, the richest and most noted in all Italy. It was beautified with the Statues and Images of all the Gods, with the Crowns of Victory, and with the Spoils of the Nations conquered by the Romans. It was seated in the most eminent Place of the City, by Tarquinus Priscus, and Servius Tullius, two Kings of Rome, and afterwards mightily enlarged by the following Generations. The Temples of Neptune, Vulcan, Saturn, Mars, Æsculapius, Hercules, Vesta, and Janus, are noted by Authors to have been braveStructures, worthy of the Roman Grandeur; as also the Pantheon, dedicated to all the Gods.

To these may be added, the Royal Palace of Cyrus, King of Media, built in a very grand and extravagant Manner, by Menon who cemented the Stones with Gold; also the Temple built at Athens to Minerva, and another in the same City to Mars, where the Judges met to examine Causes of Life and Death; with the glorious Temple, or Fabrick, at Delphos, where Apollo gave Oracles. This Temple was enriched with innumerable Gifts, which came from every Part of the World: In it was a Woman Priest named Phæbas, otherwise Pythia, or Pythonissa, that received the Enthusiasm sitting upon a little Table supported with three Feet; it was called Tripous or Cortina, because it was covered with the Skin of the Serpent Python, whom Juno had sent to distress Latona, Apollo's Mother, in the Island of Delos; when Apollo came of Age, he killed this Serpent with hisBow and Arrows, after a long and grievous Combat; during which these Words, Io Pæan, were frequently heard in the Air, and which afterwards were frequently used in publick Rejoicings.

Of the MUSES.

The Muses had several Names given them by the ancient Poets, according to the several Places where they dwelt; sometimes they were called Pierides, on account of the Forest Pieris, in Macedonia, where they were said to be born; sometimes Heliconiades, from Mount Helicon, which was near their beloved Parnassus, and sometimes by other Names, according to the Pleasure of the Mythologists, in their fabulous Accounts of the Heathen Deities. They were supposed to be the Daughters of Jupiter and Memory, which Fiction was introduced, because Jupiter was
The Young Man's Best Companion.

was supposed to be the first Inventor of Disciplines, which are necessary in order to a regular Life.

These Muses, by the Assistance of Apollo, invented Music; their chief Office was to be present at solemn Festivals, and sacred Banquets, and there to sing the Praises of famous Men, that they might encourage others to undertake glorious Actions, as D'Ailly observes.

They were represented as Women, because Disciplines and Virtues have feminine Names assigned to them; they were painted young, handsome and modest; agreeably dressed, and crowned with Flowers; they were much esteemed for their Chastity, and it is written of them, that when Adonis, the Favourite of Venus, offered to stir up in them some Inclinations to Love, they fell upon him, and killed him.

They were at first but three, and called Melete (Meditation) Meneme (Memory) and Aonide (Singing) but a certain Carver of Sycion, having Orders to make three Statues of the three Muses for the Temple of Apollo, mistook his Instructions, and made three several Statues of each Muse, and these happening to be very curious and beautiful Pieces, they were all set up in the Temple, and from thence began to be reckoned nine Muses; afterwards Hesiod named them, Calliope, Clio, Erato, Thalia, Melpomene, Terpsichore, Euterpe, Polyhymnia, and Urania.

Calliope as supposed President of Heroick Poetry, Clio of History, Erato of the Lute, Thalia of Comedy, Melpomene of Tragedy, Terpsichore of the Harp, Euterpe of Wind Music, Polyhymnia of Music, Urania of Astronomy.

Alexander Ros says, there were at first three Muses, to shew the three Sorts of Music, Singing, Blowing, and Playing; the first in the Throat, the second in Wind-Instruments, and the third upon Strings; Or to shew the Three-fold chief Learning in the World, Philosophy, Rhetorick and Mathematicks: Philosophy is Three-fold, rational, moral and natural; there are three Parts in Rhetorick, the Demonstrative, the Deliberative, and the Judicial; there are also three Parts of Mathematicks, Arithmetick, Geometry, and Music. Afterwards the Number of Muses increased to seven, either because of seven Holes in Wind Instruments, of seven Strings on other Instruments, of the seven liberal Sciences, or of the seven Planets. Lastly, they came to be nine in Number, from the nine Spheres, which they held made a musical Harmony. They were called the
The Daughters of Jupiter and Mnemosyne, to shew that Learning cannot be had without the Intellect and Memory, which are most eminent in learned Men; or rather that God is the Author of Learning, and Memory the Mother or Nurse thereof; therefore the Poet ascribes to the Muses, Memory, and Utterance; by the one they are preferred, by the other they are heard.

They are called Muses from Maiosbai, to enquire; this belongs to Invention; and from Muesbhai, to initiate into sacred Mysteries, by which is meant Judgment; so that the Muses, or Learning, consists in Invention and Judgment.

The Muses were winged, to move the Nimbleness of good Wits, and the Quickness of Poetry and Myrick, in moving the Affections; they bore Palms in their Hands, to shew that they conquer Mens Passions; they did all dance in a Ring to shew the Agreement and Harmony among the liberal Sciences; and the Graces were joined with them to shew the solid Joy that is the constant Attendant on Learning and Virtue.

They had divers Names from divers Occasions, as Nymphs and Goddesses of Water, to shew the Clearness of Poetry; Parnassides, Heliconides, Pierides, Aoniades, Pegasiaides, Aganippides, Libethrides, Thespiades, &c. to shew the various Kinds of Learning, and the many Labours the Scholar must undergo, before he can attain unto Excellency. The particular Names of the Muses are also very significant, as Clio, from Cleus [Glory] because great is the Glory of Learning, though Ignorance be its Enemy; Euterpe, from Euterpus [delightful] because there is no Delight comparable to that of virtuous learned Men; Thalia, from Thalein [to grow green] for Learning will still flourish, and never wither; Melpomene, from Meletenpoimene [making Melody] fo the Life of a Scholar is still cheerful and melodious; Terpsichore, from Terpo and Choria [to delight in Singing or Dancing] for the Mirth of learned Men is within themselves; Erato, from Eratus [Love] for the more a Man knows Learning, the more he loves it. Polyhymnea, or Polymnia, from Pclus and Unmos; no Mens Minds are so full of Melody and Spiritual Comfort, as the Minds of learned Men; Urania, from Uranos [the Heaven] for Learning came from thence; Caliope, from Calis opus [a good Voice] there is no outward Voice so charming and melodious as the inward Voice of Knowledge in the Mind, by which a Man
The Young Man’s Best Companion.

diseourseth with himself, and is never less alone than when he is alone.

The Ancients built Temples to the Muses remote from Cities, and described them sitting on the Top of Parnassus, to shew Learning hath its Seat in the Head, which is the Top and Capital of Man’s Body; and as all Gods and Goddesses had their Birds dedicated to them, so had the Muses the laborious Bees, who very much resemble Scholars in their Providence, Industry, Labour, Order, and Harmony; they are content with little, yet afford much Benefit to the Owner; so do Scholars to the State; neither is there any Creature, to which learned Men and Students are more beholden, than to the Bee, which both affords them Food and Physick in its Honey, and Light in their Lucubrations in its Wax.

Of HERCULES.

THERE has been no King, nor other Person, that we read of in profane History, that has rendered his Name more famous than Hercules, who, for his noble Acts, and glorious Deeds, was deified and placed among the Stars.

His Father is said to be Jupiter, and his Mother Alcmena; when his Mother was big with Child with him, Sthelesus, King of Mycene, was in great Hopes of obtaining speedily a Son, afterwards named Eurytheus. Jupiter took an Oath, that he that should be born first, should be King, and have an absolute Command over the other; which when Juno (Jupiter’s Wife, the sworn Enemy of all her Husband’s Concubines, and of all the Children that were born of them) had accidentally heard, she caused Eurytheus to come forth of his Mother’s Womb, at the End of seven Months, and by that Means procured unto him the Scepter with the Sovereign Command.

’Tis said that when Jupiter lay with Hercules’s Mother, he spent three Nights (which he caused to be joined together) in begetting him: his Body and Stature were answerable to the Pains and Power of his Father, for he was seven Feet high, had three Ranks of Teeth in his Mouth, and out of his Eyes sparkles of Fire and Light did sometimes proceed.

Juno, at the Intercession of Pallas, seemed to be reconciled to Hercules; as a Testimony of her Good-will to him, when in his Infancy, she gave suck to him of her own Breast;
Breast; by that Means it happened, that the little Hercules, having spilt some of the Milk out of his Mouth, he whited that Part of the Sky that is called the Milky Way. This Kindness was only feigned to satisfy the Request of Pallas; for a while after, when he was yet in his Cradle, she sent two dreadful Serpents to devour him, which did not however answer her Expectation; for the Child, without any Show of Fear, caught them in his Hands, and tore them in Pieces.

When he came to Years of Understanding, he was put under the Tuition of such Masters as did excel in many Arts and Sciences, to learn of them the Things that were required to make him accomplished. He was taught by Teutares, a Scythian, to handle the Spear and Dart; Lucius, the Son of Apollo, taught him the Rudiments of Learning, and because he had chaffed him with a Rod, Hercules killed him when he came to be of Age; from Eumolpus he learned the Art of playing upon Instruments of Music; Chiron gave him an Insight into Astrology, and Harpolicus made him understand the other Sciences that were necessary to accomplish a Man of his Birth and Valour.

He was scarce eighteen Years of Age, when Eurytheus engaged him in the most difficult Enterprizes, and exposed him to all Manner of Dangers to make him perish; so that once he took a Resolution to obey him no longer; but the Oracle informed him, that it was the Will of the Gods, that he should pass twelve Times more through Dangers, in Obedience to the Commands of this Tyrant. These are named the twelve Adventures or Labours of Hercules.

1. He was appointed to destroy a great Lion of the Forest of Nemea, that was fallen from the Moon, and spoiled the Country round about; he discharged all his Arrows at this wild Beast to little Purpose, and then encountered it with his Club only in his Hand, but the Skin was so tough and hard that no Weapon could enter it, which when Hercules perceived, he caught hold of the raging Lion, and tore him in Pieces with his Hands. Ever after he delighted in wearing the Skin of this Lion about him, as a Token of his Victory, and in Imitation of him all Heroes have skins of Lions, or other wild Beasts upon their Bucklers; and some say, this is the Lion that was placed among the twelve Signs of the Zodiac.
2. He was sent to the Lake of Lerna, near Argos, to encounter with an Hydra, a notable Serpent, or Dragon of a strange Nature; for it had seven Heads, and when one was cut off, many others did immediately burst forth, so that it was not possible to overcome this Monster, unless all his Heads were cut off at one time, and the rest of his Body destroyed by Fire and Sword, which was executed by Hercules.

3. Eurytbus sent him to Mount Erymantbus, in Arcadia, where a wild Boar of extraordinary Bigness destroyed all the neighbouring Fields: Hercules dragged him alive to Eurytbus, who was almost frighted out of his Wits when he beheld him.

4. He got hold of the Stag of the Mountain Menelaus, whose Feet were of Brass, and Horns of Gold, when he had pursed it a whole Year.

5. He put to flight the Birds of the Lake Stympholus, that were so numerous, and of such a prodigious Greatness, that they darkened the Air, and hindered the Sun from shining upon Men, when they flew over them; besides they did often take up some, and carry them away to devour them. But these Encounters were not worthy to be compared with his Combat against,

6. The Amazons, who were Women of Scythia, dwelling upon the Coasts of the Hircanian Sea, who having followed their Husbands in the War, and seeing them all cut off by the Enemy, near the River Thermodon, in Cappadocia, they resolved to maintain the War themselves, and not to suffer any Man to have Command in the Army, or Kingdom, or to live among them. They went among their Neighbours to fetch from them Children; the Males they destroyed, but kept the Females, and brought them up in a warlike Manner; and that they might be more ready to handle the Bow and Arrows, they burnt their right Paps, in their Infancy. They behaved gallantly in the Siege of Troy under the Conduct of Pentheus; but were forced to yield to the Valour of Hercules, who being accompanied by Theseus, went against them, according to the Command of Eurytbus, and took their Queen Hippolite, who was afterwards married to Theseus.

7. He undertook to cleanse the Stables of Augeas, King of Elis, in which thousands of Oxen had been daily fed, so that the Dung, by a long Continuance, was much increased, and filled the Air with Infection; Hercules therefore
fore turned the Current of the River Alpheus from its ordinary Course, and caused it pass through the Stables; thus he carried away the Filth in one Day, according to his Bargain; but Augeas was not grateful to him for his Pains, for he denied him the tenth Part of the Oxen that were kept there; this caused the Death of Augeas, and the Loss of his Goods.

8. He seized upon a Bull, that did breathe nothing but Fire and Flame, which Neptune had sent into Greece to punish some Disgraces and Affronts, which he had received from that Country.

9. He passed into Thracia, where he caused the Tyrant Diomedes to endure in his own Person, that which he made others to suffer, which was, he gave all Strangers that he could catch in his Kingdom to be devoured by his Horses. Hercules served Bisiris King of Egypt, in the same Manner because he was so cruel to all Strangers, as to cut their Throats upon the Altars of Jupiter, that he might cloak his Cruelty by a Pretence of Piety.

10. Geryon, King of Spain, who was reported to have three Bodies, because he commanded three Kingdoms, was no less cruel than the former; he fed some Oxen, which he highly esteemed, as Diomedes did his Horses, and to keep them, he had a Dog with three Heads, and a Dragon with Seven. When Hercules was sent thither by Eurytheus, he treated him as he had formerly done Diomedes.

11. He was required to put into the Possession of Eurytheus, certain Golden Apples belonging to Juno, that were in the Custody of some Nymphs, the Hesperides, Daughters of Hesperus, the Brother of Atlas; but before any one could come at them, a great Dragon that was at the Entry of the Gardens where they grew, was to be first overcome. He found Means to accomplish this Enterprize also; some say he made Use of Atlas, who went to gather them, while he took his Burden upon him, and bore up the Heavens with his Shoulders.

12. The last Injunction which he received from Eurytheus, was to fetch from Hell the Dog Cerberus, from whence he brought also Theseus, that was gone down to keep Company with his dear Friend Pirithous. These glorious Actions made Hercules dreadful to Eurytheus, and to all Princes in the World. Afterwards there was no Tyrant, nor Monster known, but he undertook to destroy
destroy them; thus he put to Death Cacus (the Son of Vulcan, who had three Heads) because he was a notable Robber, who did spoil and destroy all that came near the Mount Aventin. From thence he went to Mount Caucasus, where he delivered Prometheus, and killed the Eagle that devoured his Liver. He had also an Encounter with Antaeus, the Son of the Earth, who was of a prodigious Bigness and did commit all Manner of Cruelties; Hercules lifted him up in his Arms, and pressed the Breath out of his Body.

But as Hercules was big, and of an high Stature, a small Matter was not sufficient to nourish him, for as he walked in the Fields, one Day when he was hungry, he met Theodamus, tilling the Ground, he snatched from him one of his Oxen, which he laid upon his Shoulders, and devoured every Bit of it before Theodamus, who loaded him all the while with Curses and Imprecations.

He made a Journey into Spain, where he separated the two Mountains, Calpe and Abyla, to let the main Ocean into the Land, by the Straits of Gibraltar; these two Mountains situated one against another, Calpe in Spain, and Abyla in Mauritania, do appear afar off as two Pillars, they are said to be the two Pillars of Hercules, where he engraved these Words, Non plus ultra; as if these were the utmost Bounds of the World, beyond which he could not enlarge his Dominions. In all his Conquests, he made Use of a Club of an Olive Tree, which at last he dedicated to Mercury, the God of Eloquence, whose Virtue he acknowledged to be more profitable than the Power of Arms.

To recount all that the Antients have recorded of this famous Man, would make a pretty large Volume, and perhaps not be so agreeable to some Persons as this Epitome; therefore we will just hint at the Catastrophe of Hercules, and conclude our Narrative.

Like the Heroes of old, he was enamour'd with Women; he married Megara, the Daughter of Creon, King of Thebes, whom he afterwards killed; then he became a Slave to Omphale, Queen of Lydia, for whom he changed his Club for spinning Instruments, and his Lion's Skin for the Garments of a waiting Maid. Afterwards he became amorous of Dejanira, for whom he was to fight Achelous, the Son of Thetys, whom he conquered; and returning with her to a River's Side, where Neffus the Centaur offered his Service to carry her behind him to the other Side; when the Traitor came
came over, he would have abused her, had not Hercules pierced him with an Arrow to the Heart; when he was ready to expire, he resolved to revenge himself in this Manner: He gave his Garment dropping with his Blood to Dejanira, persuading her, that if her Husband did wear it but once, he would never have Love for other Women. The silly Creature believes him, therefore she sent it to him by Lychas his Man, when he was sacrificing upon Mount Oeta; but it fell not out as he had imagined, for as soon as he had put on this Coat, the Blood of Nessus, which was a most powerful Poison, caused so great a Burning all over his Body, that in Despair he call himself into a flaming Pile of Wood, and there was consumed to Ashes.

His Servant Lychas was drowned in the Sea, where he was changed into a Rock, and Dejanira, for Grief, killed herself, with a Blow of her Husband's Club.

Hercules, before he died, obliged Philoctetes, the Son of Pean, his Companion and Friend, to swear unto him never to discover the Place where his Ashes and Bones were buried; he then delivered unto him his Arrows, colour'd with the Blood of the Hydra, which were afterwards carried to the Siege of Troy.

An Account of the Births, Characters, and personal Qualities, of the Monarchs of England, from William the Conqueror to the Reign of his present Majesty King George the Third.

Norman Kings.

William the Conqueror was Son of Robert Duke of Normandy, by one of his Mistres named Harlette, (whence some imagine the Word Harlot derived) a Skinner's Daughter of Falaise, which gave occasion to his being surnamed the Bastard; but this he afterwards changed to that of Conqueror, from his subduing England. He was born in 1026; and succeeded his Father as Duke of Normandy 1035; being at that Time but nine Years old; and after his Victory at Hastings in Sussex, was crowned King of England on the 14th of October, Anno 1066.

He was tall, and so big, that his Corpulency grew troublesome to him in his latter Years. His Strength was so great, that Historians say, no Person but himself, could
bend his Bow. He was laborious, seasoned to all the Hardships of War, and patient in all Seasons, Hunger, and Thirst. He had a great Soul, and elevated Mind; and of so prodigious a Genius, that nothing escaped his Examinations. He delighted in War; understood it well, and was successful in it. When once raised to Anger, it was almost impossible to appease him.

He died of a Fever at Roan in Normandy, the 9th of September, 1087, in the 61st Year of his Age, and was buried at Caen in St. Stephen's Abbey, which he endowed with rich Revenues.

WILLIAM II. surnamed Rufus.

WILLIAM the Second succeeded his Father; was legitimate Son of Maud, Daughter to Baldwin the fifth Earl of Flanders. He was born in the Year 1056; was crowned King of England by Lanfranc, Archbishop of Canterbury, on the 17th of September, 1087; and being wounded accidentally, as he was hunting in New-Forest, by one of his Domesficks, named Walter Tyrrel, a French Knight, died of the Wound on the 2d of August, 1100, and in the 13th Year of his Reign, aged 44 Years.

The only good Quality remarkable in him, was his signal Courage which rose almost to Fierceness: And he carried his Vices and Tyranny to so great a Height, that the Wound he received was considered, not as the Effect of mere Chance; but as sent by the Hand of God, in order to rid the English of so wicked a Prince.

HENRY I. surnamed Beau-Clerc.

As King RUFUS left no Issue, his Brother Henry (by the same Mother) succeeded him, and was crowned King by Maurice Bishop of London, on the 5th of August, 1100. He was married first to Maud, Daughter of Malcolm, King of Scots; and afterwards to Adeliza, Daughter to Geoffrey Earl of Louvain, by whom he had no Issue.

His Death was occasioned by eating too many Lam-preys which threw him into a Fever, of which he died in the Castle of Lyon in Brai near Roan, on the 1st of December, 1135, after a Reign of 35 Years; and was buried in the Abbey of Reading in Berkshire. He was very handsome, brave, and had a great Capacity; was extremely sober, inexorable to Offenders: He had a great Love for Learning, whence he was called Beau-Clerc; but these
the good Qualities were fullied by Cruelty, Avarice, and Uncleanness.

