G.

G, Is the ſeventh Letter of the Alphabet, and the fifth Conſonant: But in the Alphabets of all the Oriental Languages, the *Hebrew*, *Phœnician*, *Chaldee*, *Syriac*, *Samaritan*, *Arabic*, and even *Greek*, G 'tis the third Letter. See LETTER.

The *Hebrews* call it *Ghimel*, or *Gimel*, *q. d.* Camel; by reaſon it reſembles the Neck of that Animal: And the ſame Appellation it bears in the *Sarmatian*, *Phœnician*, and *Chaldee*: In *Syriac* 'tis pronounced *Gomal*; in *Arabec*, *Giim*, and in *Greek*, *Gamma*.

The Letter *G* is of the mute Kind, and cannot be any way ſounded without the Help of a Vowel. 'Tis form'd by the Reflection of the Air againſt the Palate, made by the Tongue, as the Air paſſes out of the Throat: Which *Martianus Capella* expreſſes thus, *G, ſpiritus, cum palato*; ſo that the *G* is a palatal Letter. See LETTER, MUTE, and PALATAL.

The *Latins* took the Liberty to drop the Letter *G* at the Beginnings of Words, before an *n*; as in *gnatus*, *gnoſco*, *gnobilis*, *gnarrat*, &c. which they ordinarily wrote, *natus*, *noſco*, *nobilis*, &c. They alſo frequently changed it into *C*, as *Gamelus*, into *Camelus*; *Grogulus*, *Graculus*; *Quingentum*, *quincentum*, &c. Sometimes it is put inſtead of *N*, before a *C*, and another *G*; as *Agchiſes*, *Agcora*, *Agguilla*, &c. for *Anchiſes*, *Ancora*, *Anguilla*, &c. Inſtead of *P*; as *Magilia*, for *Mapilia*, &c. *G* is alſo uſed inſtead of *Q*, and *Q* inſtead of *G*, as *Anquina*, *Angina*, *Anguina*, &c. Inſtead of *R*, as *Aquagium*, for *Aquarium*; *Agger*, *Arger*, &c. And inſtead of *S*, as *Spargo*, *ſparſi*, *ſparſum*; or, rather, it is retrench'd from thoſe laſt Words, to avoid the Cacophony of *ſpargſi*, or *ſparcſi*.

G, is alſo put for *C*; as *Cneius*, for *Gneius*; *Caius*, for *Gaius*; *Gaeta*, for *Caieta*: for *V*, as *figere*, for *fivere*.

The Northern People frequently change the *G* into *V*, or *W*; as in *Gallus*, *Wallus*, *Gallia*, *Wallia*, *Vallia*, &c. For in this Inſtance it muſt not be ſaid that the *French* have changed the *W* into *G*; by reaſon they wrote *Gallus* long before *Wallus*, or *Wallia* were known; as appears from all the antient *Roman* and *Greek* Writers.

And yet, 'tis equally true, that the *French* change the *W* of the Northern Nations, and the *V* Conſonant into *G*; as *Willielmus*, *William*, into *Guillaume*,; *Wulphilas*, into *Gulphilas*; *Vaſco*, into *Gaſcon*, &c. It may be added, that the antient *Gauls*, and *Celtæ* changed the ו or *v* of the primitive Language into *G*: Accordingly, in the Bas Breton they ſtill ſay *gouin*, of ויין Wine, from יי", by changing the latter י into ו.

Diomed. L. II. de Litera, calls *G*, a new Letter: His Reaſon was, that the *Romans* had not introduc'd it before the firſt *Punic* War; as appears from the Roſtral Column, erected by *C. Duilius*, on which we every where find a *C* in lieu of *G*. It was *Sp. Carvilius*, who firſt diſtinguiſh'd between thoſe two Letters; and invented the Figure of the *G*: as we are aſſured by *Terentius Scaurus*. The *C* ſerved very well for *G*; it being the third Letter of the *Latin* Alphabet, as the *g* or *γ* was of the *Greek*.