**HOUSE of BLOIS.**

STE P H E N, King of England.

After Henry’s Decease, Stephen Son to Adela, Daughter of William the Conqueror, and of Stephen, Earl of Blois, was crowned at Westminster the 26th of December, 1135.

He died the 25th of October, 1154, in the nineteenth Year of his Reign, and fiftieth of his Age; and was buried in Beverham Abbey.

His Merit consisted in the Greatness of his Courage, elevated Genius, and Soundness of his Judgment. Greatly skilled in military Affairs; had great Experience, and a wonderful Patience. His Clemency and Munificence were the least of his Virtues: All these were heightened by the Stature and Majesty of his Person; which rendered him one of the most amiable Princes of his Time.

HENRY II.


He was born at Mans the 4th of March, 1133, and was adopted by King Stephen the 6th of November, 1153, and crowned King of England the 19th of December, 1155.

He possessed many good Qualities: He was just, brave, generous, magnificent, clement, and prudent: But his Ambition and Lust were insatiable, and his Anger very violent.

On his Death-Bed he caused himself to be carried to the Church of Chinon; and being laid before the Altar, expired. His Corpse was carried to Fontevraud, as he had ordered, and was there interred. He died the 6th of July, 1189, in the 56th Year of his Age; having reigned 34 Years, 8 Months, and 11 Days.

RICHARD I. surnamed Lion’s Heart.

After the Death of Henry II. his second Son Richard succeeded him. His Mother was Eleanor of Acquitaine, Duchess of Guinne and Gascony, &c. His exceeding Bravery acquired him the Name of Cœur de Lion, or Lion’s Heart: but for any other Virtue, it is needless to seek for it. His Person was well-shaped; blue Eyes, but...
full of Fire; and his Hair of a sandy Colour. His Death was occasioned by a Wound he had received by an Arrow at the Siege of Chaluz in Limoulin; of which he died on April 6, 1199, in the 43d Year of his Age, and 10th of his Reign, and was buried at Fontevraud.


This Prince came to the Crown by Virtue of the last Will of Richard. After having gone through many Troubles, Vexations, and Disappointments, during his Reign, chiefly owing to his Vice and Ambition, he died at Newark, October 8, 1216, through Grief, for having lost his Baggage, which was very rich, which threw him into a Fever, and was augmented by eating too many Peaches.

He had Wit; but it was of the vicious Kind: Was hot-headed, reptlefs, and hasty; had no Resolution, but in his first Transports; which being over, he was soft, indolent, fearful, and wavering. Was cruel, voluptuous, and covetous; had no Religion, Conscience, Honour, or Regard to Futurity. He died in the 51st Year of his Age, and in the 18th Year of his Reign.

H E N R Y III.

This Prince succeed'ed his Father, in the 10th Year of his Age: He was born October 1, 1207, and crown'd at Gloucester, October 28, 1216; and died in London the 16th of November, 1272, aged sixty-six; of which he had reign'd fifty-six Years and twenty Days.

He was a Prince of very few Parts; naturally inconstant and capricious. He loved Money to excess; but then he squander'd it away so idly, that the prodigious Sums he levied on his Subjects, did not make him the richer. Nothing can be said as to his Courage, because he never gave any sensible Tokens of it; but he may be justly applau'd for his Continence, and Aversion to whatever tended to Cruelty; and to conclude his Character; his Weakness in suffering himself to be govern'd by haughty, self-interested Counsellors; and the arbitrary Maxims instill'd into him from his Infancy, were the real Causes of the Commotions which distur'd his Government.

E D W A R D I. surnamed Long-Shanks.

After the Death of Henry III. Edward, his eldest Son, by Eleanor of Provence, succeed'ed him, and was crown'd on the 19th of August, 1274; and Historians say, that on his Coronation-Day, five hundred Horses were let loose about
about the Fields, with liberty to every Person to keep as many as they could catch.

He was extremely well-shaped, and very tall, but his legs were a little too long; on which Account he was surnamed Long-Shanks. He was an excellent King, a good Father, a formidable Enemy, and a brave Captain: He was chaste, just, prudent, and moderate; and on his Death-Bed exhorting his Son to continue the War with Scotland; adding, “Let my Bones be carried before you to Battle, for sure I am that the Rebels will never dare to stand the Sight of them.

He died at Borough on the Sands, a small Town in Cumberland, the 7th of July, 1307, after a Reign of thirty-four Years, seven Months, and twenty Days. His Body was taken to Westminster, where it was enclosed in Wax, and deposited near that of the King his Father.

EDWARD II.

Prince Edward, after his Father’s Death, succeeded him; and was the only Son that survived him. He began his Reign 1307, and was one of the most handsome and best shaped Men of his Time; and had so majestic an Air, that it was almost impossible to look on him, without entertaining an Esteem for him: But the Beauties of his Body did not correspond with his Mind. He was neither a Warrior, nor a Politician; neither zealous for his Country’s Good, nor passionate of Glory; neither was he endued with a Capacity for difficult Affairs, nor had he a genius sufficient to contrive, or Resolution to go through with such: To these Circumstances were owing all the Misfortunes of his Reign. This Monarch was deposed, and his Son proclaimed King in his Stead; and was imprison’d at Kenelworth Castle; but removed afterwards to Berkeley Castle; where Sir Thomas Gurney and Sir John Maltravers put him to a cruel Death; causing a red-hot Iron to be thrust up his Fundament, and in these cruel Torments expired in October, 1327, after a Reign of twenty Years.

EDWARD III.

Edward the Third, eldest Son to the deceased King, by Isabella of France, succeeded his Father at the Age of 14, and in 1327.

Historians say, that the bare Aspect of this Prince drew Respect and Veneration. He was gentle and beneficent to
to People of Virtue; but to the Vicious inexorable: A Friend to the Poor, the Widow, and Orphan, and to all the Unfortunate in general; and his greatest Delight was to soothe their Misfortunes; and though his Valour was well known to the World, it never puffed him up. His Subjects were dear to him; and the uninterrupted Union that subsisted between him and his Queen, augmented his Felicity. In short, he might have been looked upon as a perfect Prince, had not his Ambition prompted him to break, in an illaudable Manner, the Peace he had concluded with the Scots.

He died the 21st of June, 1377, in the 65th Year of his Age, and 51st of his Reign.

RICHARD II.

This Prince (who was Grandson to the deceased King) came to the Crown in the 11th Year of his Age, was born at Bourdeaux the 6th of January, 1336, and made Prince of Wales in 1377. Twenty-four Days after Edward died, Richard was crowned at Westminster.

He was Son to Edward the Black Prince, (so called on account of his wearing black Armour) who was the first created Prince of Wales.

This unfortunate Prince being of a lavishing and profligate Disposition, caused his Subjects to revolt from him, and take Arms against him: And at his Return from Ireland was seiz’d and imprisoned in Flint Castle, near Chester; but some Time after, was sent to Pontefract Castle in Yorkshire, where Sir Peter Exton, with eight Men, was sent to destroy him; but the King resolved to sell his Life as dear as possible, and kill’d four of the Assassins before he fell himself, which Exton himself effected. Thus died this unhappy Prince at thirty-three Years of Age.

He was, as Historians relate, the handsomest Monarch in the World; kind and magnificent, but soft, timid, of little Genius, and too great a Slave to his Favourites.

HOUSE OF LANCASTER.

HENRY IV. surnamed Bolingbroke.

This Prince who swayed the Scepter after the deposing of Richard II. began his Reign the 30th of September, 1399. He was Son to John of Gaunt, third Son of Edward III.

His chief Character was an extreme Desire of reigning, and he came to the Throne by a Method that was universally
ably disapproved, having caused King Richard to be murdered; which will be an eternal Blot to his Memory.

He performed very few Actions which merit any Encomium; and his Reign was a continual Series of Revolutions. 'Tis said that he died of a Leprosy the 20th of March, 1413; being the 14th of his Reign, and 46th of his Age; but some Writers say he died of an Apoplexy.

HENRY V. furnamed of Monmouth.

HENRY V. eldest Son of Henry IV. by Mary le Bohun, Daughter of Humphry Earl of Hereford, was born at Monmouth, and was made Prince of Wales Anno 1399, and began his Reign 1413.

He was well shaped, and warlike; an experienced Soldier, and a great Politician; of an extensive Genius in laying his Schemes, which never failed to succeed. As he was a great Friend to Justice, he obeyed its Dictates, and made others do likewise: He was devout without Ostentation, and a great Protector of the Church and Clergy; but a little ambitious; not liberal, and inclined to cruelty; and in his Father's Time had led a dissolute Life.

He died of a Bloody-Flux in Vincennes, August 31, 1422, in the 34th Year of his Age, after a triumphant Reign of nine Years and five Months. He left only one Son, brought him by Catherine his Queen.

HENRY VI. furnam'd of Windsor.

This Prince was but nine Months old when he ascended the Throne. He was born at Windsor, December, 6, 1421.

He was a just, chaste, temperate, and pious Prince; and resign'd himself wholly to the Dispensations of Providence. He bore with uncommon Patience all the sinister Accidents of Life. His only Defect was a Sort of Weakness of Mind, which render'd him incapable of governing his Kingdom, without the Assistance of others.

He was dethron'd in the Year 1461; but recovered his Crown in 1471; and in 1472 lost it again, together with his Life.

After this Misfortune of being dethron'd, King Henry the Queen his Consort, and the Prince of Wales his Son, fled to Scotland, and was respectfully received in that Kingdom: But the Year following return'd to England,
in Hopes of concealing himself there; not daring to reside entirely in Scotland, being in dread that the Scots would deliver him up; but unfortunately was discover’d and seized, carried to London, and sent to the Tower; where Edward (for his own Security) sacrificed him in the 50th Year of his Age.

EDWARD IV.

Edward IV. Son to Richard Duke of York, was crown’d June 29, 1472, after King Henry’s being dethron’d: And notwithstanding he was of a surprizing, active, vigilant, and warlike Disposition, he was no sooner invested with regal Dignity, than he devoted himself entirely to his Pleasures.

He was one of the handsomest Men in all Europe. Philip de Commines pretends that he died through Grief, because Lewis the 11th prefer’d the Alliance of the House of Austria to that of his Family; but this not probable. Some have accused his Brother the Duke of Gloucester of poisoning him: But the most likely Circumstance is, that his indulging himself at a Banquet too much, occasion’d his Death; for it threw him into a violent Fever, of which he died April 9, 1483, in the forty-second Year of his Age, and twenty-third of his Reign.

EDWARD V.

This unfortunate Prince was but twelve Years of Age when he began to reign; which lasted but two Months and twelve Days; himself, and his Brother the Duke of York, being both murder’d by the Protector, Richard Duke of Gloucester, their Uncle, who afterwards usurp’d the Crown.

They were lodg’d in the Tower, where it was customary for the Kings of England to reside before their Coronation; and the Protector, upon the Refusal made by Sir Robert Brackenbury, Lieutenant of the Tower, to be an Accomplice of so barbarous a Scene of Villainy, gave the Government of it, for one Night only, to Sir James Tyrrel, who had suborn’d one Miles Forest, and John Dighton, who, in the Dead of Night, enter’d the Chamber where the two Princes lay, and stifled them. These shocking Circumstances were told by Tyrrel, who was afterwards executed under the Reign of Henry the Seventh.

RICHARD III.

This inhumane Wretch was, by the Consent of the People,
ple, crown'd King in 1483; and though his Character be well enough known by his abominable Actions, I shall describe him as follows:

He was little in Stature, very ugly, and crook'd-back'd, a great Imposter, Dilemblcr, Hypocrite, and cruel in his Nature; but at the same Time was brave and sagacious, and caused Justice to be administer'd to all his Subjects, without Distinction. He was greatly skil'd in Politics, and had a surprizing Command over himself in concealing his Intentions.

He was kill'd in the Battle of Bosworth-Field, which he fought against the Earl of Richmond, the 22d of August 1485, who was afterwards King of England.

His Body, after it was found, was carried to Leicester and expos'd to View for two Days; then buried without any Ceremony: But Henry the Seventh, some Time after caused a Monument to be erected over his Grave.

HENRY VII.

After the Death of King Richard, the Earl of Richmond was crown'd King of England; Richard leaving no legitimate Issue.

He was an able Prince; chaste, and temperate; an Enemy to all scandalous Vices; assiduous in Exercises of Piety; and caused Justice to be administer'd wherein his private Interest was not concern'd; for he was in satiably covetous; yet he merited the Esteem of all Europe.

He died the 22d of April 1509, of a Consumption, in the 52d Year of his Age, and 24th of his Reign; and was interr'd in that magnificent Chapel which he erected in Westminster-Abbey, called Henry the Seventh's Chapel.

HENRY VIII.

Henry VIII. succeeded his Father Henry VII. and began his Reign April 22, 1509, being in the 18th Year of his Age.

He was a comely Prince; but grew too corpulent in the latter Part of his Life. He was skilful in all bodily Exercises; brave without Oftentation; of a candid and frank Disposition, and liberal to Excess. He lov'd Study, and made a great Progress in the Sciences; perfect Master of Musick; and skilful in Philosophy and Divinity: But, on the other Hand, was inclin'd to Cruelty; and withal, very presumptuous and lascivious.

He died of a Complication of Humours falling upon
an old Sore in his Leg, the 28th of January, 1547, in the 56th Year of his Age, and 38th of his Reign. He left behind him two Daughters and one Son; Mary, by Catharine of Arragon; Elizabeth, by Anna Boleyn; and Edward, by Lady Jane Seymour.

EDWARD VI.

This Prince began his Reign in 1547, and though but ten Years old, was well skil'd in the Latin and French Tongues; and had also some Knowledge of the Greek, Spanish, and Italian.

He was a great Promoter of Trade and Learning, and an Encourager of the Reformation; confirming the Grant of the King his Father, to the City of London, for Christ's, and St. Bartholomew's Hospitals; and founded himself those of Bridewell and St. Thomas's, besides several Schools: But a Consumption carried him off the 6th of July, 1553, in the 16th Year of his Age, and 6th of his Reign.

MARY.

This Princess came to the Throne after the Death of King Edward her Brother. After her Coronation, she was espoused to Philip II. King of Spain, by whom she had no Issue.

She was extremely bigotted to the Romish Religion, which she would have undoubtedly re-established, had she surviv'd.

Her natural Disposition was cruel and revengeful; and we meet with but one good Action during her Reign, viz. Her rejecting the Proposal offer'd by the Spanish Ambassador, of making herself absolute.

She died of a Dropsy the 17th of November, 1558, in the 43d Year of her Age, and in the sixth Year of her Reign.

ELIZABETH.

After the Decease of Queen Mary, the Princess Elizabeth, her Sister, ascended the Throne, in the 25th Year of her Age, 1558. She was tolerably handsome, and had a most majestick Air; but the Circumstance that endear'd her most to the common People, was a certain Affability which was natural to her, and which won her the Affection of the People.

She was Mistress of a great deal of Wit, as well as of a solid Judgment, join'd to great Economy; Learned, and
and spoke several Languages; a great Politician, and never disclosed any of her Secrets, not even to her Favourites or chief Ministers, who always paid an implicit Obedience to her Dictates: But the Circumstances, which above all ought to gain her Esteem, is, her making the English enjoy a Felicity unknown to their Ancestors.

She was never married; her Policy, and Love for Liberty, made her entertain an Aversion to the wedded State.

She died March 24, 1603, in the 70th Year of her Age, and 45th of her Reign.

James the Sixth of Scotland, and First of England, Son to the unfortunate Queen of Scots, succeeded Queen Elizabeth. He was born at Edinburgh Castle, and baptized a Roman Catholick, June 19, 1566, but afterwards educated in the Protestant Religion.

He was a learned Prince; but made not a right Use of his Knowledge. He was naturally, as pacific, as Queen Elizabeth was magnanimous.

A little before his Coronation, an intended Conspiracy was discover'd, viz. To raise to the Throne Arrabella Stuart, his Cousin German; and some of the Conspirators were executed; the famous Sir Walter Raleigh was accused of being concern'd in it; and after a Confinement of twelve Years in the Tower, was beheaded Oct. 29, 1618.

The King died at his Palace at Theobald's of a Tertian Ague, after three Weeks Illness, March 27, 1625, in the 59th Year of his Age, the 22d of his Reign over Great-Britain, and 58th over Scotland.

Charles I.

This Prince, Son to King James, by Anne, Daughter to Frederick II. King of Spain, succeeded him. He was born in Scotland, November 19, 1600, and crown'd King of Great-Britain, February 2, 1625-6.

Some Writers say, he was religious, chaste, sober, affable, and courteous; of great Peration, solid Judgment, and an excellent Man. On the other Hand, that he was too fond of Prerogative, and so weak, as to let himself be govern'd by his Wife and Favourites; and that, by their Persuasions, he executed several Things, which first caused his Subjects to murmur, and afterwards
to break out into open Rebellion, which in the End proved fatal to him, for he was brought to the Bar as a common Criminal, and sentenced (without being suffer'd to plead in his own Defence) to be beheaded; which Sentence was executed three Days after it was pass'd upon him, being January 30, 1648-9. He suffer'd Death with great Constancy, and without discovering the least Signs of Weakness or Surprize: And after his Body had been exposed to publick View for several Days, in one of the Apartments at Whitehall, was carried to Windsor, and interr'd in St. George's Chapel.

From the Death of this King until the Year 1661 there was an Interregnum; and England was govern'd by the Parliament, which was compos'd of 144 Persons, known by the Name of Barebone's Parliament; Oliver Cromwell being at the Head: But they resigning the Administration of Affairs, Oliver caused himself to be proclaim'd Protector of England, Scotland, and Ireland; and after having established his Authority upon the Ruins of the Parliament, (who were his Creatures) and made the Protectorate hereditary in his Family; after refusing the Crown, which the same Parliament offer'd him, he died of a Tertian Ague, Sept. 3, 1658.

It was allowed by all, that he was a renowned Warrior; great Politician; and Terror to France, Spain, and the United Provinces.

After his Death his Son Richard was proclaim'd Protector; but he did not long preserve this Title; for in the Year 1660, Charles, Son to the deceased King, was restor'd to the Crown.

CHARLES II.

This Prince was crowned April 23, 1661, being St. George's Day. He was liberal even to Prodigality; extremely affable, and so easy in Conversation, that he seem'd desirous of doing Good to all. To this was added a sprightly Wit, and wonderful Conception; and understood the Interest of his Kingdom, better than any of his Ministers: But on the other Hand, he was too great a Lover of Ease; and he was justly blame'd for having too great an Attachment to the fair Sex.

He died February 6, 1684-5, aged fifty-four Years, after
ter having reign'd near twenty-four since his Restoration. And tho' he openly profess'd the Protestant Religion, he nevertheless died (according to some Authors) a Roman Catholick.

JAMES II.

King Charles leaving no legitimate Issue by Catharine his Queen, Daughter to Don Juan fourth King of Portugal, his Brother James Duke of York was proclaim'd King. He was born at St. James's October 14, 1633, and crown'd April 23, 1685.

Historians, who have writ impartially, say, that he was a kind Father, a tender Husband, a good Master; and would have been a good King, had he not been misled by the wicked Ministers about him: That as his most bitter Enemies cannot deny, but he shew'd great Bravery, on several Occasions when Duke of York; so his best Friends confess, that he had more Piety than Resolution, when King of England: In a Word, that the Religion he profess'd was the Source of his Misfortunes, and the chief Cause of his being dethron'd.

He died at St. Germains in France, Sept. 6, 1701, in the 68th Year of his Age.

WILLIAM III. and MARY II.

After King James abdicated the Crown, William Nassau Prince of Orange, and his Confort Mary, Daughter to King James, were proclaim'd King and Queen of Great-Britain, the 13th of February, 1688-9 to the inexpressible Joy of the judicious and unbougotted Part of the Kingdom; and were crown'd the Eleventh of April following at Westminster, with great Magnificence. On December 28, 1694, Queen Mary died of the Small Pox.

Her Piety was solid; and an uncommon Goodness adorn'd her Soul. She had a great Sweetness of Temper, accompany'd with Majesty; and an Air of Grandeur, without the least Pride or Affectation. Her Conduct was admirable; and entertain'd a sincere Affection for the King her Husband, which he as kindly return'd. She paid an intire Submission to the Divine Will, which she
The Young Man's Best Companion.

She gave convincing Proofs of in her expiring Moments; as indeed she had done, in the whole Tenor of her Life.

The King died March 8, 1701-2, at Kensington-Palace, in the 52d Year of his Age, and 14th of his Reign.

He was of a middling Stature, and a little round-shoulder'd; had an oval Face, a light brown Complexion, and a Roman Nose; his Eyes lively, and piercing; and never look'd so well as on Horse-Back; as though Nature had form'd him to command in the Field. But the Defects of his Body were compensated by the Perfections of his Mind; being endued with a quick, ready, attentive and penetrating Genius: Of sound Judgment; admirable Forecast; a strong Memory, and a calm and intrepid Courage. War was his greatest Delight; and Hunting and Shooting his usual Diversions. In a Word, he was one of the greatest Men of his Age. He had declared himself, on all Occasions, an Enemy to Tyranny and Oppression; and, after having preserv'd his own Country, was the Deliverer of England, and the Defender of the Liberties of Europe.

ANNE.

This Princefs, after the Death of King William and Queen Mary her Sifter (they leaving no Issue) was proclaim'd and crown'd Queen of England, &c. and on the 21st of May, 1701-2, declar'd his Royal Highness George Prince of Denmark (her Royal Confort) Lord High Admiral of England and Ireland.

This Queen, instead of calming all Europe, which was her Intentions, involv'd herself in numberless domelfick Troubles, which soon brought her to the Grave; being seiz'd with a Kind of Lethargy, she expir'd on the First of August 1714, on which Day the Elector of Hanover was proclaim'd King.

She was virtuous, charitable, and a perfect Model of Piety; and as a Sovereign easy, kind, and generous. Her Majesty was extremely regretted by her Subjects who had loved her with filial Affection during the whole Course of her Reign. She left no Children, though she had six; two Sons and four Daughters.

GEORGE
GEORGE I.

This Prince, was the eldest Son of Ernest Augustus, first Duke and Elector of Brunswick Lunenburgh, by Princess Sophia Daughter to Frederick, fifth Elector Palatine, and King of Bohemia, and Princess Elizabeth, eldest Daughter of King James the First.

He was born the 28th of May, 1660; succeeded his Father in the Electorate 1698, and was at Hanover at the Death of the Queen, and proclaim'd King of England, &c. the same Day.

He embark'd for England, with the Prince Royal his Son, the 16th of September, 1714, and landed at Greenwich the 18th; and on the 20th made a magnificent Entrance into London; being attended by above 200 Coaches and Six, belonging to the Nobility, &c. The Lord Mayor and Aldermen of London attending in their Formalities.

His Majesty, in his last Visit to Hanover was taken ill on the Road between Delden and Linden; which Illness proceeded from having eat Part of a Melon, which he did not well digest. Being arrived at Linden, he was let Blood: But his Majesty being anxious to reach his Dominions, travelled on, though he was importuned to the contrary, being much indisposed: But being seiz'd, as he rode in his Coach, with a Lethargic Disorder, he reclin'd his Head on a Gentleman, who had the Honour to be with him, saying at the same Time in French, C'est fait de moy, that is, I am gone, or, it is over with me: However about Ten that Night he arrived at his Brother's, the Duke of York, in Osnaburg; and after having again been let Blood, expir'd about One next Morning, June 11, 1727, in the 68th Year of his Age, and 13th of his Reign.

GEORGE II.

As his late Majesty died Abroad, his Death was not known till the 14th of June, 1727, and his Majesty King George II. was, the next Morning, proclaimed King, and he with his Queen were crowned at Westminter, on the 11th of October.

His
The Young Man's Best Companion.

His Majesty found the Nation engaged in a War with the Spaniards; but in 1729, a Peace was concluded at Seville between Great-Britain, France and Spain.

On October 29, 1739, War was declared against Spain; and on November 22, 1740, Admiral Vernon, with six Ships, took Porto Bello.

Commodore Anson sailed from England with five Men of War in 1740, and after having suffered the most dreadful Distresses, surprized and took Paita on the 12th of November, 1741, and having plundered and burnt the Town, and kiz’d several Spanish Ships, he on his Return, by the Way of the East Indies, took the Manilla Galleon, loaded with Treasure. He arrived in England in 1744, with the Riches he had acquired from the Spaniards, amounting to about 400,000 l.

In 1744 War was declared against France; and in 1745, the People of New-England, assisted by ten Men of War under Commodore Warren, took Cape Breton, with the Loss of only 100 Men; but were afterwards obliged to part with it for Madras.

On the 14th of July the young Pretender failed to Scotland in a small Frigate, and landed there on the 27th of July. He soon obtained a considerable Force, and proceeding through several Parts of Scotland, had his Father proclaimed King, while he himself assum’d the Title of Prince Regent. He took several Places, and gained some Advantages over the King’s Forces sent against him; but at Length the Duke of Cumberland went to Edinburgh, and took the Command of the Army, and on the 15th of April, came to an Engagement near Culloden House, and obtained a compleat Victory, in which about 1400 of the Rebels were killed, wounded and taken Prisoners, though the Royal Army had only 60 Men killed, and 280 wounded. The Earl of Kilmarnock, Lord Balmerino, Lord Lovat, and Mr. Radcliffe, Brother to the late Earl of Derwentwater, were afterwards beheaded for this Rebellion on Tower-hill.

Hostilities at Length, ceased in Flanders, and a general Peace was proclaimed in London, February 2, 1749. The French, however, soon broke the Peace by erecting Forts on the Back of the British Settlements in America, and in 1754, attempted to seize Nova Scotia: These De-
predations brought on several Engagements which were attended with various Success.

Mean while the French landed 16,000 Men in Minorca, which was defended by Gen. Blakeney. His Majesty declared War against France on the 17th of May, 1756, and sent Admiral Byng with a strong Fleet to the Relief of Minorca; but he neglecting to fulfil his Instructions, the Place was lost, and he was tried and shot at Portsmouth.

During these Transactions Col. Clive distinguished himself in the East Indies; and all the Towns and Factories belonging to the French on the Coast of Coremandel, except only Pondicherry, were in a few Years taken by the English.


On May 1, 1759, the valuable Island of Guadaloupe surrendered to the English, and the same Month Marigalante, Santos, and Deiada, became subject to England. And the same Year the French lost Quebec, the Capital of Canada.

In 1760, Thurot landed with three Frigates in the Bay of Carrickfergus; they were all taken by Capt. Elliot. And on Sept. 8, Montreal and all Canada submitted to the English. But after these glorious Conquests his Majesty King George the II. to the inexpressible Grief of his People, died at Kensington, on the 25th of October, in the 77th Year of his Age and 34th of his Reign; and the next Day his present most gracious Majesty was proclaimed King by the Name of George III.

The Reign of George II. was distinguished by a Variety of important Events, and chequered with a Vicissitude of Character and Fortune. He was in Person rather lower than the middle Size, well shaped, erect, with Eyes remarkably prominent, a high Nose, and fair Complexion.
plexion. In his Disposition he is said to have been hasty, prone to Anger, especially in his Youth, yet soon appeased; otherwise mild, moderate, and humane; in his Way of Living temperate. regular, and so methodical in every Branch of private Economy, that his Attention descended to Objects which a great King (perhaps) had better overlook. He was fond of military Pomp and Parade; and personally brave. He loved War as a Soldier; he studied it as a Science; and corresponded on the Subject with some of the greatest Officers whom Germany had produced. The Extent of his Understanding, and the Splendor of his Virtue, we shall not presume to ascertain, nor attempt to display; we rather with for Opportunities to expatiate on his Munificence and Liberality; his generous Regard to Genius and Learning; his royal Encouragement and Protection of those Arts, by which a Nation is at once benefited and adorned.

To inoculate FRUIT-TREES.

ABOUT Midsummer, or a Month before or after, take off a vigorous Shoot from a Tree you would propagate; then make Choice of a Stock about three or four Years Growth, and in a smooth Part of it make a downright slit in the Bark, a little above an Inch long, and another crosswise at the Bottom of that, to give Way to the Opening of the Bark; then with your Penknife gently loosen the Bark from the Wood on both Sides, beginning at the Bottom; next prepare your Bud, by cutting it off with your Knife, entering pretty deep into the Wood as much above as below the Bud, to the Length of the Slit in the Stock; after the Bud is thus prepared, with the Point of your Knife and your Thumb take out the woody Part of it, carefully preserving the Eye of the Bud; then put your Bud in between the Bark and the Wood of the Stock at the cross Slit, leading it upward by the Stalk, where the Leaf grew, till it exactly closes; then bind it about with coarse Woollen Yarn, the better to make all Parts of it close regularly, and the Bud incorporate with the Stocks, and the Operation is done.

The Bud will be incorporated in about three Weeks Time, and then you must loosen the Yarn, that it may not gall the Place too much; the quicker this is done the bet-
ter. You may put two or three Buds into one Stock of Peaches and Nectarines, that if one don't succeed another may; and if your Buds inoculated in the Month of June, or before, don't hit, you may make a second Attempt the same Year, and on the same Stock, with better Success. Let all Buds be taken off of the vigorous growing Shoot, and used immediately.

To graft FRUIT-TREES.

Grafting (or Ingrafting, or Grafting) is of four Sorts. 1. In the Clef. 2. In the Bark. 3. By Approach. And 4. Whip-Grafting. Of each of these in order. 1. Grafting in the Clef, or Slit Grafting. This is performed on the Pear, Cherry and Plum Stocks. After you have chose your Stock, cut off the Head in a smooth Place, flop ing; then even the Top horizontally with your Knife; this being done make a Slit near two Inches deep down the Middle of the Stock, with a large strong Penknife; then prepare your Cyon (taken from a vigorous Shoot of the foregoing Year, which was prepared in January) flop ing it on each Side, from a Bud or Eye, but leaving it thiner on that Side which goes into the Stock than on the Outside, so that it may conform itself to the Slit in the Stock; then place the Cyon in the Stock, and close the Bark of both exactly. After this is done, temper Clay and short Hay together, and putting it round the Stock and the lower Part of the Cyon, but so as not to disturb the Cyon, which must be left with more than three or four Eyes above the Stock. In case the Stock be large, you may put two Cyons in the Clef; one on each Side. If the Stock be very large, use a Mallet and large Knife to make a Slit or Clef. Let not your Cyons be loose nor pinched.

2. To graft in the Bark. This is only used for Apples; and you are to cut the Head of the Stock as in the former, and instead of slitting the Stock, slit only the Bark a little more than an Inch on the South-West Side, as long as the sloped Part of the Cyon; at the Top of the Slit loosen the Bark with your Knife, then with a smooth Instrument of Ivory or hard Wood cut flop ing as the Cyon, make Room for the Cyon, by thrusting it down between the Bark and the Wood of the Stock, where it was slit; next take your Cyon (being prepared with a flat Slope about an Inch long, ending in a Point, and begun from the Back of an Eye) and put into the Stock, thrusting the Top of the Slope as
low as the Top Surface of the Stock; then order the Bark on each Side the Cyon, that it may fall close to the Stock; then clay it over as before.

3. **Grafting by Approach or Inarching.** This is performed where the Stock grows so near another Tree whose Fruit you would propagate, that it may be joined with a Branch of that Tree, by cutting the Sides of the Branch and Stock about three Inches long and so fitting them, that the Passages of the Sap may meet; in which Posture let them be bound and clayed. When they are cemented, cut off the Head of the Stock, about four Inches above the Binding, and in March following cut off the Stub that was left of the Stock, and then close the grafted Place, that it may subsist by the Stock only. This **Grafting** is also performed by cutting off the Head of the Stock at first, sloping it about two Inches long, and joining the Cyon there-to. This Manner of **Grafting** agrees best with Vines, Oranges, Pomegranates, and such like.

4. **Whip Grafting.** This is where the Stock and Cyon are of the same Bigness; the Stock must be sloped an Inch or more, and also the Cyon; and then one is tied upon the other; or else a Shoulder may be made on the Cyon, to suit with which, the Top of the Stock should be cut; then bind them together, and clay them.

All these four Kinds of **Grafting** are performed chiefly in the Month of February.

**Of Pruning FRUIT-TREES.**

When a Tree is planted, and has produced two well disposed Branches, with some weak Ones intermixed, they are all to be shortened equally, to the Length of five or six Inches; and if the Position of the two Branches be irregular, there must be only one left to begin the Formation of the Figure of the Tree. It sometimes happens, that a Tree will shoot five, six, or seven Branches, the first Year, in which Case three or four only of the best Branches are to be preserved. A Multitude of Branches the first Year, is not always a Sign of Vigour; for they sometimes prove weak, occasioned by the Infirmity of the Roots: But in the **Pruning**, generally a vigorous Tree cannot have too many Branches, if they are well disposed; nor a weak Tree have too few. The Sap of all Trees must be kept in due Bounds, and a greater Liberty is to be allowed to strong Trees than weak Ones; For which Reason, strong vigorous
vigorous Branches, are left a greater Length than feeble Ones, and it is best to prune weak, sickly Trees, early, that the Sap may not waste itself too much.

The most reasonable Time for this Work, is about the Month of February; but the more luxuriant a Tree is, the later it is pruned the better; and in such a Case, it is not too late to do it after the Tree has begun to shoot. Some Trees (especially the Vine) require several Prunings in the Year.

A short Account of the British Plantations.

A large Island, cold and barren; the Settlements and Fortresses few, and made only for the Sake of the Fishery upon the Coasts, which is the greatest in the World; the English, French, &c. loading near 600 Sail yearly with Cod-fish, which is carried to the Mediterranean, and other Parts of Europe. The Fishery in these Seas is an inexhaustible Fund of Wealth, and the Possession of it deemed preferable to the Mines of Peru: It breeds great Numbers of hardy Seamen.

Canada,

Of which Quebec is the Capital, was first settled by the French, and continued in their Possession until the 14th of September, in the Year 1759, when it was taken by the English under the Command of General Wolf, who was killed in the glorious Conquest, and Montreal surrendered to General Amherst the 7th of September following. In the Year 1753, Canada had not more than 45,000 Inhabitants, but when it was given up to the English 19,650 Men were found capable of bearing Arms, besides the Clergy, and Labourers sufficient to carry on their Plantation Work. The whole Country was ceded to Great-Britain by the Definitive Treaty of Peace concluded at Paris the 10th of Feb. 1763. Little can be said with Regard to the Fertility of the Soil, the Inhabitants seldom raise Food sufficient for themselves, tho' they abound in Horses and Neat Cattle.
NOVA-SCOTIA, or ACADIA,

A fine, fertile Country, but not hitherto much cultivated. Its Coasts have many good Harbours, and Plenty of Fish. The Government is English, but most of the Inhabitants French, who submitted in the last War, on Condition of retaining their Possessions, and remaining Neuter in all future Wars between the two Nations. Annapolis Royal was the Capital, a fortified Town, with an English Garrison. The Islands of Cape-Breton, belonging to this Territory, were given to France at the Peace of Utrecht, on which they built Louisburg, and fortified it with incredible Art and Expence; but in the late War, it was reduced and taken by the Wisdom of Governor Shirley, and the Bravery of his New-England Troops, under General Pepperrell, countenanced by a Squadron of British Ships, commanded by the late active, vigilant and successful Commodore Warren. At the Peace it was restored to France, and the English have since built Halifax on Chebouicou Harbour; but Cape-Breton was again retaken from the French in the Year 1759, by Amherst, Wolf and Boscawen.

NEW-ENGLAND,

Comprehends four several Governments, or Colonies; 1. The Massachusetts. 2. New-Hampshire. 3. Connecticut. 4. Rhode-Island. The Climate is healthful; the People hardy, industrious and sober; the Laws and Government good; but the Soil generally not very fertile, and there being no Staple Commodity for Exportation, the Country is poor, and under great Difficulties to pay for what it wants from abroad. There are many fine Harbours and Plenty of Fish on the Coasts, a great Number of pretty Towns, in every one of which is a Free School; Boston, the Capital, is esteem'd at present the greatest Town in North-America, and the best govern'd. Portsmouth is the chief Town in New-Hampshire. Newport the Capital of Rhode-Island Government; and Hartford of Connecticut. In the two last named Governments they annually elect their Governors, \\&c. In the two former the Governors are appointed by the Crown. In Rhode-Island there is the greatest Liberty in Matters of Religion. Their Money is Paper, continually decreasing in Value; Silver and Gold, when any appears among them, is bought up and remitted to England. Their first Settlement began about 1620. 'Tis supposed the disciplin'd
disciplin'd Militia in the four Governments make near 200,000 Men.

**NEW-YORK**

Is a Royal Government; both Governor and Council being appointed by the Crown. The People chuse the Assembly. It has not much Territory, and does not people very fast, being hindered, some say, by the exorbitant Grants of Lands made to particular Persons, who will not divide and fell, but keep it for their Posterity. The Capital New-York, is seated at the Mouth of Hudson's River, very convenient for Trade, and makes a beautiful Appearance. The Inhabitants, a Mixture of English, Low-Dutch, and French Protestants, are a genteel, generous People. The Produce Wheat, Bread, and Flour. The Money Gold and Silver, mixed with Paper. The first Settlement by the Dutch about the same Time with that of New-England by the English.

**NEW-JERSEY,**

A flourishing Colony, situated between New-York and Pennsylvania. The Soil is in many parts very fertile, producing all sorts of Grain, &c. The Government like that of New-York. The chief Towns, are Burlington, Amboy, Brunswick and Trenton. The Country in general well timber'd and water'd, and inhabited by a very good Sort of People.

**PENNSYLVANIA,**

One of the happiest Countries at this Time in the World; God grant it may long so continue.

**MARYLAND and VIRGINIA,**

Pleasant and fertile Countries. Their chief Produce Tobacco. The People remarkable for their Hospitality. The Settlement of Maryland began about 1631; that of Virginia 30 or 40 Years before. ——-The Governments of both Colonies are by Governor, Council and Assembly, but the Laws of Virginia, are said to be the most favourable for the People. No Countries in the World are better accommodated with navigable Waters.

**NORTH and SOUTH-CAROLINAS,**

Are yet but thinly peopled. The Climate temperate; but the Air, in the low, flat Country, where the principal Settlements have hitherto been made, not healthful. Their chief Produce is Rice, Pitch, Tar and Turpentine. Back towards the Mountains the Land is said to be equally fertile, and the Air more wholesome, so that a fine Country...
may be expected there in Time. The first Settlement of the Carolina's was about the Year 1680.

**G E O R G I A,**

A new, but declining Colony. There are few Inhabitants at present besides the Soldiery, who are maintained there by Great-Britain.

**A U G U S T I N E, or E A S T F L O R I D A,**

ceded to Great-Britain by the Spaniards at the late Treaty of Peace, bounded towards the North by the Colony of Georgia, to the East and South by the Atlantic Ocean and the Gulph of Florida, and on the West by the River Apalachicola.

**P E N S A C O L A, or W E S T F L O R I D A,**

Is bounded on the East by the River Apalachicola, on the South by the Gulph of Mexico to the Lake Pontchartrain, on one of the Mouths of the Mississippi. This great River formed its Boundary to the West unto the 31st Degree of Latitude, from which a Line was struck across the Northern Limit due East, until it met the above mentioned River Apalachicola.

**B E R M U D A S,**

First settled in 1612. No Part of the World enjoys a purer Air, or more temperate Climate than these Islands, so that for Health they are reckoned the Montpelier of America. They are situated in Lat. 32 Deg. 30 Min. N. above 200 Leagues from the Continent.

**J A M A I C A,**

Was taken from the Spaniards in 1655. A wealthy Island, but unhealthy, and subject to Earthquakes.

**L E E W A R D I S L A N D S,**


**B A R B A D O S,**

Was settled about the Year 1625. The Produce of this and the other West-India Islands is chiefly Sugar, Rum, &c. The Labour chiefly done by Slaves, as in Maryland, Virginia and Carolina: Their Governments generally much alike, by a Governor, Council and Assembly. The people rich, genteel, generous and hospitable. The Trade of the Colonies with one another and Great-Britain, employs a vast Number of Ships and Seamen. And most of these
The Young Man's Best Companion.

The Family's Best Companion; giving Instructions how to pickle and preserve; to make divers Sorts of Wines of our Product; together with many excellent and approved Medicines, Salves, &c. necessary in all Families.

Of Pickling, Preserving, Candying, &c.