The *G* is found inſtead of *C* in ſeveral Medals: *Vaillant Num. Imperat. T. I. p.* 39. M. *Reger* produces a Medal of the *Familia Ogulnia*, where GAR is read inſtead of CAR, which is on thoſe of M. *Patin*. But the *C* is more frequently ſeen on Medals, in lieu of *G*; as AUCUSTALIS CALLAECIA CARTACINENCES, &c. for AUGUSTALIS, &c. Not that the Pronunciation of thoſe Words was alter'd; but only that the *G* was unartfully or negligently cut by the Workmen. As is the Caſe in divers Inſcriptions of the Eaſtern Empire; where AUC, AUCC, AUCCC, are frequently found for AUG, &c.

The Form of our *G* is taken from that of the *Latins*, who borrowed it from the *Greeks*; the *latin G* being certainly a Corruption of the *Greek* Gamma Γ, as might eaſily be ſhewn, had our Printers all the Characters and Forms of this Letter, which we meet withal in the *Greek* and *Latin MSS.* thro' which the Letter paſs'd from Γ to *G*.

As to the Gamma of the *Greeks*, 'tis manifeſtly the ג Ghimmel of the *Hebrews*, or *Samaritans*. All the Difference between the Gamma and Ghimel conſiſts in this, that the one is turn'd to the Right, and the other to the Left, according to the different manners of writing and reading, which obtain'd among thoſe different Nations: ſo that all the pains *Salmaſius* has taken on *Solinus*, to prove that the *G* was derived from *Greek* Kappa, is loſt.

G has alſo been us'd as a Numeral Letter, ſignifying 400, according to the Verſe,

GAB.

G Quadringentos demonſtrativa tenebit.

When a Daſh was added a-top the $\overline{G}$, it ſignify'd forty thouſand. See A.

G is alſo us'd in Muſic, to ſignify one of the Clefs. See CLEF.

G is the Clef of the higheſt Part, call'd the *Treble*, or *Alt*. See TREBLE.

GABBARA, a Name the *Egyptians* gave the dead Bodies, which they kept by them, inſtead of burying them.

That People, out of a Cuſtom which they had receiv'd from their Anceſtors, and which aroſe in ſome meaſure from the Diſpoſition of their Country, which is expoſed to the Inundations of the *Nile*; us'd to wrap up the Bodies of Perſons of Piety and Eminence, particularly thoſe of Saints, and Martyrs, in a great Number of linen Cloths, with Balms, and Spices; and inſtead of interring them, preſerved them in their Houſes: thinking, that thereby they did them much more Honour. And theſe, St. *Auguſtin* tells us, were what they call'd *Gabaras*. Sermon CXX. *De diverſis*, *c.* 12.

Pliny makes mention of the ſame thing, *L. VII. c.* 16. where he relates, that in the time of *Claudius* a *Gabbara* was brought from *Arabia*, almoſt ten Foot long.

Fa. *Hardouin* imagines, that *Pliny* here took the Word for a proper Name; and accordingly ſearches in *Tacitus*, for one *Abbarus*, a King of *Arabia*: But *Hardouin* himſelf is not of that Opinion; taking the Word to be rather the גבור *Ghibbor*, of the *Hebrews*; or גבאר *Ghabbar*, of the *Arabians*; and to ſignify a *Gyant*.

But the Jeſuite *Roſweyd* has given us a much better Account in his learned Notes, on the Life of St. *Anthony*, *c.* 7; and in his Onomaſticon, under the Word *Gabbara*; where he ſhews that we meet with both *Gabbara*, *Gabbares*, *Gabarus*, and *Gabbarus*; and that they all ſignify a Body embalm'd; which he proves from the Teſtimonies of *Cicero*, *Tuſcul. Queſt.*; of *Pompon. Mela*, *L. I. c.* 9.; of *Sextus Empiricus*, *L. III.*; *Pyrrhon Hypotheſ. c.* 24.; of *Lucian*, *de Luctu*; of *Corippus*, *L. III. De funere Juſtiniani*; of St. *Auguſtin*, *Caſſian*, *Damaſcenus*, &c. See MUMMY.

The Word is *Arabic*, *Syriac*, and *Hebrew*, form'd of גבר Gaber, a Man.

GABEL, or GABELLE, in the *French* Cuſtoms, a Duty or Impoſition on Salt. See SALT.

The *Gabelles* is let out to Farm; and make the ſecond Article in the King's Revenue. See DUTY, FARM, &c.