To Pickle Cucumbers.

WASH them and dry them in a Cloth; then take Water, Vinegar, Salt, Fennel Tops, some Dill Tops, and a little Mace; make it sharp enough to the Taste; then boil it a while; then take it off and let it stand till cold; then put in the Cucumbers, and flop them down close; and within a Week they will be fit to eat.

To pickle Cucumbers green.

Take two Quarts of Verjuice or Vinegar, and a Gallon of fair Water, a Pint of Bay salt, a Handful of green Fennel or Dill; boil it a little, and when cold, put it into a Barrel, and then put the Cucumbers to the Pickle, and you may keep them all the Year.

To pickle French Beans.

Take them before they are ripe, and cut off the Stalks; then take good Wine Vinegar, and boil with Pepper and Salt; season them to your Palate, and let it stand till cold; then take the Beans, and put them into a Pot, placing Dill between the Layers, and then put in the Pickle, and cover them close for three Weeks; then take the Pickle, and boil and put it to the Beans boiling hot; cover them close again, and, when cold, they will be fit to eat.

Or French Beans may be pickled thus: Take your Beans and string them, boil them tender, then take them off, and let them stand till cold, then put them into Pickle of Beer, Vinegar, Pepper, Salt, Cloves, Mace, and a little Ginger.

To pickle Eldern, or any other Buds of Trees.

Give them one or two Walnuts with Vinegar, Salt, whole Pepper, long Mace, and a little Lemon Peel in Pieces; then drain them, and let the Buds and Liquor cool separately; afterwards put them into a Pot, and cover them with your Pickle.

To pickle Walnuts to eat like Mangoes.

Take green Walnuts before the Shell is grown to any Hardness in them; pick them from the Stalks, and put

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them into cold Water, and set them on a gentle Fire till the out ward Skin begins to peel off; then with coarse Cloths wipe it off; then put them into a Pot, and put Water and Salt therein, shifting it once a Day for ten Days, till the Bitterness and Difcolouring of the Water be gone; then take a good Quantity of Mustard-feed, which beat up with Vinegar, till it becomes coarse Mustard; then take some Cloves of Garlick, some Ginger, and a little beaten Cloves and Mace; make a Hole in each Nut, and put in a little of this; then take White wine Vinegar, and boil them together, which put to the Nuts boiling hot, with some Pepper, Ginger, Cloves and Mace, as also some of the Mustard and Garlick, which keep close stopped for Use.

To pickle Mushrooms.

First blanch them over the Crowns, and barb them beneath; then put them into a Pan of boiling Water, then take them forth, and let them drain: when they are cold, put them into your Pot or Glafs, and put to them Cloves, Mace, Ginger, Nutmegs and whole Pepper; then take White-wine, a little Vinegar and Salt: So pour the Liquor into the Mushrooms, and stop them close for Use.

To pickle any Sort of Flowers for Sallads, as Clove Gilly Flowers, &c.

Put them into a Gally-pot, with as much Sugar as they weigh; fill them with Wine Vinegar: To a Pint of Vinegar, a Pound of Sugar.

To pickle Samphire, Broom Buds, Ashen-Keys, Purslain, &c.

Take Samphire, and pick the Branches from the dead Leaves; then lay it in a Pot, and make a strong Brine of Water, or Bay Salt; in the Boiling Scum it clean; being boiled, and cold, put it to the Samphire; cover it, and keep it for all the Year; and when there is Occasion to use it, take and boil it in fair Water, but the Water must boil before you put it in; when it is boiled, and become green, let it cool; then take it out, and put it into a wide mouth'd Glafs, and put strong Wine Vinegar to it, and keep it close for Use.

To pickle Lemon and Orange Peel.

Boil them in Vinegar and Sugar, and put them into the same Pickle: Observe to cut them in small long Thongs, the Length of Half the Peel of your Lemon: it ought to be
be boil'd in Water before it is boil'd in Vinegar and Sugar.

To preserve green Apricots.
Take them when they are small and tender; peel them and put them in hot Water, but let them not boil; let them lie there till they begin to be green, then take them out, and put them in cold Water, then boil your Sugar, and let your Apricots run a little of the Water from them; then put them into the Sugar, and let them boil till the Syrup becomes thick; then put them into an earthen Pan, and let them remain there a Week; then put them into a Preserving Pan, and make them boil again till the Syrup grows thick; then put them once more into an Earthen Pan, and let them stand till they are cold; then take them out of their Syrup, and lay them on your Ardoife; then dry them in your Stove, and turn them often till dry; then put them in Boxes on Paper.

To preserve Fruit Green.
Take Pippins, Apricots, Pears, Plumbs or Peaches, when they are green; scald them in hot Water, and peel them; then put them into another Water, not so hot as the first; then boil them very tender, and take the Weight of them in Sugar, and put to them as much Water as will make a Syrup to cover them; then boil them somewhat leisurely and take them up; then boil the Syrup till it be somewhat thick, and, when cold, put them together.

To preserve Raspberries.
Take good Raspberries that are not too ripe, but very whole; take away the Stalks, and put them into a flat bottomed Earthen Pan; boil Sugar, and pour it over your Raspberries, then let them stand to be cool, and when they are cold pour them softly into your preserving Pan, and let them boil till their Syrup be boiled pretty thick; scum them very well in the boiling; this done put them in Pots, and, when cold, cover them up close for Use.

To preserve Barberries.
Take one Pound of Barberries pick'd from the Stalks, put them into a Pottle Pet, and set it in a Brass Pot full of hot Water, and when they be stewed, strain them, and put to the Barberries one Pound \(\frac{1}{2}\) of Sugar, and to them put a Pint of red Rose Water, and boil them a little; then take Half a Pound of the fairest Clusters of Barberries you can get.
get, and dip them in the Syrup while it is boiling; then take the Barberries out, and boil the Syrup till it is thick, and, when cold, put them into Gally-pots or Glasses with the Syrup.

**To preserve Currants.**

Lay a Layer of Currants, and then a Layer of Sugar, and so boil as before prescribed for Raspberries; scum them in boiling till the Syrup is pretty thick; then take them off, and, when they are cold, put them in Gally-pots or Glasses closely stopped.

**To preserve Walnuts Green.**

Boil the Wallnuts till the Water tastes bitter, then take them off, and put them in cold Water; peel off the Bark, and weigh as much Sugar as they weigh, and a little more Water than will wet the Sugar; set them on the Fire, and when they boil up, take them off, and let them stand two Days, and then boil them again once more.

**To preserve Grapes.**

Stamp and strain them; let them settle a while; before you wet a Pound of Sugar, or Grapes with the Juice, stone the Grapes, and save the Juice in the Stoning; take them off, and put them up,

**To preserve Cherries.**

First take some of the worst Cherries, and boil them in fair Water, and when the Liquor is well coloured, strain it; then take some of the best Cherries, with their Weight in beaten Sugar; then lay one Layer of Sugar, and another of Cherries, till all are laid in the preserving Pan; then pour a little Liquor of the worst Cherries into it, and boil the Cherries till they are well colour'd; then take them up, and boil the Syrup till it will button on the Side of a Plate, and when they are cold, put them up in a Glass close covered for Use.

**To candy Cherries.**

Take Cherries before they be full ripe, and take out the Stones; then take clarified Sugar boil'd to a Heighth and pour it on them.

**To candy Pears, Plumbs, Apricots, &c.**

Take them and give everyone a Cut half through; then cast Sugar on them, and bake them in an Oven, as hot as for Manchet, close flopped; let them stand Half an Hour, then lay them one by one upon Glass Plates to dry, and they
they will appear very fine and clear: In this Manner you may candy any other Fruit.

To candy Flowers.

Pick them very clean; and to every Ounce of Flowers, put two Ounces of hard Sugar, and one Ounce of Sugar-candy, and dissolve them in Rose Water; then boil them, till they come to Sugar again, and when it is almost cold, put in your Flowers, and stir them together, &c.

Of making sundry Sorts of Wines.

Currant Wine.

Pick the Currants (when they are full ripe) clean from the Stalks, then put them into an Earthen Vessel, and pour on them fair and clean hot Water, that is, a Quart of Water to a Gallon of Currants; then bruise or mash them together, and let them stand and ferment; then cover them for twelve Hours, strain them through fine Linen into a large earthen Crock (as they say in Suffolk) and then put the Liquor into a Cask, and thereto put a little Ale-Yeast, and when worked and settled, bottle it off: This is exceeding pleasant, and very wholesome for cooling the Blood: In a Week's Time it will be fit for bottling.

Artificial Claret.

Take six Gallons of Water, two Gallons of the best Cyder, and thereto put eight Pounds of the best Malaga Raisins bruised; let them stand close covered in a warm Place for two Weeks, stirring them every two Days, well together; then press out the Liquor into the Vessel again, and add to it a Quart of the Juice of Barberries, and a Pint of the Juice of Bramble-berries, or Raisberries (which perhaps is the best) to which put a Pint of the Juice of Black Cherries; work it up with Mustard Seed covered with Bread Paste for three or four Days by the Fire-side; after which let it stand a Week, then bottle it off, and it will become near as good as, if not exceed, common Claret.

Gooseberry Wine.

The best Way is to take to every three Pounds of Fruit, one Pound of Sugar, and a Quart of fair Water; boil the Water very well, but you must put the aforesaid Quantity of Sugar when it is boiled; bruise the Fruit, and steep it Twenty-four Hours in the Water, stir it sometimes, then strain
strain it off, and put the Sugar to it, and let it stand in a Runlet close stopped for a Fornight; then draw it off, and set it up in a cool Cellar, and in two Montns it will be fit to drink.

Rasberry Wine.

Take the Rasberries clear from the Stalks; to a Gallon of which put a Bottle of White Wine, and let them infuse in an earthen Vessel two or three Days close covered; then bruise the Berries in the Wine, and strain thro' fine Linen gently; then let it simmer over a moderate Fire, scum off the Froth, and then strain it again, and with a Quarter of a Pound of Loaf Sugar, to a Gallon, let it settle; then in Half a Pint of White Wine boil about an Ounce of well-scented Cinnamon, and a little Mace, and put the Wine strained from the Spice into it, and bottle it up.

Damson Wine.

Dry the Damsons in a Oven after you have drawn your Bread; then to every Quart of Damsons put three Quarts of fair Water, but first boil it very well; then put the Water and Damsons into a Runlet, with Sugar; and having stood a Time sufficient bottle it off.

Wine of Grapes.

When they are fully ripe, in a dry Day, pick of those Grapes that are ripest, and squeeze them in a Fat or Press made for that Purpofe, in which must be a fine Canvas Bag to contain the Grapes; and when in the Press, do not squeeze them so hard as to break the Stones, if you can help it, because the bruised Stones will give the Wine a disagreeable Taste; then strain it well, and let it settle on the Lees, in such a Cask or Vessel as you may draw it off without raising the Bottom; then season a Cask well with some scalding Water, and dry it, or scent it with a linen Rag dipped in Brimstone, by fixing it at the Buge, by the Bung or Cork; then put the Wine into it, and stop it close for 48 Hours; then give it Vent at the Buge, with a Hole made with a Gimblet; in which put a Peg or Faucet, that may easily be moved with the Fingers; then in about two Days Time close it up; and in about two or three Months Time it will be fit for drinking, and prove almost as good as French Wine.

Wine of Strawberries or Rasberries.

Mash the Berries and put them into a linen Bag, as above said.
bovesaid for the Grapes, and squeeze them into a Cask, and then let it work as aforesaid in the Grape Receipt, &c. In this Manner may Cherry Wine be made; but then you must break the Stones, contrary to what was said before concerning the Grapes.

A short Way for Cherry Wine.

Squeeze the Juice of Cherries into a Cask, and thereto put a small Quantity of Sugar corresponding to the Quantity of Juice, and when stood a Month, it will be pleasant Liquor.

Black Cherry Wine.

In the same Manner, take a Gallon or more, of the Juice of Black Cherries, and keep it in a Vessel close stopped till it works; and, after it is fine, add an Ounce of Sugar to each Quart, and a Pint of White Wine.

To make Cyder.

Grind, stamp or pound your Apples, and put them into a Press, and squeeze them through hair Bags into a Tub; then let it settle, and, according to your Quantity of Juice, put in some Sugar at Discretion; then work it up with Ale-Yeast, and let it stand a Week; then prepare your Vessels according to the Quantity, clean and dry; then put it up; after which put into a Bag two Pounds of stoned Raisins, two Ounces of whole Ginger, and two Ounces of Stinginglafs, and see it tied tight with a strong String fixed without side the Barrel, that the Bag may sink to the Bottom: and after two Months it will be fit for Use.

Mead.

Take six Gallons of Water, and thereto put six Quarts of Honey, stirring it till the Honey be thoroughly mixed; then set it over the Fire, and, when ready to boil, scum it very well, then put to it one Quarter of an Ounce of Mace, and as much Ginger, and Half an Ounce of Nutmegs, some sweet Marjoram, Thyme; Sweet Briar, together a Handful, then boil them in the Liquid, then let it stand by till cold, and then barrel it up for Use.

Of Jellies.

Let them be of Apples, Currants, Rasberries, &c. Take out the clear Liquor (when squeezed) and boil it with Sugar till it is as thick as a Jelly, then put it up in Glasses. Every
THE most acceptable Service we can render to GOD is Beneficence to Man. There are three Ways of benefiting our Fellow Creatures. We may be useful to their Souls by good Instruction, and good Example: We may be helpful to their Bodies, by feeding the Hungry, cloathing the Naked, and prescribing easy Remedies to the Sick: We can aid them in their Fortunes, by encouraging of Industry, by relieving the Distressed, and doing all the kind Offices we are able to our Neighbours. These are the several Ways of improving the Talents our Maker has entrusted us with; and we must every one expect hereafter to give an Account how we have employed them.

I wish it were in my Power to serve Mankind, more than I do, in each of these Particulars; but the gracious Acceptance of the Widow’s Offering, encourages me also to cast in my Mite into the Treasury. I publish this Treatise to lead the poorer Sort into the pleasant Paths of Health; and when they have the Misfortune to be sick, to shew them the cheapeft and eafieft Ways of getting well again.

Our Country is unhappily subject to several very sharp Diftempers. The Multitude of Marshes, Swamps, and great Waters, fend forth so many Fogs, and Exhalations, that the Air is continually damp with them: This, in Spight of all our Precautions, is apt to shut up the Pores at once, and hinder infeffible Perspiration. From hence proceed Fevers, Coughs, Quinifes, Pleurifes and Consumptions, with a difmal Train of other Diseases, which make as fatal Havock here, in Proportion to our Number, as the Plague does in the Eastern Parts of the World.

In the mean Time, this is a cruel Check to the Growth of an Infant Colony, which otherwise, by the Fruitfulness of our Women, and the great Number of Recruits fent from our Mother Country, would in a few Years, grow populous, and consequently considerable.

It is impossible to fee these Calamities return every Year, without the tendererst Commiferation. Certainly nothing can be more melancholly, than to have so many poor Peo-
ple perish, purely for want of using timely Means for their Preservation. They neglect to take any Remedy till their Case is grown desperate, and Death begins to glare them in the Face. They consider not, that a moderate Skill may recover a Patient in the Beginning of a Distemper, while he has Strength to go thro' all the necessary Operations, when the whole College would not be able to save him, after his Spirits are sunk, and all the Principles of Life near extinguished.

This unhappy Temper occasions a great deal of Mortality: And what makes the Misfortune the greater, is that it falls heaviest on the younger Sort, who are most liable to hurrying Distempers. Indeed, some would be glad of Assistance, if they did not think the Remedy near as bad as the Disease: For our Doctors are commonly so exorbitant in their Fees, whether they kill or cure, that the Patient had rather trust to his Constitution, than run the Risk of beggaring his Family.

These Considerations made me account it a Work of great Charity and publick Spirit, to communicate to the poor Inhabitants of this Colony, a safe Method of curing themselves, when they shall be so unhappy as to fall into any of our common Maladies. And for their greater Encouragement, the Remedies I shall prescribe, may be procured with little Trouble and Expence, being, for the most Part, such as grow at their own Doors, or may be easily propagated.

But notwithstanding this well-meaning Effay has really no other View than the Love of Mankind, yet it could not escape being grossly attack'd by some Fyks of the Faculty. However like Æsop's Viper, while they endeavour to make a venomous Impression on the File, they only broke their own Teeth. In the mean Time, whatever my Obligations may be to 'em for their Scurvity, the honest Printer has reason to thank them, because nothing contributes so certainly to the quick Sale of any Performance, as a stupid Answer to it.

Providence has been so good, as to furnish almost every Country with Medicines proper for the Distempers incident to the Climate; and such domestick Remedies are always sufficient for the Poor, who live upon homely Fare, and for the Temperate, who make a right Use of GOD's Blessings. Their Cases are seldom complicated, and proceed,
ceed, for the most Part, from Cold, or some slight Tran-
gression. In such Ailments, the Symptoms cannot easily
be mistaken, nor is the Cure difficult; all the Secret lies
in taking the Distemper in Time: And this will be the more
necessary, because most Diseases that happen from Cold,
are exceedingly violent, and call aloud for speedy Assi-
fance.

I must therefore conjure my dear Countryfols to begin
with themselves as soon as they can distinguish what Sick-
ness they have, while Nature is strong and able to co-ope-
rate with the Medicines they take. Nor can we hope, that
Heaven will assist us in our Calamities, unless we endeavour,
at the same Time, to assist ourselves.

In setting down the following Prescriptions, I have been
cautions of talking like an Apothecary; that is, of using
hard Words, that perhaps neither my Patient, nor I my-
sel understand. Nor have I taken them lightly upon
Truth, but am able to recommend most of them upon more
than twenty Years Experience; and for the rest, I have
credible Authority. In the mean Time, I hope none will
object, like Naaman, the Syrian, to the Easiness of any of
these Remedies; but rather rejoice, that they can have the
greatest of all Blessings so very cheap. And in Truth,
People must love Difficulty extremely, to slight Health, as
they would a Mistrs, for being gained with little Trouble.

That this Treatise may be as useful as possible, I have
made some small Additions here and there in this Edition,
but so as neither to swell the Book, or enhance the Price.
And as the whole is design'd for those who can't afford to
die by the Hand of a Doctor, I hope the Legitimate Sons
of Esulapius will be the more merciful. But as for the spu-
rrious Breed, they have no Right to find Fault with what
they can't mend, and it will be prudent to make a Secret
of their own Ignorance.

Before I mention the Cure, I shall endeavour to describe
the Symptoms of each Distemper, in so plain a Manner,
that any Person may be Master of his own Case, if he will
but attend carefully to what he feels; otherwise he might
mistake his Illness, and apply an improper Remedy. I
shall also recommend the Diet fittest to be used in each
Case; which often contributes more to the Patient's Recov-
ery, than his Physick: At the same Time, he shall have
my best Advice, to prevent every particular Ailment; which
which will be, happier for him, than to know how to cure it.

**C O U G H.**

I SHALL begin with a Cough, which is the Foundation of many bad Distempers, and therefore should be taken Care of as soon as possible. It may be cured in the Beginning with riding moderately on Horseback every Day, and only, taking a little Ground Ivy Tea sweeten’d with Syrup of Horsebound, at Night when you go to Bed. But in Case it be violent, it will be proper to bleed eight Ounces, and be constant in the Use of the other Remedies. In the mean while, you must use a spare and cooling Diet, without either Flesh or strong Drink. Nor should you stove yourself up in a warm Room, but breathe as much as possible in the open Air. And to prevent this Mischief, don’t make yourself tender, but wash every Day in cold Water, and very often your Feet.

**W H O O P I N G C O U G H.**

The Whooping Cough (often fatal to Children) is attended with a stronger Convulsion than ordinary, which causes the Whooping.

For this, boil *Hyssop* and *Elicampane*, a Handful of each, in 2 Quarts of Water, strain it off, and adding 1 Pound of clean *Muscovado Sugar*, boil it again, and give the Patient 2 Spoonfuls every 3 Hours.

This same Remedy is good for a Shortness of Breath, and a Hoarseness, only in these Cases, Linseed Tea sweeten’d with *Honey*, should be the constant Drink, and a spare and cooling Diet punctually observed.

**P L E U R I S Y.**

A common Consequence of a violent Cough is a Pleurisy; which discovers itself by a brisk Fever, and sharp Pain, pretty low in one of the Sides, shooting now and then into the Breast, and sometimes quite back into the Shoulder Blades: It is uneasy every Time the Patient draws his Breath, and more so when he coughs; which is generally the Case in this Disease.

The Moment any Person finds these Tokens upon him, he must without Loss of Time, take away 10 Ounces of Blood, and repeat the same 3 or 4 Days successively, if the Pain go not away before. On the third Day, he may vomit with 80 Grains of Indian Physick (*Virginian Ipecacuanha*) and every Night drink 7 Spoonfuls of Pennyroyal Water,
Water, or the Decoction of it, moderately sweeten'd. In the mean Time, let him every three Hours, take Half a Spoonful of Honey and Linseed Oyl mix'd together. He should also strew Indian Pepper upon Pennyroyal Plaister, and apply it very hot to the Place where the Pain lies, and be sure to keep himself warm, and abstain from cold Water: Tho' if the Distemper should prove obstinate, you must apply a Blister to his Neck, and one to each Arm, on the fleshy Part above the Elbow.

The Patient's Diet should be light and cooling; and his constant Drink, either Linseed or Balm Tea, a little sweeten'd.

The best Way to prevent this Distemper, will be, to bleed in the Beginning of any great Hoarseness, or Cough, and alfo to forbear swilling great Quantities of Water, or Small Beer, in ordinary Life.

FEVER Pain in the Head, Eye, or Ear.

Something a-kin to this, is a Fever accompanied with a violent Pain in the Head, Neck, or Shoulder, or with an Inflammation in the Eye or Ear. In all these Cases, you must without Loss of Time, bleed to Ounces. The next Day purge with the Decoction of Mallow's, and three Spoonfuls of Syrup of Peach Blossoms. If the Pain should continue, you must bleed again the third Day, and the Morrow following repeat the Purge: And if the Pain be still obstinate, you must renew both Bleeding and Purging a third Time. In the very Beginning, apply the following Poultis to the Part where the Pain lies: Boil the Leaves of Sage, Wormwood, and Rue together, and having beat them soft, grate Nutmeg thick upon them, and bind them on warm, renewing the same Night and Morning: And in case the Disease hold out against all this, your last Refuge must be a Blister, near the Place where the Pain lies.

Your Diet should be moist and cooling, such as thin Hominy, Chicken-Broth, or Water-Gruel; and your Drink, Linseed or Ground-Ivy Tea, moderately sweeten'd.

This Disease will be also best prevented by Bleeding in any violent Cold.

But when there happens a violent Pain in the Breast, with cold Flesh, and a low, quick and uneven Pulse, and an excessive Weakness from the very Beginning of the Distemper, you must forbear Bleeding by all Means, till you have warm'd the Flesh, and rais'd the Fever. In order
to which, give him a Decoction of Snakeroot and Pennyroyal, and endeavour to raise a Sweat between 2 Blankets, if possible. And because the Case is very dangerous, apply a Blister to the Breast where the Pain is, in the very Beginning.

Let his Diet be thin Hominy enrich'd with grated Nutmeg, and taken often to recruit the Spirits.

Another Distemper consequent to a Cold is a Quinsey, known by a Fever, with an Inflammation of the Glands about the Throat, and of the Uvula, to that Degree as to render all Swallowing difficult, and painful. For this, bleed immediately 10 Ounces, rather in the jugular Vein, than in the Arm; and for Safety apply a Blister to the Neck. If the Inflammation should continue, bleed again next Day. The Morning after take a Purge of the Decoction of Mallows, with Syrup of Peach Blossoms, repeating the same three several Times, resting one Day between. From the Beginning, gargle with Dr. Papa's Liquor hereafter described; and if the Uvula be much relaxed, drink Half a Pint of the same, Night and Morning when you don't purge.

SORE-THROAT.

But in case it prove no more than a common Sore-Throat, purge only once, and gargle with Papa's Liquor, or Sage Tea, sharpened with a little Allom.

In both Cases, your Diet ought to be moist and cooling; and your Drink Cinquefoil Tea.

In order to prevent these Complaints, remember to wash your Neck, and behind your Ears, every Morning, in cold Water; nor muffle up yourself too warm, either Night or Day.

CONSUMPTION.

Next follows a Consumption, a Distemper slow and sure, that is lately grown very common amongst us. Here young People are more in Danger than their Elders, because more liable to Inflammations. It is ushered in by a Cough of long Continuance, which, by Degrees, inflames and ulcerates the Lungs, brings on a Hectic Fever, with a Spitting of bloody and corrupted Matter, and is generally attended with a Hoarseness, and night Sweats. In the mean Time, the Patient will waste in Strength and in Flesh, while perhaps he may eat rather more than he used to do when he was well.
After the Ulcer comes to be formed in the Lungs, it will be difficult for inward Remedies to reach it. They may before that, perhaps, cool the Inflammation, as well as sweeten and diminish the sharp Defluxion, so as to prevent an Ulcer, but can rarely heal it. So likewise, Blister and Issues may revulse the Humor, and prevent the Mischief, if seasonably made use of.

Therefore all the Good we can hope for, in this melancholly Case, must be done while the Consumption is apprehended only, and not actually begun. I would then recommend Bleeding 2 or 3 Ounces every third Day, with a constant Riding about on Horseback, and Change of Air. This will help Nature to throw off the Evil that threatens her, by calming the Blood, opening the Pores, and promoting insensible Perspiration. It may also enable her to make a vigorous Effort, by Means of a reasonable Boil, or Imposthume, on the outward Parts of the Body. For that Intention, I would also advise the Patient to shave under the Arms, and apply strong Poultices, in order to draw the Mischief, if possible, that Way. And for inward Medicines, let him only chew Saffafras Root every Morning falling. I would likewise treat him, before he goes to bed, to take 3 Pills, made of Turpentine and Deers Dung, in equal Quantities: And, besides these, let him once a Week take a Purge of Mallow, and Syrup of Peach Blossoms.

Let his Diet be without Meat, and mix’d with Abundance of Turnips, roasted Apples, Raisins and Liquorice; and let his Drink be Beer brew’d with Ground-Ivy; avoiding strong Liquors of every Sort, as he would Poison.

The Way to prevent this wasting Disease, is never to suffer a Cough to dwell upon you; but bleed in Time, and purge gently once a Week. In the mean while eat not one Morsel of Meat, nor drink any Thing stronger than a little sound Cyder: And, to make the Game sure, ride every fair Day, and breathe as much as possible in the open Air.

B L O O D Y - F L U X.

Another mischievous Distemper is the Bloody-Flux; the Signs of which are, a small Fever, and grievous Griping. The Patient will also void slimy Excrements streak’d with Blood; and, at the same Time, be cruelly tormented in his Bowels.
Upon the first Appearance of these Symptoms, part with 8 Ounces of Blood. The next Day take 80 Grains of Indian Phywick, by Way of Vomit, and work it well with 2 Quarts of warm Water. The third Day, take 70 Grains of the same Indian Phywick, in hot Broth, made pretty salty; and then 'twill go off by Way of Stool, and strengthen the Bowels.

In the mean Time let the Food he takes by either poach'd Eggs, Mutton or Chicken-Broth, and his constant Drink, a Decoction of calc'd Deers Horn, with a Plantain Leaf boil'd in it.

To prevent this Disease, avoid sleeping on the cold Ground, and wading in cold Water. Never eat immoderately of any Sort of Fruit, nor venture to drink new or foul Cyder by any Means.

And because some People, by fancying this Distemper catching, are fearful of going near those unhappy Persons that have it, by which they often want the Assistance that is necessary; I may venture to assure them, their Apprehensions are groundless; and the Reason this Disease goes sometimes round a Family, is, because they live on the same Diet, and breathe in the same Air; and then no wonder if they fall into the same Disorders, one after another, without any Manner of Infection.

**W H I T E - F L U X.**

There is also a Kind of White-Flux, that will hurry a strong Man out of his Life in a short Time. In this Case the Stools are frequent, without Gripes or Blood, but flowing from the Patient like Water, and having a small Fever attending it.

Lose no Time in this hasty Diseafe, but vomit with Indian Phywick, and purge the next Day with the same. In the mean while, you will do well to wear some Skin girt tight on your Stomach and Belly, with the Fur next you, or else a Piece of soft Flannel.

Let your Food be Hafty-Pudding, Panada, or Broth thickened with Flour, grating Nutmeg into every Thing you eat; and let your Drink be a Decoction of Deers Horn, made with a Leaf of Plantain.

In order to prevent this Disorder, avoid walking and riding in the Night Air, guzzling huge Draughts of cold Water, and devouring unreasonable Quantities of Fruit, especially of that which is not ripe.
LOOSENESS.

A Common Looseness needs no Description; and may be easily stopped in the Beginning; tho' some People husband it so well, as to keep it running for many Years: So that all the Humours of the Body taking that Turn, make it difficult to cure.

Therefore to check this Ailment in Time, you must vomit with Indian Physick; then live three or four Days upon new Milk boil'd thick with Flour, or Tuckahoe, and drink the above-mentioned Deers Horn Decoction.

Or mix an equal Quantity of Decoction of Mint Roots and Brandy, with the Folks of two Eggs. This Drink warm three Nights together at going to Bed.

Then, to prevent it, eat not intemperately; nor drink windy or foul Liquors, or too much cold Water.

There is an easy Remedy for all Sorts of Fluxes, used by some Doctors of Negro Ships, with great Success. They boil one Ounce of Bees-Wax in Rice, or Haisty-Pudding, sufficient for one Meal. They continue this a few Days, and suffer the Patient to drink very little Water, enlivened with about a fourth Part of Rum. This Method seldom fails, even in Bloody-Fluxes, as well as Others, and is the more valuable for being neither dear nor disagreeable.

GRIPING.

But in Case of an ordinary Griping in the Belly, or Wind in the Stomach, drink a Gallon of warm Whey, and if that cannot be had, a Gallon of warm Water, as fast as as you can swallow it; and afterwards purge with Mallow's, and Syrup of Peach Blossoms, once or twice.

For a few Days content yourself with a moderate and easy Diet; and let your Drink be Balm Tea.

It may be prevented by keeping your Back-door constantly open, abstaining from windy Meats, and fermented Drinks, and being always careful not to overload your Stomach.

CHOLICK.

The Cholick is lately grown a very common Distemper, and begins generally with a grievous Pain in the Jowels; and, by being neglected, fixes at length in the Pit of the Stomach, where it seems to bore like an Augre: The Patient frequently vomits every Thing he swallows, and can hardly go to Stool, even with the Help of purging Medicines.
People thus afflicted are apt to fly to Drams for Relief; but with lamentable Success. These may ease a Fit sometimes; but are sure to add Fuel to Fire, and make the Disease return with more Violence. Besides, these Cordials have another bad Consequence; they are apt to make People soberly enough inclined, by Degrees, grow too fond of their Phyfick. To cure all which bad Effects at once, I would recommend this certain and easy Remedy: Let him leave off all strong, windy and fermented Liquors, and drink nothing but Water, enriched with a brown Toast.

But if this Remedy should be esteemed worse than the Disease, I would, however, for the easing a particular Fit, recommend two or three Quarts of warm Water. And to force a Passage, you must take three or four Spoonfuls of Bears Oil, which will seldom fail; or else drink a Quarter of a Pint of the Decoction of Peach Leaves, with two Spoonfuls of Syrup of Peach Blossoms; and this Purgue you ought to repeat two or three Times to carry off all Remains. But if you would root out the Distemper for ever, take the same Medicines every full Moon; and drink every Morning, for some Time, Saffafras Tea; and, at Night, take as much Snakeroot Powder as will lie upon a Six-pence, in Mint-water, or Decoction.

The Food proper in this Distemper, is Chicken or Mutton Broth; and the Drink Balm Tea, sweeten'd with Syrup of Mallows.

And to prevent it, eat sparingly, forbearing every Thing that is salt and windy; and never drink Spirits, one Drop of Green Tea, or brew'd Liquor of any Kind.

The Dry-gripes are now (blessed be God) grown much rarer than formerly. This is the cruellest Kind of Cholick, called in Europe, the Cholick of Poitiers; though here it might be called the Caribbee Cholick, because very common in those Islands; and I wish we may not have deriv'd it from thence, by too liberal an Use of their Commodities.

It makes itself known by a most tormenting Pain in the Pit of the Stomack, and the adjacent Parts. The Guts feel as if they were twisted, and all Motion downward is interrupted; by this Misfortune, the unhappy Patient is inclined to vomit up every Thing; insomuch, that sometimes his very Excrements are cast out at his Mouth. In the first Place, a Thoroughfare must by all Means be attempted,
tempted, by 3 Spoonfuls of Bears Oil, or by the Decocition of Peach Leaves, above mentioned. If these Remedies should fail, you must submit to a Tobacco Glister, performed by blowing the Smoak through a Pipe into the Fundament. And if the first Operation should happen to fail, it must be repeated, till a Passage be opened. At the same Time, make a strong Infusion of Tobacco, and therewith anoint the lower Region of the Belly.

After the Passage is perfectly clear'd, your Diet, for some Days, ought to be either Mutton or Chicken Broth, in which Mallows have been boil'd; and your Drink Balm Tea.

Some have unadvisedly, in this Distemper, ventur'd also to drink Rum, and other Spirits, to ease their Pain; but this has cost them dear, by taking away the Ufe of their Hands, and other Paralytick Misfortunes; to cure which, the fame Remedies must be used, as are prescribed hereafter for the Palfey.

The best Way to prevent the Dry Gripes, is to get rid of Agues and Cholicks as soon as you can; to eat sparingly of Fruit, and forbear all foul and windy Liquors; nor meddle with Rum, or other Spirits, after it has been poisoned with foul Sugar and Lime-Juice.

The Heart-burn is an uneafy Heat at the Mouth of the Stomach, accompanied with four Belchings, and some Times a Hiccup.

This is removed by chewing Saffafras Bark, or by a Decocition of it.

It is prevented by forbearing Spirits and foul Liquors, and also the Ufe of high feason'd and four Things, which kindle too sharp an Acid in the Stomach.

A Palfey comes suddenly upon us, with dreadful Symptoms, not easy to be mistaken. We are bereft of Sense and Motion, either in one, or more Parts of the Body; or at least we find them numb'd and dilabled; and where the Difeafe is extreme, one Side is taken quite motionlefs, and insensible.

At the first Appearance of these melancholly Tokens, purge with Indian Physick every other Day, for 3 Times. The Morning you don't purge, caufe yourself to be plung'd over Head and Ears into cold Water; and this should be repeated.
repeated thrice every Week, for 3 Months together. You are also to mix equal Quantities of Spirit of Scurvy-grass, and Hungary Water, and dipping a stiff Combrush therein, cause your Head, being close shav’d, to be well brush’d with it several Times a Day; likewise let the Palms of your Hands, the Soles of your Feet, and Nape of your Neck, be often rubbed with the same Mixture. After this has put some Sense and Motion into your Limbs beat Rosemary in a Mortar, and make a little Ball of it, which you must roll and work about in your Hands continually, renewing the same every Day; now and then too, put Tobacco up your Nostrils, letting it lie there for some Time, in order to drive the clammy Phlegm from your Brain. These easy Remedies will, by the Grace of God, do great Good in the Beginning of this Disease, by restoring the Nerves to their natural Tone, and giving new Vigour to the Animal Spirits, which have been cloggd and obstructed. The Patient’s Food should be dry, and of easy Digestion, with Mustard and Horseradish mix’d with it; and let Sage or Balm Tea be his constant drink.

To prevent this Distemper, feed seldom on salt or high season’d Dishes, nor eat much Milk, or other phlegmatick Food; never sleep in the dangerous Dew, or on the moist Ground, or continue long in a Cellar; or other damp Situation. Use much Exercife, and let your Motion be always nimble, in order to quicken the Circulation, and frisk your sluggish Spirits.

**E P I L E P S Y.**

Another Disease of the Head, is an Epilepsye, or Falling Sickness, not unusual in this Country. It discovers itsele by very terrible Symptoms; the unhappy Person falls down suddenly deprived of all Sense and Understanding. No sooner is he fallen, but he’s immediately shaken with strong Convolutions, grinds his Teeth, rolls his Eye-balls, and foams at the Mouth in a most frightful Manner. So soon as the Fit is over his Senses return, but commonly a Pain in the Head, and great Deprefion of the Spirits remain upon him for some Time after. The Return of these melancholy Fits is uncertain, tho’, for the most Part they come near the Full or Change of the Moon. In the first Place care should be taken to calm the Spirits of the Patient and keep them from running Riot in this unhappy Manner. For that Intention bleed him, and then burn Feathers often under his Nose, or else Leather, or the Hoofs of any Animal.
Four Days before the full Moon, let him take a Vomit of Indian Physick; and four Days after the Full-Moon, let him take a Purge of the same; and be sure to do the same before and after the Change: And this must be repeated for 7 Months together. On the Mornings when he takes no Physick, he must swallow as much Powder of Miflet, as will lie upon a Shilling, in a spoonful of the Decoction of Pennyroyal.

For this Purpose, the Leaves and tender Twigs of Miflet must be gather'd in January (being then in their Prime) dry'd over an Oven moderately warm, and kept all the Year for the Use abovementioned. Let the Patient's Head be shaved, and a Plaister made of the Juice of Rue, Sage, and Pennyroyal, worn on the back Part of it. Let him often put Tobacco up one of his Nostrils, keeping it there as long as it has any Strength, to clear the Head of cold and clammy Phlegm. And let him now and then, besides, chew a Stick of Miflet, and swallow the Juice. These Directions must be pursu'd seven Months, or more, to cure any Person intirely of this Dis TEM per; and, if it be taken in Time, there will be great Probability of Success, at least in young People. Let his Victuals be sparing and easy of Digestion; and his constant Drink, either Sage or Balm Tea.

As People commonly fall first into this Misfortune while they are Children, so, in order to prevent it, Care should be taken never to fright, or strike them violently on the Head, Back-bone, or Nape of the Neck.

**L E T H A R G Y.**

A Lethargy, commonly called the Sleepy Disease, is an ex cessive Drowsiness, attended with a Fever in which the Patient is light-headed when awake. But he is apt to fall into a deep Sleep, from which it is no easy Matter to awake him.

In this Case mix Rennet with very strong Vinegar, and force it down the Patient's Throat. This must be repeated 3 or 4 Times, and it will generally recover him from his State of Forgetfulness, and by Degrees get the better of the Distemper, especially if you add a perpetual Bli ster between the Shoulders. A very spare Diet, and living on dry Food as much as possible, will prevent the Return of this Disease.

**F E V E R, with violent Purging and Vomiting.**

A Fever, with violent Purging and Vomiting, can't easily be mistaken. The Stools, tho' frequent, are with great Pain and Difficulty; both the Stomach and Bowels feel exceeding uneasy, and the whole Frame is in universal Disorder. As
As this Disease will hurry a Man soon to his long Home, without speedy Help, you must forthwith make 2 Gallons of thin Broth, either of Half a Fowl, or a small Chicken, and drink it all in the Space of 2 or 3 Hours; some of this will come up, and some go down, and cleanse your Stomach and Bowels in such a Manner, as to make you well before you expect it.

Only be careful to live some Days upon light and innocent Fare, boiling Mint in every Thing you eat, and grating Nutmeg into all your Drink.

Would you prevent this boisterous Illness, forbear all Kind of Surfeiting and Excess, never exposing yourself to be wet to the Skin, if possible.

I must not omit a Fever and Ague, which is an Epidemic Dilemper in this moist and variable Climate. 'Tis true, it seldom kills now a Days; but if neglected too long, corrupts all the Juices of the Body, and ends either in a Jaundice, Drenchy, Dry-gripes, or Cackle: Therefore I conjure all my good Patients, as they tender their Health and good Looks, to dispose of this Devil as soon as they can.

A G U E.

An Ague returns either every Day, every third, or every fourth Day; and the Way to know which of these any Person hath, is only to abide two Fits. If it come every Day, it will be often accompanied with a Pain in the Head; in which Case, after the second Fit, you must bleed 8 Ounces. The next Day purge with Indian Physick, and two Days after that, repeat the same again. This must be followed, by taking every Morning and Evening 20 Grains of the Powder of Saffafras Root, mix'd with 10 Grains of Snake Root, in two Spoooful of the Decotion of Wormwood.