There are three Farms of *Gabels*; the firſt comprehends the greateſt Part of the Kingdom: The 2d is that of the *Lyonnois* and *Languedoc*; and the 3d that of *Dauphine* and *Provence*. There are ſeveral Provinces exempt from the *Gabel*; having purchaſed the Privilege of *Henry* II.

This Duty is ſaid to have had its Riſe in *France*, in 1286. under *Philip* the Fair. *Philip* the Long took a Double *per* Livre on Salt, by an Edict in 1331; which he promis'd to remit when he was deliver'd from his Enemies; and which he did accordingly in 1345. King *John* reſum'd it in 1355; and it was granted the Dauphin in 1358, to ranſom King *John*. *Charles* V. made it perpetual. *Charles* VII. rais'd it to ſix Deniers: *Louis* XI. to twelve; and *Francis* I. to 24 Livres *per* Muid. And it has been conſiderably augmented ſince. *Philip de Valois* firſt eſtabliſh'd Granaries and Officers of the *Gabelles*, and prohibited any Perſons from ſelling Salt: From which time the whole Commerce of Salt, for the Inland Conſumption, has lain wholly in the King's Hands, who ſells and diſtributes every Grain thereof by his Farmers, and Officers created for the purpoſe.

The Produce of this Impoſt is ſo conſiderable, that it is computed to make one Fourth of the whole Revenue of the Kingdom; and yields the Crown as much as all the Mines of *Peru*, *Chilly Potoſi*, and the reſt of *America* does the *Spaniards*.

Etymologiſts are extremely divided as to the Origin of the Word. Some derive it from the Hebrew *Gab*, a Preſent; others from קבל to deliver; others from קבלה *Kabbalah*, Receipt; others from *Ghauel*, or *Gabe*, unjuſt Law; others from the corrupt latin *Gabella*, or *Gablum*, Tribute.—

GABEL is alſo us'd in ſome of our antient Writers, for any ſort of Tax, or Impoſition: As *Gabel* of Wines, of Silks, &c. See DUTY.

GABIONS, in Fortification, &c. large Baſkets, made of Oſier Twigs, wove of a cylindrical Form, ſix Foot high, and four wide; which being fill'd with Earth, ſerve as a Defence, or Shelter from the Enemy's Fire.

They are commonly uſed in Batteries, to ſcreen the Engineers, &c. In order to which one is placed on either Side each Gun, only leaving room for the Muzzle to appear thro'. See BATTERY.

There are alſo a ſmaller ſort of *Gabions*, us'd on Parapets, in Trenches, &c. to cover the Muſqueteers; being placed ſo near as that a Muſquet can but juſt peep thro'.

They alſo ſerve as a Parapet on Lines, Lodgments, &c. where the Ground proves too hard to dig into. See PARAPET.

To render the *Gabions* uſeleſs, they endeavour to ſet them on fire, by throwing pitched Faggots among them.

GABLE, or GABLE-*End* of a Houſe, is the upright triangular End; from the Cornice, or Eaves, to the Top of its Roof. See HOUSE.

GAGE, in our antient Cuſtoms, ſignifies a Pledge, or Pawn, given by way of Security.

The Word is only properly us'd for Moveables; for Immoveables, *Hypotheca* is us'd. If the *Gage* periſh, the Perſon who received it is not to anſwer for it, but only for extreme Negligence, &c. See PLEDGE.

The Word *Gage* is particularly us'd for a Challenge, to Combat; in which Senſe it was a Pledge, which the Accuſer, or Challenger caſt on the Ground, and the other took up, as accepting the Challenge: It was uſually a Glove, Gantlet, Chaperoon, or the like. See COMBAT, and DUEL.

The Grand Cuſtomary mentions *Gages Pleiges de Duel*. Theſe were Gentlemen, of their Relations or Friends: If he who had given the *Gages Pleiges*, was overcome, he was to pay a Mulct agreed on.

The Word *Gage* is only retain'd as a Subſtantive: As a Verb, the G is chang'd into W; and of *Gage* is form'd *Wage*; as, to *wage* Law; to *wage* Deliverance, *q. d.* to give Security a thing ſhall be deliver'd. See WAGE.