If the Fit returns every third Day, omit Bleeding, in case there be no Pain. After the second Fit, vomit one Day with Indian Physick, and purge with the same the next. If these should not master the Dilemper, you must compleat the Cure with the Powder of Saffafras and Snake-root, taken as aforesaid.

But in Case the Return should be every fourth Day, you must after the Vomit and Purge, take a Cold Water Sweat. That is, so soon as the cold Fit is off, and the Fever begins to come on, go into naked Bed, and drink a Pint of cold Water; then cover yourself up, and, in a little Time, the Disease will be driven all out at your Pores. However, take the Powders after this Operation for some Time, that you may make sure Work of it.
Your Diet should be moist and temperate, and drink Cinquefoil Tea.

It would be difficult to prescribe Rules to prevent a Diphtheria, to which our Situation is so unhappily subject; however, Prudence may be useful even in this Case. Ride therefore, a great deal in the hot Months, to sweat out all indigested Humours; and don't chill your Bowels too much with cold Water. Avoid, as much as may be, being abroad in the Rain, or in the Dews of the Night. Be cautious too of sleeping on the Ground, or with your Windows or Doors open, to let the Wind blow upon you.

**CONTINUOUS FEVERS.**

In case of a Continual Fever, bleed immediately 10 Ounces. The Day following, vomit with Indian Physick; and the Morning after, purge with the same. And if you should be light-headed, be convuls'd, or incline too much to Sleep lay a large Glistor to the Neck, and to the fleshy Parts of each Arm; and take a Glistor every Night of Mallows and Syrup of Peach Blossoms, to abate the Heat of the Diphtheria.

It matters not how little People eat in one of these Fevers, because the Spirits requisite for Digestion, are employ'd in struggling with the Disease; But what little Sustenance they do take, should be moist and cooling; and their Drink a Decoction of Cinquefoil, taken plentifully.

To prevent this furious Malady, avoid all Excesses of strong Drink, especially of Spirits, which inflame the Blood, at the same Time that they vitiate the Ferment of the Stomach; upon which all Digestion, and consequently all Health, depends.

**SLOW FEVER.**

But there is a Slow Fever, more difficult to manage than all the rest, which is the true Scrofulous Fever. The Signs of it are a low, but quick Pulse, a constant Thirst, a Falling away of the Flesh, and a sallow Complexion. There will be sometimes too, a hard Swelling on one Side of the Belly, that seems to move about.

As this lurking Disorder comes by a long Course of ill Management, so it will need some Time to root it out. For that End, take a Vomit of Indian Physick, and the next Morning a Purge of the same; which Purge ought to be repeated once a Week for six Times at least. The Mornings you don't take Physick, drink constantly a Quarter of a Pint of Sassafras Tea boiling; and every Night, as much Powder
Powder of Snake-root as will lie upon a Shilling, in three Spoonfuls of Decotion of Dittany. And if you should be so free, take a Glister every other Day of Decotion of Mallow, with Syrup of Peach Blossoms. This Method faithfully pursued for two Months, with moderate Riding, and a proper Diet, will go near to finish the Cure.

In the mean Time eat no Milk, nor any Thing salt or hard of Digestion; but let your Sauce be Mustard, Garden Cress, and Horse-radish in Abundance; else your best Drink will be found Cyder, with a hot Iron quench'd in it or Beer brew'd with Sorrel Tree Leaves.

Then, to prevent this Illness, you must indulge no fatal Inclination, but sit about your Business briskly, and ride as often as you can; never drink more than a Pint of Water, or other Drink, in 24 Hours. Breathe as much as possible in the open Air in the Day Time, and avoid it in the Night.

WORM FEVER.

There is besides, another Kind of Fever hard to be distinguished, especially among Children, and that is a Worm Fever. There will be a quick Pulse, and often a Pain in the Side, in the Stomach, or Bowels; and all occasioned by Worms. Now and then too, there will be the Symptoms of the Flux, and even Convulsions; so that like the Devil it appears in all Manner of Shapes. The only Way I know of discerning it, is by a swell'd Body, a tainted Breath, or a greedy Appetite, beyond what is usual in other feverish Disorders.

Give a Vomit of Indian Physick one Day, and a Purge of the same the next. Beat the Seed of Jerusalem Oak, and take a Spoonful of it, mix'd with the Juice of Rue or Wormwood, for three Mornings. From the Beginning, soak a curd Leaf of Tobacco in Vinegar, and apply it warm to the Stomach or Belly; and it will make the Worms much ficker than it doth the Patient. Let his Food be season'd with a great deal of Salt; and his Drink, Beer brew'd pretty bitter, with Wormwood instead of Hops.

It is difficult to hinder Worms from hatching and harbouring in our Bodies, because we swallow their eggs almost with every Thing we eat; especially such as live much upon Pulse and Indian Corn will be full of them. So that I may venture to say, three Fourths of the Children that die in these Parts of the World, die of Worms.

The best Way to prevent them, is to make Use of a great deal of Pepper and Salt with your daily Food, and as little
little Vinegar as possible, which is full of small Insects, to be seen by Millions with a Glass.

I took Notice that a Cachexy was one of the Consequences of letting a Fever and Ague continue too long; tho' the same is produced likewise by an unwholsome Diet, by a slothful Habit, and drinking Abundance of cold Water. The Signs of it are a slow Fever of the Hestick Kind, a continual Thirst, a Shortness of Breath, and a very cadaverous Complexion.

For the Cure of this lazy Distemper, you must proceed in the same Method as is directed in the Case of slow Fevers; only I would advise the Patient, over and above, to take every Day, at 10 in the Morning, and 4 in the Afternoon, a Dram of Rum, wherein the Flowers and Tops of Centary have been infused; and during the whole Course of the Cure, the Patient must, by all Means, shake off his lazy Disposition, rise early in a Morning, and stir about as briskly as his strength and Breath will permit. His Food should be fresh, and easy of Digestion; and his Drink Beer brew'd with Wormwood, and the Leaves of the Sorrel Tree.

To prevent falling into it, never suffer Agues or slow Fevers to taint your Blood; be nimble in your Motion and drench not yourself with cold Water between Meals.

Another bad Effect of keeping an Ague too long, is the Yellow Jaundice. This discovers itself by the yellow Hue of the Face and other Parts of the Body; nay the Whites of the Eyes and Urine will be also ting'd with it.

For this Illness take a Purge of Indian Physick, and repeat it the third Day again. After that drink every Morning and Evening, for six Weeks, a Quarter of a Pint of Decoction of the inner Bark of Elder, and the Root of Safffras, in equal Quantities. In the mean Time, force your self to stir about, and ride on Horseback every fair Day.

Let all your Victuals be light and temperate; and your Drink Beer brew'd with Sorrel Leaves, Pine Tops, Root of Ash, and a little old Iron.

To ward off this ungracious Disease, cure your Agues in the Beginning, lingering Fevers, as soon as possible; and use Agility in your Motion.
Jaundice too long, is a Dropsey. This dire Calamity befalls antient People sometimes, by Means of natural Decay; and sometimes those that are young, when they have made too bold with their Constitution. 'Tis also apt to follow too great a Loss of Blood, or too long a Familiarity with Opiates.

A Dropsey first shews itself by the Swelling of the Legs about the Ancles, in such a Manner as to retain the Impressi

on of your Finger. This Swelling appears most at Night, and is usually attended with a Shortness and Difficulty of Breath, ever most troublesome when the Patient lies down.

He must therefore resolve upon proper Remedies, before the Waters rise high enough to drown him; and if he have but the Gift of Self-denial, he may by God's Help get the better of this mortal Enemy; provided there be no universal Decay, no Depravation of the Liver, or other Organs, necessary for Blood-making.

Now I can't recommend the Remedies for this Diseafe better, than by giving three remarkable Instances of Persons of an advanced Age, who have been perfectly cur'd by them.

The first was Sir Thomas Millington, an eminent Physician, who fell into a Dropsey at near 70 Years of Age. After draining the Water, by 2 or 3 fitart Purges he performed the rest of the Cure by a refolute Self-denial. He eat nothing but what was light and nourishing; and for his Drink, confined himself rigorously to a Quarter of a Pint of Rheinish Wine in 24 Hours (and hard Cyder would have done the Business as well.) The first Week his Thirst was hardly to be endured; but after that grew more tolerable. He continued this Course for two Months, and recovered compleatly.

The second was the late Earl of Orford, who had this Distemper in his grand Climacteric. He purg'd 2 or 3 Times, drank sparingly of Canary and Water, thickened with the Yolk of a new-laid Egg; and all his Victuals besides were cook'd with Abundance of Garlick and Horse-raddish. This Method was pursued with great Constancy for three Months, and blest with entire Success.

The last Instance is an ancient Gentleman who trusted to the Remedies of our own Country, with the like happy Effect. He drank the Decoction of Saffafiras as soon as he got up, and chew'd the Root of it all the rest of the Morning till Dinner; then observ'd a light and nourishing Diet; and drank moderately of clear found Cyder, wherein an hot Iron had been plentifully quench'd, and a little Alom dissolv'd.
Of these several Remedies you may please to take your Choice; or, instead of Saffra's, you may hold the Seeds of 
_Italic, of Spain_ in your Mouth, which will salivate still 
more powerfully.

The Rest of the Cure must be compleated with restorative 
Meats, and a very short Allowance of Drink. For your 
_Diet_ I would recommend _poach'd Eggs, thin Hominy, Hogs 
Feet, Cow Heel, and Jelly Broth_; all which will renew and 
enrich the Blood, without provoking too much Thirst:
and for Drink use none but _Sorrel Beer, or found Cyder_;
wherein hot Iron has been quench'd several Times.

To guard yourself against this wretched Distemper, be 
cautious of scorching your Liver with Spirits, or Excess of 
other strong Drink. In Case you be troubled with _Bleeding_, 
stop it as soon as you can. By no Means accustom yourself 
to Opiates, or suffer an _Ague, the Jaundice, or lingering 
Fever_, to dwell long upon you.

Because I mentioned _Loss of Blood_ to be one Cause of 
the _Dropsy_, I will hint at some Means to stanch these _Bleed-
ings_ that threaten the most _Danger._

**BLEEDING PILLES.**

In Men the excessive _Flux of the Bleeding Piles_ sometimes 
ends in a _Dropsy_, if not stopp'd in Time, in that Case _purge 
with Indian Physick_ two or three Times; and the _Morning_ 
you don't take that drink the _Exprest Liquor of fresh Aji; 
Dung, sweetened with Syrup of Quinces_, to be repeated 
three Times. In the _mean while_, take an _Ounce of Con-
serve of Roses_, twice or thrice a _Day_; and after every _Stool, 
wash your Fundament_ clean with _Decotion of Comfry 
Leaves_ made very warm. _Live all the Time upon a cool-
ing Diet, without Meat_; and only _drink Burnet or Yar-
row Tea, sweeten'd with Syrup of Quinces._

Those that are liable to this, or the like _Infirmities_, 
should avoid heating themselves with strong Drink, or too 
boisterous Motion; nor must they fall into violent Passions, 
either of _Love_ or _Anger._

**FLOODING.**

In Women a _Dropsy_ is often caus'd by _Flooding, or the 
immoderate Flowing_ of their Courses. _Let them for this, In 
the first Place, take away eight _Ounces of Blood_, and then 
proceed as in the foregoing Case_; or _only they must inject the 
Decotion of Comfry Leaves_, and _govern their Passions_ if 
they can; _nor must any Part of them, not so much as their 
Tongue, be allowed to have too much Motion._
This Infirmitv comes upon the Sex about 50 Years of Age; and after bleeding and vomiting, nothing cures it better than the Use of the Cold Bath.

BLEEDING at the NOSE.

The Bleeding at the Nose must be treated just in the same Manner, except the Decoction of Comfrey Leaves should be often snuffed up the Nose; and a Tincture’d in the same frequently thrust into the Nostril; and if a little Alum were dissolved in the Decoction, it would be so much the better.

SPITTING or PISSING of BLOOD.

Then for Spitting or Pissing of Blood, bleed 8 Ounces. The next Morning purge with Indian Physick; and drink nothing but Tea made of Comfrey Leaves or Root, and sweeten’d with Syrup of Quinces. But whenever a Fever produces Lois of Blood, the Heat of that must be taken off by cooling Medicines, before the Bleeding will cease.

WHITES.

In the Whites too I would recommend Bleeding in the Beginning, and Purging two or three Times with Indian Physick. When she don’t purge, let her Night and Morning drink Half a Pint of Papa’s Liquor, with an Ounce of Conserve of Roses dissolved in it; and often inject the same. For the rest, she must use the same Diet, the same Drink, the same moderate Motion, and Freedom from Passion, as are mentioned before.

GLEET. A Gleet or Running of the Reins, in Men, must be treated in all Respects as the foregoing Weakness in the other Sex; provided always it be not Veneral.

DIABETES. A Diabetes discloses itself plainly, by making Water abundantly, which has commonly a greasy Skim upon it. ’Tis also attended with a low sneaking Fever, and much stronger Inclination to drink than eat. At the same Time the Patient finds himself weak and low spirited, with a Lassitude to all Manner of Motion.

For this bad Distemper there is this easy and cheap Remedy, which rarely fails. Dissolve as much Alum in a Pint of Poffet Drink as will fit on the Patient’s Stomach without vomiting. Of this let him sip now and then two or three Spoonfuls, till all the Symptoms go off.

In the mean Time, let his Food be easy of Digestion;
and his Drink Balm Tea, moderately taken, or Bristol Water, if it can be got.

And the Way to avoid this Disease is, by a temperate Use of such Meat and Drink as breed good Blood.

There is no Disease puzzles Physicians more than the Vapours, and Hysterick Fits. These Complaints are produced by so many Causes, and appear in so many various Shapes, that 'tis no easy Matter to describe them. However, some of the Symptoms are a Thumping at the Heart, a Croaking of the Guts: and a Fulness of the Stomach, which the Patient endeavours to ease, as much as she can, by Belching; every now and then too, something seems to rise up to her Throat, that almost stops her Breath; she has moreover, a great Heaviness and Dejection of Spirit, and a Cloud seems to hang upon all her Senses. In one Word, she has no Relish for any Thing, but is continually out of Humour, she knows not why, and out of Order, she knows not where.

This is certainly a miserable Condition and the more so, because the weakness of the Nerves makes the Cure exceeding difficult. Because the Stomach is suspected to be much in Fault, I would have that cleansed in the first Place, with a Vomit of Indian Physic; the next Day purify the Bowels by a Purge of the same; which must be repeated two Days after. The rest of the Cure must be performed by the exact Observation of the following Rules. Endeavour to preserve a cheerful Spirit, putting the best Construction on every Body's Words and Behaviour; plumb three Mornings every Week into cold Water over Head and Ears; which will brace the Nerves, and route the sluggish Spirits surprizingly. Observe a strict Regularity and Temperance in your Diet; and ride every fair Day Small Journeys on Horse-back. Stir nimbly about your Affairs, quick Motion being as necessary for Health of Body, as for Dispatch of Business. In the mean while, I absolutely forbid all Sort of Drams, which will raise the Spirits only to sink them lower; nor do I allow her one Pinch of Snuff, or one Drop of Bobea Tea, which make People lumpish and miserable. Her Food must be fresh and easy of Digestion, neither salt nor windy, nor may she eat one Morcel of Beef; which affords a gross Nourishment, and incline People too much to hang themselves. And for her Drink, she must forbear Beer, with all windy and fermented Liquors; and stick to Balm Tea entirely.—To escape this Disorder, she must suffer none of the
the idle Disturbances, or Disappointments of an empty World to prey upon her Mind, or ruffle her sweet Temper. Let her use just Exercise enough to give a gentle Spring to her Spirits, without waiting them; and let her be cheerful in spite of a churlish Husband, or cloudy Weather.

**SUPPRESSION of the COURSES.**

Now I am upon Female Infirmities, it will not be unseASONable to touch upon a common Complaint among unmarried Women, namely, The Suppression of the Courses. This don't only disparage their Complexions, but fills them besides with sundry Disorders. For this Misfortune, you must **purge** with Highland Flag (commonly called Belly-ach Root) a Week before you expect to be out of Order; and repeat the same two Days after; the next Morning drink a Quarter of a Pint of Pennyroyal Water, or **Decoction**, and as much again at Night when you go to Bed. Continue this 9 Days running; and after resting 3 Days, go on with it for 9 more. Ride out every fair Day, stir nimbly about your Affairs, and breath as much as possible in the open Air.

You must feed upon a warm and cordial **Diet**, enrich'd with a great deal of Mustard, Nutmeg, Horse raddish and Garden Cresses; at the same Time avoiding every Thing that is astringent, phlegmatic and windy. And let your **Drink** be **Beer**, brew'd with Sorrel Leaves, or else Ground-ivy Tea.

To prevent this Complaint, young Women must shake off Sloth, and make use of their Legs as well as their Hands. They should be cautious of taking Opiates too often, or Jesuits Bark, except in Cases of great Necessity; nor must they long for pretty **Fellows**; or any other Trash whatsoever.

**STONE in the BLADDER.**

Heaven be prais'd there is little Occasion to say any Thing of the Ston in the Bladder, there being few Instances of it in this Colony. Among the Gentry, the Madeira Wine which has but little Tartar in it, and the Molasses Beer, being soft and cleansing, are happy Defences against this Scourge of Luxury and Lazineses: And then for the common Planters, their Pone, and other Preparations of Indian Corn, being smooth and slippery, are likewise excellent Preservatives.

**GRAVEL.**

Nevertheless, some few of us, by sitting too long either at our Book or our Bottle, have now and then, some Touches of the Gravel, or Stone in the Kidneys. This makes itself known by a Pain across the Loins, by Urine ting'd with.
The Young Man's Best Companion.

with Blood and mix'd with Sand, and jagged little Stones; the Stomach too is sometimes affected, and inclined to vomit.

When you find these concurring Symptoms, drink 3 or 4 Quarts of Whiskey as fast as you can, wherein the Root of prickly Pear has been boil'd. When that has all past, squeeze the Juice of Wild Garlic into clean sound Cyder, and drink a moderate Glass of it Night and Morning for 6 or 7 Days.

In the mean time, let your Food be thin Hominy, or Broth with a few Mallow leaves boil'd in it; and your Drink, a Decoction of Mallow leaves, sweetened with Syrup of Violets.

And the Way to ward off this painful Disease, is to be temperate in all your Enjoyments, to eat a great Deal of Milk, and Meats made of Indian Corn; but above all Things be cautious of fitting still too much.

SUPPRESSION OF URINE.

A common Consequence of the Gravel is a Suppression of Urine, occasioned, sometimes, by small Stones lodging in the narrow Passages, that lead from the Kidneys to the Bladder. The Signs of this Complaint are too plain to any one who has his Feeling; and to cure it, you must proceed in much the same Method as for the Gravel; only you should add Parsley Tea to your Drink, sweeten'd with Syrup of Violets.

But if the Suppression arise from an Ulcer, or Inflammation in the Neck of the Bladder, then the Symptoms are a great Heat and Pain in that Part, with an urgent Need to make Water, but a Diffability to do it at all, or, at most, not faster than Drop by Drop. For this, boil one Part of Oil with two Parts of good Cyder, and thereof swallow a Spoonful or two Night and Morning. Let your Diet all the while be cooling and easy of Digestion; and your Drink, Parsley Tea or Cyder, with a Plantain Leaf boil'd in it.

To prevent this Ailment, eat seldom of pepper'd or high season'd Meats; and drink moderately of hot Liquors: Tho', above all Things, you must forbear using artificial Provocatives to recommend you to the delightful Sex; but for that, let Nature be your only Prompter.

BLIND PILES.

The Symptoms of the Blind Piles, are little painful Swellings, appearing just without the Fundament. They are occasioned by the Flowing of corrupted Blood into the Vessels thereabouts, which sometimes creates so much Anguish, as to put the Patient into a Fever, and render every Posture uneasy.

For
For this Complaint, take every Morning falling, in the Yolk of a new laid Egg, 12 Grains of Brimstone, finely powder’d; and wash it down with a small Draught of Decoction of Mallow. And to assuage the Pain, make Use of this outward Application: Stamp a roasted Onion, with a little Ointment of James-Town Weed; which must be laid on warm, and renewed twice a Day.

In the mean Time the afflicted Person’s Diet ought to be moderate and cooling, without Meat of any Kind; and his constant Drink, Milk and Water.

But, in order to prevent this Affliction, and root it out for ever, use the following Remedy. Boil a Handful of Mullein Leaves in a Pint of new Milk, and sweeten it with Syrup of Violets. Drink this every Night for 6 Weeks together, just before you go to rest.

Rupture is a common Misfortune, especially among Children. The Tokens of it are a painful Swelling and Inflammation in the Cods, occasioned by a Fall, or other Violence, that forces down the Guts into that Part, and is most painful when the Accident first happens.

For this, let the Patient immediately have a Truss made that may hold the Part suspended. Then apply fresh Cow Dung, which must be renewed Night and Morning, till the Pains are assuaged. After that, put on another Poultis, made of the Roots of Swamp Lilies, and Sumack Berries, boil’d and beat well together; which must also be refreshed twice a Day, till the Swelling disappears. From the Beginning, let him gird a Belt tight about his Loins, and wear it continually, till the Bowels are drawn up to their natural Situation.

Let his Diet be cooling, and easy of Digestion; and his constant Drink, a Decoction of Garden Cressis, sweeten’d with Syrup of Quinces.

In order to prevent this Disaster, care must be taken never to over-strain yourself, use too violent Motion, or fall in such a Manner as to injure yourself in those sensible and tender Parts.

King’s Evil.

The King’s Evil proceeds from a foul and obstinate Humour in the Body that breaks out into Swellings and Sores, and is often derived from our Parents.

For this great Misfortune take a clean Spunge, and dry it
it well in an Earthen Pot, and having reduced it to a fine Powder, take as much as will lie upon a Shilling Morning and Evening, in warm Ales Mill. This must be continued for 3 Months to compleat the Cure, in the mean Time, Care should be taken never to scorch the Spunge. While this Remedy is taken inwardly, apply the Poultis of Saffrares to the Sores that are broke, which will both draw and heal them.

A spare Diet should be used all the while, without Salt Meat, or strong Drink.

The best Way to prevent this impure Distemper, is for those that have it, never to marry, nor do worse, that they may not transmit their Misfortune to Posterity.

The Yaws, or Country Distemper, is very bad to cure perfectly, especially when grown invertrate. This is the highest Kind of Scurvy; and the Symptoms of it are, eating Ulcers in the Throat or Palate, and filthy Sores in other Parts of the Body, having near Resemblance to those of the Pox.

This unclean Disease often yields to Dr. Pap’s Remedy; or at least may be kept under by it.

Take 1 Ounce of the Bark of Sumack Root, 1 Ounce of inner Bark of Spanish Oak; boil these together in 2 Quarts of Water, till the Decoction be very strong. Of this Liquor drink a full Pint, Milk-warm, and immediately after it Half a Pint, quite cold; and it will give you a powerful Vomit.

The next Morning take Half a Pint of the same Drink warm, and the same Quantity again in the Evening; and continue so doing for 6 Weeks or 2 Months; only the Vomit must be repeated every seventh Day. In the mean Time gargel your Throat, and wash all your Sores and Ulcers with the same warm Liquor, which ought to be made fresh every 2 Days. Besides all this, you must chew the Sumack Root very often, and swallow the healing Juice.

Every Night, before you go to rest, take 2 Pills made of Turpentine and Deers Dung, in equal Quantities.

The Pox may be cured exactly in the same Manner; and because the Symptoms are much the same, it is very probable the One was a Graft of the other. The pious Spaniards catch’d it from their Negro Mistresses in the West-Indies, and had the Honour of propagating it from thence to all the rest of the World.
In both Cases confine yourself altogether from eating Flesh, and from strong Drink, and be very careful of catching Cold. To avoid this Misfortune, eat seldom of fresh Pork, which breeds very gross Humours; live not too near a Swamp; nor ever venture upon strange Women, especially not on Ethiopians.

CANCER.

Another woful Cafe is a Cancer, which some despairingly imagine to be incurable; tho' blessed be God, there have been some Instances of Success, by the Method hereafter mentioned. In the mean Time, it usually begins with little hard lumps, or swellings in the Breast, Lip, or other glandulous Part of the Body. These afterwards break into painful Sores, which eat farther and farther, till at last they reach some large Vessel, or mortal Part.

In this Cafe the Patient must submit, in the first Place, to have the hard Lump cut clean out, so soon as he is convince'd it is a Cancer. And, for curing the Wound, he can't do better than make Use of the following Balsam: He must boil 6 Ounces of Saffafras Root, and as much Dogwood Root in a Gallon of Water; till it be waited to a Pint, and having strained it off, must drench a Pledget therein, and apply it warm to the Sore, renewing it every Day: And if he will have the Patience to continue this for some Time, I can assure him he will not be the first that has been blest with Success.

Let him drink Saffafras Tea every Morning, live temperately upon light and innocent Food, and abstain entirely from strong Liquor. The Way to prevent this Calamity, is to be very sparing in eating fresh Pork, to forbear all salt and high-season'd Meats, and live chiefly upon the Garden, the Orchard and the Hen-house.

RHEUMATISM.

A Rheumatism is a wandering Pain that shifts from one Joint or Part of the Body to another, and is generally accompanied with a small Fever.

For this bleed 10 Ounces, the next Day vomit with Indian Physick, and the Day after that take a Purge of the same. After all this, boil a Shin of Beef in a Gallon of Water, till one Half be waited. Put into what remains a Pound of Garlick, and stew it till it comes to 3 Pints. Then strain it again, and take a Quarter of a Pint, blood warm, Morning and Evening for 3 Days, and you will find Relief.
As this Distemper happens by a violent Cold, great Care should be taken to prevent the unhappy Cause.

G O U T.

I shall next say something of the Gout, which I observe with Pleasure to be grown less frequent in the Country, than in the Time of our Fathers. It makes itself known with a Vengeance, by a painful Inflammation in some of the Joints, especially of the Hands and Feet.

It would be great Presumption, after so many vain Attempts, for me to recommend any other Remedy for this obdurate Distemper, than a strict and severe Temperance, both in eating and drinking. Nevertheless, I am not so hard hearted as to deny my Patient any Kind of fresh and plain Food, that agrees with his Stomach: All I intreat of him, is to confine himself religiously to a moderate Quantity. Nor can he do better, than to follow the Example of Cornera, a noble Venetian, who tied himself down to 12 Ounces of Eatables, including Bread, and 14 Ounces of Drink, in the 24 Hours. He stuck close to this short Allowance, using moderate Exercise; and, from being a Cripple by the Gout, recovered his Health, and his Strength, to a Wonder: And having found so much Benefit by these Rules, pursued them strictly to the End of a very long and happy Life.

Nor are these Weights so scanty as they may seem to be to some keen Stomachs; but, upon a fair Trial, they will be found sufficient to give Strength to the Body, Cheerfulness to the Heart, and Vigour to all the Faculties of the Soul. And, besides these happy Effects, they will do more: They will place you above the Influence of the Stars; and make you able to subdue your Passions, to the Empire of a cool and unclouded Understanding.

The same Temperance that cures this Distemper, will certainly not fail to prevent it; make you live a great while, and very easy while you do live.

BITE of a RATTLE SNAKE.

If any one should have the Misfortune to be bit by a Rattle-Snake, let him kill the Viper immediately, and apply its Fat to the Wound. This will sheathe the Poison, and give Time for other Remedies to expel it out of the Blood. The readiest Cure I know, is St. Andrew's Cross, which grows providential all over the Woods, during the whole Season that the Snakes are mischievous.

Let him take 60 Grains of the Root reduced to Powder,
or a strong Decoction of the Leaves and tender Branches, and if one Dose should not finish the Cure, he must take a Second. There are other Plants growing in this Country that will answer the same Intention such as the Fern Rattle-snake Root, Ginger Snake-root, the smaller Afta Rebecca, Oak of Jerusalem, and Dittany; but St. Andrew’s Cross is as powerful as any, and much easier procur’d, being the Growth of every Soil, that hath not been clear’d thro’ the whole Colony. Nor is there any Indian Trader, but can bear Witness to its Virtue in this particular.

**Bite of a MAD DOG.**

For the Bite of a Mad Dog, which may be reckoned among the greatest of Calamities, Dr. Mead has communicated the following Remedy to the World which he had tried on more than 500 Persons, with great and constant Success. The Patient as soon as possible after his Misfortune, should bleed about 10 Ounces. Then let him take of Afb-colour’d Ground Liver-Wort, dry'd and powdered, Half an Ounce; which grows on most sandy barren Soils. He must mix with this two Drachms of powdered black Pepper. Divide those into four Doses, and let him take one every Morning fasting in half a Pint of warm Milk. After this, the Patient must be plung’d over Head and Ears in very cold Water every Morning fasting, for a Month together, never staying longer than Half a Minute at a Time. When he has bathed in this Manner so long, he need go in no more than three Times a Week for a Fortnight longer, by which Time the Cure, by the Grace of God, will be happily compleated.

The Liverwort, should be gathered in October, and dry’d carefully in the Shade.

**F I L M.**

In Case a Film should grow over the Sight of the Eye, occasioned by a Blow, a sharp Humour, or other Accident, you may take it off, with this easy and cheap Remedy. Dry Human Dung in the Sun that is yellow, and of a good Confidence, and having reduced it to a very fine Powder, blow it through a Quill two or three Times a Day into the Eye, and your Sight will be happily restored in a short Time.

**S O R E E Y E S.**

Common Sore Eyes may be cur’d by washing them with Breast Milk, warm Sage Tea, or with Rose Water, taking Care
The Young Man's Best Companion.

Care in the mean time not to rub them if they itch, or expose them to the cold Air.

SPRAIN.

If by any Fall, or false Step, you should happen to sprain a Joint, clap it into cold Water as soon as possible, and keep it there for several Minutes. Then cover the Part all over with a Poultis of Clay well temper'd with strong Vinegar, which must be bound on securely. When the first grows dry, apply another, which will probably finish the Cure without the Expence of a Surgeon.

And now I mention Surgeons, by the good Leave of those Gentlemen, I will recommend to my poor Countrymen an easy Remedy for some little Complaints that fall within their proper Province. Nor will they take it amiss, I hope, if I endeavour to help such indigent Persons as cannot purchase their Assistance.

BROKEN SHIN.

If any one therefore should break a Shin, or have any other green Wound (which by being neglected, often comes to be very troublesome) let him only make use of that Falṣum, which the compassionate Samariten apply'd to the Wounds of the poor Lyreliie who fell amongst Thieves. Boil Oil Olive and Wine in equal Quantities (and if you add a little clean Muscovado Sugar, it will be so much the better) Drench a Pledge well in this Baham, with which cover the whole Sore, and keep it on with any sticking Plaisters, and it will be healed in one or two Dreflings. I have likewise cur'd very bad Ulcers with it, but then I kept the Patient to a spare and cooling Diet, making him drink Papa's Liquor all the Time, and cleanse the Sore with the same every Time it was dressed. In these Cases, it need not be dressed more than once in two Days, because it should be expos'd as seldom as possible to the cold Air.

Swellings to Discuss.

If you have a Swelling in any Part which you would discuss, mix powder'd Brimstone, with the Juice of James Town Weed, and thereof make an Ointment with fresh Hogs Lard. Anoint with this twice or thrice a Day, keeping the Part warm, and you will rarely fail of Success.

Swellings to Break.

But if you would draw a Swelling to a Head, chew Saffras Root, and apply it by Way of Poultis, and it will not
not only break the Swelling, but cure it also in a short Time, without any other Application.

SEAR CLOTH.

If you should have a Pain in the Back, Loins, or other Part, that requires a Sear Cloth to affwage it, the most effectual One I can recommend to you, is made after the following Manner. Powder the Root of *Apha Rebecca*, Com-fry and Snake Root, then mix them with as much common Turpentine as will make a large Plaister, which apply hot to the Part, and it will give speedy Relief.

DEAFNESS.

If any one should by Cold or other Accident become Deaf, let him take the Bulb of a large Onion, and scoop out a pretty deal of the Inside. Then let him fill the hollow Part half full of Rattle 'Snake Oil, and place it on a Grid-Iron over live Coals, till the Pulp of the Onion incorporate with the Oil. Then strain it, and going to Bed, drop two Drops into the Patient's Ear very warm. Afterwards sop it with Cotton, and repeat it five or seven Times, and you will have Reason to applaud the Medicine.

Thus I have run through most of the common Complaints to which the Inhabitants of this Colony are subject; and prescribed such innocent Cures, as will generally succeed, if timely made use of; yet am far from pretending that any of them are infallible; We all know that Death strikes so home in some Cases, that all Physick is vain. There are many Instances too, where the Diseases of our Climate have a little Dash of the Pox, the Scurvy, or the Gout; and then they need a RATCLIFF or a FRIEND to get the better of them.

In the mean Time, it may seem strange, that, among the Remedies I have prescribed, no honourable mention is made of Mercury, Opium, or the Peru-van Bark, which have almost obtain'd the Reputation of Specificks. I acknowledge the powerful Effects of these Medicines, but am perswaded they ought to be administered with the greatest Skill and Discerument. And, as I write only for the Service of the Poor, who are wholly left to judge for themselves, I was fearful of putting such dangerous Weapons into their Hands.
### The Young Man's Best Companion.

An Index of Diseases mentioned in Every Man his own Doctor.

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The foregoing Distempers are the most fatal and troublesome we are afflicted with in this Country. I have been as short as I could, lest I might lose the Benefit of the Proverb, which says, *The shortest Follies are the best.* The Remedies I have prescrib'd, are almost all of our own Growth,
Growth, there being no more than 5 or 6 foreign Medicines; and they so very cheap, that if I happen not to cure my Patient, I am sure I shall not ruin him. And surely, no Man can say, he dies very unfairly, when there is so little to pay, either to the Doctor or Apothecary. Besides, I have another Thing to recommend me, that I don't cram my Patients with too much Physick. My Prescriptions are generally single, and not compounded, like a Spanish Oleo, of all Sorts of Ingredients, which must certainly confound and defeat the Virtues of each other. Neither do I ransack the Universe for outlandish Drugs, which must waste and decay in long Voyages; nor import the Sweepings of the Shops, which I am sure are decay'd; but am content to do my Execution with the Weapons of our own Country.

An Index of Ingredients made use of.

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These Ingredients every Master of a Family may easily provide himself with; as he should also with a Lancet, a Gyfper-pipe, and a Syringe, that he may not be at a Loss in his Distress; and spend that Time in running after Remedies that ought to be made use of in applying them; Delays being never so dangerous, as in the Care we ought to take of the Sick.

The Printer to the Reader wisheth Health.

THIS Book, intitled, Every Man his own Doctor, was first printed in Virginia, for the Use of which Colony it was written by a Gentleman residing there. Great Numbers have been distributed among the People both in Virginia and Maryland, and it is generally allowed that Abundance of Good has been thereby done. And as some Parts of Pennsylvania, the Jerseys, and the Lower Counties on Delaware, by the Lowness and Moistness of their Situation, are liable to the same Kind of Diseases, I have been advised to reprint this Book here, for the Use and
and Benefit of those People in these Countries, as live at too great a Distance from good Physicians. It is necessary, however, to give the Reader this one Caution, that the Ipecacuana or Indian Physick, so frequently prescribed by the Author, is much weaker in Virginia, than that which grows in Pennsylvania; so that whereas he prescribes 80 Grains for a vomiting Portion, and 70 for a Purge; 12 Grains of our Indian Physick, or Ipecacuana, will be sufficient for a Vomit, and 10 for a Purge: There is another Sort which comes to us from Europe, and is to be found in the Apothecaries Shops, of which 30 or 32 Grains is commonly given for a Vomit, and 27 for a Purge, which will work most Constitutions sufficiently.

POSTSCRIPT.

A Physician in Virginia has lately published an Essay on the Pleurisy; in which he discovers a Method of treating that fatal Disease, that he says he always found to succeed. The principal Part of the Cure depends on the Use of a Simple that begins to be known in this Country by the Name of Rattle Snake Root, being the same which the Indians use in curing the Bite of that venemous Reptile. The Method which the Author practices and recommends, is as follows.

"Let the Patient first have 10 Ounces of Blood taken from the Arm of the well Side or Foot, if both Sides are affected; and every 6 Hours 3 Spoonfuls of the following Tincture is to be given, the first Dose immediately after, and continued till the Symptoms abate.

"Take of the Rattle Snake Root 3 Ounces, wild Valerian Root an Ounce and a Half, let them be well bruised in a Mortar, then mix them with a Quart of old Canary, and digest in a proper Vessel in a Sand Heat for 6 Hours, afterwards decant for Use.

"Let fifteen Drops of Balsam Capivi, and as many of Sal Volatile Oleofum, be given in a little ordinary Drink, twice between each Dose of the Tincture, beginning with the first Dose two Hours after the Tincture; and give the 2d Dose 2 Hours after.

"Let the ordinary Drink be a Tea made of Marshmallow Roots, always given warm.

"If the Patient has been ill some Days before any " Thing
"Thing administered, the Balsam is to be continued for some Days after a considerable Amendment.

"Blood letting is to be repeated the second Day, and in the same Quantity as the first, if the Patient is not much better, or the same Day, unless something better in four Hours: But such is the Efficacy of this Medicine, that there is seldom Occasion. The Symptoms generally abate considerably in 24 Hours, and the Recovery certain."

But because every One may not have Convenience for preparing this Tincture, nor have the other Medicines mentioned at Hand, and don't live within the Reach of a Physician, it is necessary to acquaint the Reader with what the Author adds further, viz. "A Decoction of the Rattle Snake Root alone in Spring Water, three Ounces to about one Quart; together with Pectoral Teas sweetened with Honey, will prove effectual without any Thing else, if the Patient has been let Blood as soon as taken, and this Decoction immediately given afterwards."

This is to be understood of the genuine Pleurisy or Peripneumony attended with a Fever.

As for the other Disease, which often personates a Pleurisy in these Parts, the Symptoms of which are, that the Patient is cold in a somniferous State, and sometimes convulsed.

In this Case the Author omits Blood-letting as pernicious; but says the Tincture aforesaid is as effectual here as in the genuine Pleurisy, only advises that the Rattle Snake Root and Valerian be in equal Quantities.

Advice to a young Tradesman, written by an old One.

To my Friend A. B.

As you have desired of me, I write the following Hints, which have been of Service to me, and may, if observed, be so to you.

REMEMBER that Time is Money. He that can earn Ten shillings a Day by his Labour, and goes abroad, or sits idle one Half of that Day, the he spends but Sixpence during his Diversion or Idleness, ought not to reckon that the only Expence; he has really spent, or rather thrown away Five Shillings besides.

Remember
Remember that Credit is Money. If a Man lets his Money lie in my Hands after it is due, he gives me the Interest, or so much as I can make of it during that Time. This amounts to a considerable Sum where a Man has good and large Credit, and makes good use of it.

Remember that Money is of a prolific generating Nature. Money can beget Money, and its Offspring can beget more, and so on; Five Shillings turned, is Six: Turn’d again, ’tis Seven and Three-pence; and so on ’til it becomes an Hundred Pound. The more there is of it, the more it produces every Turning, so that the Profits rise quicker and quicker. He that kills a breeding Sow, destroys all her Offspring to the thousandth Generation. He that murders a Crown, destroys all it might have produced, even Scores of Pounds.

Remember that Six Pounds a Year is but a Groat a Day. For this little Sum (which may be daily wasted either in Time or Expence unperceiv’d) a Man of Credit may, on his own Security, have the constant Possession and Use of an Hundred Pounds. So much in Stock briskly turn’d by an industrious Man, produces great Advantage.

Remember this saying, That the good Paymaster is Lord of another Man’s Purse. He that is known to pay punctually and exactly to the Time he promises, may at any Time and on any Occasion raise all the Money his Friends can spare. This is sometimes of great use; therefore never keep borrow’d Money an Hour beyond the Time you promised, lest a Disappointment shut up your Friend’s Purse for ever.

The most trifling Actions that affect a Man’s Credit, are to be regarded. The Sound of your Hammer at Five in the Morning, or Nine at Night, heard by a Creditor, makes him easy six Months longer. But if he sees you at a Billiard Table, or hears your Voice at a Tavern, when you should be at Work, he sends for his Money the next Day. Finer Cloths than he or his Wife wears, or greater Expence in any Particular than he affords himself, shocks his Pride, and he duns you to humble you.