Thus, if a Perſon who has diſtrain'd be ſued for not having deliver'd what he had took by Diſtreſs, he ſhall *wage* or *gage* Deliverance; that is, put in Surety that he will deliver them. See LAW; ſee alſo *Mort* GAGE.

Mort-GAGE, it that which is left in the Hands of the Proprietor, ſo that he reaps the Fruits thereof; in oppoſition to *Vif-gage*, where the Fruits or Revenues are reap'd by the Creditor, and reckon'd on the Foot of the Debt, which diminiſhes in proportion thereto.

The ſecond, acquits, or diſcharges it ſelf; the firſt does not.

Pomey alſo uſes *Mort-gage* for the Poſſeſſion of any Effects, on condition of ſurrendring them up at the good pleaſure of the Perſon who gave them. See MORTGAGE.

GAGE, in the Sea Language. When one Ship is to windward of another, ſhe is ſaid to have the *Weather-gage* of her.

The Seamen alſo call trying how much Water a Ship draws, *gaging*, or rather *gauging* of her; and it is done thus:

They drive a Nail into a Pike, near the End, and then put down this Pike by the Rudder, till the Nail catch hold under it; for then as many Feet as the Pike is under Water, is the Ship's *Gage*, or Depth of Water ſhe draws.

GAGE, in Joinery, is an Inſtrument made to ſtrike a Line truly parallel to the ſtreight Side of any Board or Piece of Stuff.

Its chief Uſe is for *gaging* of Tenants true, to fit into Mortiſſes; and for *gaging* Stuff of an equal Thickneſs.

It is made of an oval piece of Wood, fitted on upon a ſquare Stick, to ſlide up and down ſtifly thereon, and with a Tooth in the End of a Staff, to ſcore, or ſtrike a Line upon the Stuff at any Diſtance, according to the Diſtance of the Oval from it.

GAGER *del Ley*; ſee WAGE, and WAGER *of Law*.

GAGER, and GAGING, in Geometry, } ſee { GAUGER. GAUGING.

GAÏANITES, GAÏANITÆ, or GAÏNITES, a Sect of antient Hereticks, ſprung from the *Eutychians*.

This Sect was of an older Standing than *Gaian*, or *Gain*, a Biſhop of *Alexandria*, in the VI^th^ Century, from whom they took their Name. They adhered to the Opinions of *Julian Halicarnaſſæus*, the Chief of the *Incorruptibiles* and *Phantaſtici*; and came at length to be denominated *Gaianites*, upon *Gaian*'s putting himſelf at their Head. They denied that Jeſus Chriſt, after the Hypoſtatical Union was ſubject to any of the Infirmities of human Nature. See PHANTASTICI.

GAIN, the Profit, or Lucre a Perſon reaps from his Trade, Employment, or Induſtry.

There are legal and reputable *Gains*, as well as ſordid and infamous ones. What is *gain'd* by Gaming, is all liable to be reſtored again, if the Loſer will take the Benefit of the Law. *Menage* derives the Word from the German *Gewin*; whereof the *Italians* have made *Guadagno*; the *French*, and *Engliſh*, *Gain*.

GAIN, in Architecture, is the Workmens Term for the Bevelling Shoulder of the Joiſt, or other Timber.

It is us'd alſo for the lapping of the End of the Joiſt, &c. upon a Trimmer, or Girder; and then the Thickneſs of the Shoulder is cut into the Trimmer alſo bevelling upwards, that it may juſt receive the *Gain*; and ſo the Joiſt and Trimmer lie even and level with their Surface. This way of working is us'd in Floors and Hearths.

GAINAGE, in our antient Writers, ſignifies the Draught-oxen, Horſes, Wain, Plough, and Furniture for carrying on the Work of Tillage by the baſer ſort of Sokemen and Villains; and ſometimes the Land it ſelf, or the Profit rais'd by cultivating it.

Bracton, *lib.* 1. *cap.* 9. ſpeaking of Lords and Servants, ſays, *Ut ſi eos deſtruant, quod ſalvum non poſſit eis eſſe* Wainagium *ſuum*. And again, *Lib.* 3. *Tract.* 2. *cap.* 1. *Villanus non amerciabitur, niſi ſalvo* Wainagio *ſuo*. For antiently, as it appears both by *Mag. Char.* and other Books, the Villain, when amerced, had his *Wainage* free; to the end his Plough might not ſtand ſtill: And the Law, for the ſame Reaſon, does ſtill allow a like Privilege to the Husbandman, that is, his Draught-horſes are not, in many Caſes, diſtrainable. See DISTRESS.

GALACTITES, in Natural Hiſtory, a Stone, thus called by reaſon when broke or ground, it reſolves into a white Liquor, like *Milk*, which the *Greeks* call γαλα.

The Stone is of an Aſh Colour, and pretty ſoft, and ſweet to the Taſte. 'Tis found in *Tuſcany*, *Saxony*, and other Parts. Authors recommend it as good in Defluxions of the Eyes, and for Ulcers: It is ſuppoſed to make the Milk more copious in Nurſes; and when hung to the Necks of Children, promotes Salivation.

GALACTOPHAGI, and GALACTOPOTÆ, in Antiquity, Perſons who lived wholly on Milk, without Corn, or the uſe of any other Food.

Certain Nations, in *Scythia Aſiatica*, as the *Getæ*, *Nomades*, &c. are famous in antient Hiſtory, in quality of *Galactophagi*, Milk-eaters. *Homer* makes their Eloge, *Iliad. lib. III.* *Ptolomy*, in his Geography, places the *Galactophagi* between the *Riphæan* Mountains, on one Side; and the *Hircanian* Sea on the other.

The Words are compounded of γαλα, γαλάκτος, Milk; φάγομαι, I eat; and πότης, of πίνω, I drink.—

GALACTOPHEROUS *Ducts*, are ſuch Veſſels as ſerve to convey Milk. See MILK.

Such are the Lacteals, and Mamillary Veſſels. See LACTEALS, and MAMMÆ.

GALACTOSIS, the changing into Milk; or the Production of Milk. See MILK.

The Term properly denotes the Action whereby the Food, or Chyle, is converted into Milk.

GALANGA, or GALANGAL, a Medicinal Root, brought from the *Eaſt Indies*; the Produce of a Tree of the ſame Name.

There are two kinds of *Galanga's*; the ſmall, and the great: The ſmall is a rough, knotty Root, of a ruddy Colour both within, and without, and of a very pungent aromatic Taſte, and Smell. It is brought from *China*, and is uſed with good Succeſs in all Diſorders of the Stomach, Bowels, and Womb, ariſing from the Weakneſs of the Nerves.

The greater *Galanga*, growing chiefly in *Java* and *Malabar* inclines more to an Aſh Colour. Its Qualities are of the ſame kind with thoſe of the other; only leſs efficacious, and much leſs uſed. The Vinegar-makers uſe both. See ACORUS.

GALAXY, in Aſtronomy, That long, white, luminous Track, which ſeems to incompaſs the Heavens like a Swath, Scarf, or Girdle; and which is eaſily perceiveable in a clear Night, eſpecially when the Moon does not appear.

It paſſes between Sagittary, and Gemini, and divides the Sphere into two Parts: It is unequally broad; and in ſome Parts is ſingle, in others double.

The *Greeks* call it Γαλαξίας, *Galaxy*, of Γαλα, γαλάκτος, *Milk*; on account of its Colour, and Appearance: The *Latins*, for the ſame reaſon, call it *Via Lactea*; and we, the *Milky Way*.—

The antient Poets, and even Philoſophers, ſpeak of the *Galaxy*, as the Road, or Way, by which the Hero's went to Heaven.

Ariſtotle makes it a kind of Meteor, form'd of a Croud of Vapours, drawn into that Part by certain large Stars diſpoſed in the Region of the Heavens anſwering hereto.

Others, finding that the *Galaxy* was ſeen all over the Globe; that it always correſponded to the ſame fix'd Stars; and that it tranſcended the Height of the higheſt Planets; ſet aſide *Ariſtotles*'s Opinion, and placed the *Galaxy* in the Firmament, or Region of the fixed Stars, and concluded it to be nothing but an Aſſemblage of an infinite Number of minute Stars.