Creditors are a Kind of People, that have the sharpest Eyes and Ears, as well as the best Memories of any in the World.
Good-natur'd Creditors (and such one would always chuse to deal with if one could) feel Pain when they are oblig'd to ask for Money. Spare 'em that Pain, and they will love you. When you receive a Sum of Money, divide it among 'em in Proportion to your Debts. Don't be ashamed of paying a small Sum because you owe a greater. Money, more or less, is always welcome; and your Creditor had rather be at the Trouble of receiving Ten Pounds voluntarily brought him, though at ten different Times or Payments, than be obliged to go ten Times to demand it before he can receive it in a Lump. It shews that you are mindful of what you owe; it makes you appear a careful as well as an honest Man; and that still encreases your Credit.

Beware of thinking all your own that you possess, and of living accordingly. 'Tis a Mistake that many People who have Credit fall into. To prevent this, keep an exact Account, for some Time, of both your Expences and your Incomes. If you take the Pains at first to mention Particulars, it will have this good Effect; you will discover how wonderfully small trifling Expences mount up to large Sums, and will discern what might have been, and may, for the future, be saved, without occasioning any great Inconvenience.

In short, the Way to Wealth, if you desire it, is as plain as the Way to Market. It depends chiefly on two Words, Industry and Frugality; i. e. Waste neither Time nor Money, but make the best Use of both. He that gets all he can honestly, and saves all he gets (necessary Expences excepted) will certainly become rich: If that Being who governs the World, to whom all should look for a Blessing on their honest Endeavours, doth not in his wise Providence otherwise determine.

The general Division of the Earth and Sea.

The Terrestrial Globe may be divided into two Parts, the Earth and the Sea. The Earth may be divided into known and unknown Lands. The latter includes such Parts as are yet undiscovered, of which there are doubtless many; as also those that are but partly known by visiting the Coast. The known Land is divided into two great Continents, the Old containing Europe, Asia, and Africa, and the New containing America.
Europe has Denmark, Norway, Sweden, Muscovy or Russia, towards the North; France, Germany, Poland, Bohemia, and Hungary, about the Middle; Spain, Portugal, Italy, and Turkey in Europe, on the South.

Asia has that Part of Russia next to Europe, and Tartary belonging to the Muscovites in the North, Turkey in Asia, Persia, Great Tartary and China, about the Middle; and Arabia the Mogul's Country, and the Peninsulas on both Sides the Ganges in the South.

Africa has Barbary, Egypt, Nigritia, Guinea, Nubia, Abyssinia, &c. on this Side the Equator; and Congo, Zanzibar, Monoemugi, Monomotapa, and the Hottentos beyond it.

America is divided into the North and South. The North contains New France, Nova Scotia, New England, Maryland, Pennsylvania, Virginia, Carolina, Georgia, New Mexico, and California. The South contains Terra Firma, Peru, Brasil, the Land of the Amazons, Paraguay, Chili and Terra Magellanica.

The Islands of Europe in the Ocean are Great Britain, Ireland, Iceland, and the Islands of the Baltic. In the Mediterranean are Majorca and Minorca, Malta, Sicily, Sardinia, Corsica, Candy, Corfu, and the Islands of the Archipelago.

The Islands of Asia in the Ocean are the Maldives, Ceylon, Sumatra, Java, Borneo, called the Isles of Sunda; the Moluccas, the Philippines, the Isles of Japan and Formosa. Add to these the Isle of Cyprus in the Mediterranean, and Rhodes.

The Islands of Africa are the Canaries, the Islands of Madeira, the Cape De Verd Islands, St. Thomas, Ascension, St. Helena, &c. all these lie on the West. On the East are the Isles of Madagascar, Comorin, and Bourbon; with a great many small ones on the Coast of Zanzibar. Likewise Zocotora, on the Arabian Coast, near Cape Gueraefui.

The Islands of America on the East, are those of Fernando de Naronna, near the Coast of Brasil; and Saxemburg, Pepys, and Malouinies off the Magellanic Coast. On the West Coast near Peru lie those of Cocos and the Gallopegas. On the Coast of Chili, St. Felix, and Juan Fernandez. And farther in the Ocean the Isles of St. Paul, of the Marquis of Mendoza, Fernando Quiros and Solomon.
The Sea is divided into the Exterior, or that which surrounds the Continent, and the Interior, or that which is contained within the Continent. The former is divided into 1. The North or Frozen Ocean; 2. The India Sea, or Ocean; 3. The Oriental Ocean; 4. The Western Ocean; 5. The Southern Ocean; 6. The Great South Sea, or Pacific Ocean.

The Seas within the Continent are the Mediterranean, the Baltic, the White Sea or Gulph of Russia; the Black or Euxine Sea; the Sea of Zabach; or the Sea of Azoph, formerly called Palus Mesotis, near the Black Sea; the Sea of Marmora, otherwise called the Propontis; the Caspian Sea, which is properly only a Lake; the Red Sea, or the Arabian Gulph; the Persian Gulph between Arabia and Persia; the Vermillion Sea near California; the Gulph of St. Lawrence, near Newfoundland; the Gulph of Mexico; the Sea of Korea, and the Sea of Kamfchatka.

Of the principal Isthmuses, Gulphs, Straits, Lakes and Rivers.

An Isthmus is a Part of the Earth shut in between two Seas, and joins one Land to another, of which there are two very considerable in Europe, viz. The Isthmus of Corinth, which joins the Morea to Greece, and the Isthmus of Precop, which unites Little Tartary with the Crimea.

The most remarkable Isthmus in Asia is that of Tenasserim, which joins the Peninsula of Malacca with the Kingdom of Siam. In Africa there is likewise only one, and that is the Isthmus of Suez, which unites Asia with Africa. They formerly attempted to make a Canal from one Sea to the other; but the Design miscarried. In America there is the Isthmus of Panama, which separates North America from the South.

The Ocean forms eight remarkable Gulphs. There are three in Europe, which have the Name of Seas; the Mediterranean,
ditteranean, the Baltic Sea, and the White Sea. There are three in Asia, the Gulph of Bengal, the Persian Gulph, and the Arabian Gulph or Red Sea. There are two in America, the Gulph of California and the Vermillion Sea.

The most famous Straits are Hudson's Straits in the North Part of America, and the Straits of Magellan in the South. The lesser Straits are those of Gibraltar, between Africa and Europe, and which permit the Ocean to enter into the Mediterranean: The Straits of Babelmandle, between Asia and Africa, and which join the Red Sea to the Ocean: The Straits called the Sound, which unite the Baltic with the German Ocean.

The most famous Lakes are the Ladoga and Onega in the Connes of Muscovy. The Caspian Sea; to the East of which lies the Lake Aral, but lately known to be of great Extent, and seems to be mistaken by some for the Caspian Sea; the Lake Baikal; these last are in Asia. To which add several Lakes in North America, of which the superior or upper Lake is the principal.

The principal Rivers in Europe are the Thames in England, the Torneo in Sweden, at the Bottom of the Gulph of Bcthnia; the Volga in Muscovy, which runs into the Caspian Sea; the Danube, which rises in Germany and runs thro' Turkey in Europe into the Black Sea; the Don or Tanais in Russia, which runs into the Sea of Azoph; the Nieper which rises in Poland, and empties itself into the Black Sea; the Rhine in Germany; the Loire in France; the Po in Italy; and the Tagus in Spain.

In Asia there is the Euphrates, which rises in the Mountains of Armenia, and runs on the East Side of the Deserts of Arabia, till it comes to the Place where Babylon formerly stood, and uniting itself with the Tigris soon after it passes by Basra and falls into the Persian Gulph; the Tigris, which has its Source a little lower, and running towards the South passes by Mosul and Bagdad, after which it unites its Stream with the former, and empties itself into the Persian Gulph; the Indus, this runs from North to South, dividing Persia from the Mogul's Country, and falls into the Indian Ocean; the Ganges likewise runs from North to South on the East Side of the Mogul's Country, and falls into the Gulph of Bengal.
The chief Rivers in China are the Kan-ho or the Yellow River, and the Kyang or the Yang tie Kyang, both which run thro' the Country from West to East. The chief Rivers in Siberia are the Irtish, the Obi, the Tobol, the Jenisca, and the Selenga; and the principal in Great Tartary is the Segalian.

The chief Rivers in Africa are the Nile, the Gambia, the Senega, and the Zaire. The Nile rises in the Mountains of Abyssinia, and runs from South to North thro' Ethiopia and Egypt into the Mediterranean. The excessive Rains in the South Parts cause it to overflow the lower Parts of Egypt once a Year, which renders it a very plentiful Country for Corn.

There are two considerable Rivers in North America, the River of St. Lawrence, and the Mississippi, besides many others, which are navigable, in our English Plantations. In South America the River of the Amazons, which is supposed to be greatest River in the World, and the Paraguay or la Plata.

Of the different Religions of the World, and their Extent.

All the Religions in the World may be reduced to four, the Pagan, Jewish, Christian, and Mahometan, to which some add the Natural.

The Pagan Religion is owing to the Inventions of Men, and consists of various Kinds of Idolatry, and extravagant Opinions; it teaches the worshipping of Images, various Sacrifices, the Agency of Demons, and many other superstitious Practices. This was the Religion of the ancient Greeks and Romans, the People of America, and various other Parts. It is now extended over half Asia, five or six Parts of Africa, and nineteen in twenty of America.

The Persians formerly worshipped the Sun and Fire, but since Mohometanism is become the prevailing Faith, there are but few who profess this ancient Religion. However, some are established on the Borders of the Countries near to Persia, and in the Peninsula on this Side the Ganges. Nevertheless these Idolaters pretend they believe in one God, and that the Fire is his Image. They are called Gaurs or Gebres.

The Religion of the Brachmans was formerly the principal in the Mogul's Country, and in the Peninsula on this Side the Ganges, even till Mohometanism was established.
blished. It is now mostly cultivated by the natural Inhabitants. It is still prevalent in the other Dominions of this Peninsula, and in the Countries of the Rayas, who keep their Ground against the Mogul. These Rayas are little Sovereign Princes, who do Homage to the Great Mogul, or pay him Tribute.

The brachmans or Gymnosophists were very severe Philosophers, who, according to Porphyry, made Profession of a kind of Monastic Life. The Bramins who succeeded them are Indian Priests, who are of the ancient Religion of the Banians, who are Idolaters of the Indies. They believe the Transmigration of Souls. The Bramins and all their Followers have a great Veneration for a Cow, and they think themselves happy when they die holding one of their Tails.

The Chinese in general, acknowledge no other God but Heaven. However, there are several Sects among them. That which is called the learned Sect, tho' they pay no regard to Idols, are said to pay a Homage to the Sun, Moon, and Stars. Others have Idol Temples, and yet both one and the other have a great Regard for Confucius.

The most extensive Form of Religion is that of Fo, for this prevails over Thibet, all the Western Tartary, as well as China, and most of the Indian Islands. It pretends to Revelation, and teaches all the Superstitions above-mentioned.

The Worship of the Sun before Christianity, was of all Religions the most general; it was even found in America, for the People of Peru worshipped the Sun, as also those of Florida; and some in New Mexico worship him till this Day. Some other Nations of America are thought to adore some imaginary Demon, and to use Conjurations by such Means; but however Travellers may have been imposed upon by their fantastic Ceremonies, there are now very few in Protestant Countries, who believe any Thing of these diabolical Stories.

The Jewish Religion has its Name from the Jews, a People of Syria in Africa, and was instituted by Moses about 3198 Years ago. It was intended to restore natural Religion, then decayed in the World. It consists chiefly in the Belief of one God: But the Jews were such a stubborn unbelieving Race of Mortals, that no Miracles could prevent
prevent them from relapsing into Idolatry, till they had endured the Babylonish Captivity, after which they seem to be pretty firm in their Belief, till they were divided into various Sects. The abstaining from Hog's Flesh was probably a temporary Law given to them, because it is bad for the Leprous. But they strictly adhering to the Letter, hold it in the utmost Abhorrence even at this Day. It is now the prevailing Religion of no Country, the Jews being no longer a Nation, but scattered over all Parts of the Earth: But more particularly Europe, the South Part of Asia, and the North Part of Africa, where they are very numerous.

The Christian Religion takes its Name from Jesus Christ, who was born in Judea 1770 Years ago, and was crucified as a Malefactor, about the Age of 33, for teaching his Doctrines. It abolishes the Jewish Priesthood, and changes the Day of Worship from Saturday to Sunday. The moral Part of it surpasses all other Religions in the World, it being the highest Improvement of the Law of Nature. Christianity extends almost all over Europe, and several Parts of America, as the established Religion, where the Europeans have any Possession, and it is professed by different People in the Turkish Dominions, and is dispersed through several Regions of Asia and Africa. But it is so degenerated in many Places, that there remains nothing but the Name, particularly in Abyssinia, Armenia, and the Countries to the East of the Black Sea. In Europe it is divided into three principal Branches, the Roman Catholic, the Greek Church, and the Protestants. The Greeks are divided into three Sects, those that have renounced the Supremacy of the Pope of Rome, those that are Jacobites, Cophtes or Eutychians, and those that are Nestorians. The Protestants are divided into several Branches, the Lutheran, the Episcopalian, the Calvinist, the Presbyterian, the Baptist, Quakerism, and Socinianism, and many other Sects of lesser Note.

The Mahometan or Mahomedan is derived from Mahomet in Arabian, who published it as a Revelation 622 Years after Christ, and by Means thereof became Sovereign of Arabia. This Religion differs very little from that of the Jewish, except in acknowledging Mahomet to be the Prophet of God, their frequent Ablutions and other
Other Ceremonies. They have changed the Day of Worship from Saturday to Friday.

Mahometanism is the chief Religion in the Turkish Empire, and the only one in Arabia. It is spread all over Persia, the Mogul’s Empire, and many of the Indian Islands on the Northern and Eastern Coasts of Africa, with many of the Inland Countries. Some affirm it six Times more extended than Christianity. However it has not penetrated into America.

Of the different Languages, and the different Colours, of the Inhabitants of the Earth.

The most general Languages are the Latin, the Teutonic, the Celtic or Keltic, the Sclavonian, the Greek, the Turkish, the Eastern Syriac, the Arabic, the Tartarian, the Manchew, the Chinese, the Malayan, the Ethiopic. As for the Languages of Africa and America, they are so many it would be a great Labour to reckon them up.

As to the Extent of these Languages, the Latin is a dead Language; but the Italian is a Corruption of it as well as the Spanish and French. The Teutonic Language is spoken in Germany and Scandinavia. The English is a Mixture of Latin, Teutonic, and Norman. The Danish, Dutch, Flemish, and Swedish, are derived from the German.

The Sclavonian has produced the Dalmatian, Bosnian, Albanian, Servian, Pulgarian, Moldavian, bohemian. Silesian, the Polish, Russian, Mingrelian, and Circassian. The Turkish prevails over Turkey, and a great Part of the Eastern Tartary. The Eastern Syriac or Chaldaic is the Mother of the Western Syriac, the Hebrew, the Arabic, and the Abyssinian Languages. The Malayan prevails over a great Part of thefarther Indies and the Islands. The Chinese is spoken throughout China. The Manchew prevails in Eastern Tartary. The Celtic seems to be the original and most general Language of Europe. It is still preserved in Wales, Bretagny, and the North of Scotland, and particularly in Ireland.

The Greek made a Progress wherever that Empire prevailed. It is now spoken in the South Part of Turkey in Europe, that is in ancient Greece, the Islands of the Archipelago, and Natolia, but much corrupted.
The Colours of the Inhabitants of the Earth are four;  

The Inhabitants of Europe are White, as well as Part of the Asiatics, that is Natolia, Armenia, Georgia, the Northern Provinces of Persia, and about the Caspian Sea, Grand Tartary, and the Northern Parts of China.

The Tawny or Brown inhabit a great Part of Barbary, Egypt, Zara, Zanguebar. In Asia they dwell in Syriæ, Diarbekere, Arabia, the Southern Part of China, the Islands of Ceylon, the Maldive, Sunda, the Moluccas, and the Philippines; the Indians are of this yellowish tawny, and those that are more brown, are only made so by the scorching Heat of the Sun.

The Inhabitants of Africa are generally Black, except those first mentioned; so likewise are those of some Parts of Asia, New Guinea, and New Holland. The Americans are Red from one End of that vast Continent to the other; and if they appear in a more dusky Complexion in some Parts, it is because they daub themselves with Bear's Grease and other unclean Substances.

Mankind differ much in their Figure and Shape; they are generally reduced to four Kinds; the Ethiopians have a particular Aspect well known to all. But out of these we must except Little Tartary and the North Part of Russia. However, the Inhabitants of Barbary have Features not unlike those of the People of Europe; as also Turkey in Asia, and the Indians on this Side the Ganges, have some resemblance.

The second Sort are the Chinese, the Tartars, the Inhabitants of the Peninsula beyond the Ganges, the Islands of Japan, the Philippines, the Moluccas and the Isles of Sunda; these have flat Noses, the Visage extremely flat, and the Eyes oval or narrow.

The third Kind comprehends the Laplanders and the Sawayoids, who are long-visaged, frightful, and have somewhat of the Aspect of a Bear.

The fourth are the Blacks of Africa, who have woolly Heads, flat Noses, and thick Lips; their Tongues, and the Inside of their Mouths, are as Red as Coral.

The fifth are the Americans, who are without Beards, and without Hair on any Part of their Bodies except the Head, where it is long and black, when they will suffer it to grow; they go generally naked, some quite so, and others
I know many Authors have asserted, that the Americans pull up their Beards by the Roots, in which they only copy one another; but who can imagine that in such a vast Country as America, all the People, with one Consent, should agree to pluck out their Beards? Besides, it is no very easy Matter; and those who think otherwise, had best try. However, as I have had an Opportunity to observe them, I can affirm the contrary. Besides, L'Honton, who lived among them, declares the same, as well as Charlevoix, who travelled quite through North America.

It has greatly puzzled the Learned to know by what Means America came to be peopled. Some have affirmed they came from Phœnicia, because they worship the Sun, and others have imagined they are derived from China. But this would be wonderfully strange, because the Chinese deal much in Words of one Syllable, and the Americans have Words of a prodigious Length. As for Instance, near the River of the Amazons, the Word Poettararoricourac signifies three; which is the highest Number their Arithmetic arrives at, otherwise what a Trouble it would be to tell Twenty. Their Languages indeed are various, but none of them, that we know of, have any Analogy with those of the old World. Besides, had People come Volunteers into America, they would certainly have taken some useful Animals along with them; for before the Conquest of America, by the Spaniards, there were no Horses, Cows, Sheep, Hogs, Asses, &c. which are in Plenty elsewhere. But they had many Creatures, which are not to be found in any other Part of the World. Some say they have Lions, but this is only taken from Report, for no Eye-Witnefs can be produced, who has ever seen any. The Consideration of these Things influenced Charlevoix to affirm America was peopled by the Grand-Children of Noah: And the present Bishop of Clogher believes it was inhabited before the Flood, and that the People were saved by the peculiar Care of Divine Providence; others have asserted, that these White, Brown, Red, and Black People must all have had different Parents originally,
originally, and created at different Times; but this is contrary to the Holy Scriptures, which make Adam and Eve to be the first Parents of all Mankind. But those who believe there were Men before Adam, from Cain's going to dwell in the Land of Nod, which seemed full of Inhabitants, will make no Scruple to subscribe to this Opinion.

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Lord Hitch
Pulman Stephen
His Book God
give him grace
in the Church
and when the Lord
for him with late
I and have mercy you
his place said
in the church.
Putnam was born July 24
Chloe, daughter of Amasa and Annesa, was born April 6, 1780.
Amasa, Heedon, James, Hites, and Mary, all murdered by the
Sauage, May 21, 1780.
Peter Leckard died
May the 3, 1792.
Lucius Putnam steals his Book - you gives him grace that in to look and When the Bell for him Dotti Yolle Lord have mercy on his poor soul.

Lucius Putnam was born in the Year of our Lord 1777 July the 21 1797.
SamuelULLINGSTON.
His Book. Anno 1772

Stil Not this book
for feare of shame so
here you the Man

Samuel Lullingston

This book lent by
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Hercules Simonds
the 19th 1772
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