Since

Since the Invention of the Teleſcope, this Opinion has been abundantly confirmed. By directing a good Teleſcope to any Part of the Milky Way; where, before, we only ſaw a confuſed Whiteneſs, we now deſcry an innumerable Multitude of little Stars. Theſe Stars are ſo remote, that a naked Eye confounds them: The like we obſerve in thoſe other Spots, called Nebuloſe Stars, which when examined with the Teleſcope, are diſtinctly perceived to be Cluſters of little Stars, too faint to affect the Eye ſingly. See STAR.

GALBANETUM, a Compoſition, or Preparation of Galbanum, formerly preſcribed, but now much out of Uſe. See GALBANUM.

GALBANUM, in Pharmacy, A Gum iſſuing from an Inciſion in the Root of a ferulaceous Plant, call'd in Latin, *Ferula Galbanifera*; growing in *Arabia*, *Syria*, &c. See GUM.

There are two kinds of *Galbanum*; the one in Tears; the other in Maſs: The firſt is to be choſe of a golden Yellow without ſide, but much paler within; of a bitter Taſte, and ſtrong, diſagreeable Smell. For the ſecond, take that which is fulleſt of Tears, very dry, clear, and not ſtinking. This laſt is eaſily ſophiſticated with broken Beans, Roſin, and Gum Ammoniac.

Galbanum is of an emollient, and reſolutive Nature; good in all Hyſteric Caſes, and in Aſthma's and inveterate Coughs: It provokes the Menſes, and brings on Delivery: But it is chiefly uſed externally, in Plaſters for the Belly, which it looſens, what way ſoever applied.

The Word is derived, according to *Martinius*, from the *Hebrew* Chelbenah, *Fat*.

GALE, a Sea Phraſe, for the blowing of the Wind at Sea: When the Sea doth not blow ſo hard, but that a Ship can carry her Top-ſails a-trip, that is, hoiſted up to the higheſt, they ſay it is a *Loom Gale*: When it blows very ſtrong, they ſay it is a *Stiff Gale*, or at leaſt a *Freſh Gale*; but when it blows ſo hard, and violently, that a Ship cannot bear any Sail, they ſay, it blows *a Storm*.

When two Ships are near one another at Sea, and there being but little Wind blowing, one feels more of it than the other; they ſay, the Ship *gales* away from the other.

GALEARII, or GALIARII, in Antiquity, a Name the *Romans* gave to the Black Guards or Servants of the Soldiers. *Vegetius III*, 6. *Salmaſius* on the third Chapter of the Life of *Adrian* by *Spartian*.

GALEASSE, or GALEACE, a large, low built, heavy Veſſel; the biggeſt of all Veſſels that go with Ores. See VESSEL.

It may carry twenty Guns; with a Stern, capable of lodging a great Number of Muſqueteers. It uſes both Sails and Oars; and the Rowers are under Cover. It has three Maſts; the Main, Mizzen, and Bowſprit, which are never to be taken down, or lowerd, as they may be in Galleys. It has 32 Benches of Rowers, and to each Bench five or ſix Slaves; tho' *Will. of Tyre* makes mention of *Galeaſſes*, with 100 Benches of Oars.

It has three Tire of Guns, in the Head, one over the other, of two Guns each, bearing Balls of 36, 24, and 10 Pounds. It has but two Tire in the Stern; each containing three Guns, carrying Balls of 18 Pounds. See GALLEY.

The *Venetians* are the only People who have *Galeaſſes*: Antiently, the *French* likewiſe made uſe of them.

GALENIC *Medicine*, is properly the Manner of conſidering and treating Diſeaſes, founded on the Principles of *Galen*; or introduced by *Galen*. See MEDICINE.

Claud. Galen, was of *Pergamus* in *Aſia*, the Son of a famous Architect, and Pupil of *Satyron* and *Pelops*, two able Phyſicians. He firſt diſtinguiſh'd himſelf at *Athens*; then at *Alexandria*, and laſtly at *Rome*; where he wrote a great deal; where he alſo died, in the Year of Chriſt 140.

He is ſaid to have compoſed 200 Treatiſes, whereof there are 170 ſtill extant. There have been 23 ſeveral Editions of this Author: The firſt is that of *Venice*, in Folio, in the Year 1525: The beſt is that of *Paris*, in 13 Volumes in Folio, *Greek* and *Latin*, publiſh'd in 1639.

This Author, collecting and digeſting what the Phyſicians before him had done; and explaining every thing according to the ſtricteſt Doctrines of the Peripateticks, ſet Phyſic on a new Footing; introduced the Doctrine of the four *Elements*; the Cardinal *Qualities*, and their *Degrees*; and the four *Humors* or Temperaments. See ELEMENT, QUALITY, DEGREE, HUMOR, &c.

GALENIC is now more frequently us'd in a wider Signification, *viz.* for that Method of Phyſick, contradiſtinguiſh'd from *Chymical*. See MEDICINE.

In this Senſe, *Galenical Medicine*, *Galenical Pharmacy*, &c. are thoſe which go upon the eaſier Preparations of Herbs, Roots, &c. by Infuſion, Decoction, &c. and attain their Ends, and make their Remedies effectual, by the combining and multiplying of Ingredients: In oppoſition to *Chemical Medicine*, or *Pharmacy*, which torture the *Materia Medica* by Fire, and draw their more intimate and remote Virtues by elaborate Preparations; as Calcination, Digeſtion, Fermentation, &c. See CHEMISTRY, and PHARMACY.——

Medicine was wholly *Galenical*, till the Time of *Paracelſus*. *Geber*, indeed, and after him *Raymund Lully*, *Arnoldus de Villa Nova*, and *Baſil Valentine*, made ſome Attempts to apply Chemiſtry to Medicine; eſpecially the laſt of them; but no great Advance was made. *Paracelſus*, and after him *Van Helmont*, alter'd the whole of Medicine; exploded *Galeniſm*, and the Peripatetic Doctrine, and render'd Medicine wholly *Chemical*. See CHEMISTRY.

The late Improvements in Philoſophy, have reform'd, and retriev'd the *Galenical* Medicine, which has now very little of *Galen*'s in it. 'Tis now all Mechanical and Corpuſcular: Inſtead of Qualities and Degrees, every thing is now reduced to mechanical Affections; to the Figures, Bulks, Gravities, &c. of the component Particles, and to the great Principle of Attraction. See MECHANICAL, and CORPUSCULAR; ſee alſo MEDICINE.

GALENISTS, a Denomination given ſuch Phyſicians, as practice, preſcribe, or write on *Galenical* Principles. See GALENICAL.

The *Galeniſts* ſtand oppoſed to the Chymiſts: The *Materia Medica* of the firſt, is chiefly of the Vegetable Kind; the Virtues of which they procure by the more ſimple and eaſy means; and ſeldom go beyond Decoction. The latter take in Minerals, Salts, Stones, and even Metals, and Semimetals: Theſe, they hold, afford more efficacious Remedies; and their Virtues, procured by long, artful, labour'd Proceſſes, with the Help of Fire, are had more pure, and in a leſſer Compaſs. See CHEMIST.

At preſent, the *Galeniſts* and Chemiſts are pretty well accommodated; and moſt of our Phyſicians uſe the Preparations and Remedies of both. See PHYSICIAN, REMEDY, &c.

GALENISTS, GALENASTS, or GALENITES, are alſo a Branch of the *Mennonites*, or Anabaptiſts, who take in ſeveral of the Opinions of the *Socinians*, or rather *Arians*, touching the Divinity of our Saviour. See MENNONITE.

They are thus call'd from their Leader *Galenas*, a learned, and eloquent Phyſician of *Amſterdam*, who is accuſed of being a thorough *Socinian*. *Jovet T. I. p.* 413. &c.

GALERICULATE *Flowers*; ſee FLOWERS.

GALILÆANS, a Sect among the antient Jews, denominated from *Judas* of *Galilee*, their Chief; who, eſteeming it unworthy, that the Jews ſhould pay Tribute to Strangers, rais'd up his Countrymen againſt the Edict of the Emperor *Auguſtus*, which had order'd a Cenſus and Enumeration to be made of all his Subjects.

Their Pretence was, that God alone ſhould be own'd as Maſter, and called by the Name of *Lord*. In other reſpects, they had much the ſame Doctrines as the *Phariſees*; but as they judg'd it unlawful to pray for infidel Princes, they ſeparated themſelves from the reſt of the Jews, and perform'd their Sacrifices apart. See PHARISEE.

As our Saviour, and his Apoſtles were of *Galilee*, they were ſuſpected to be of the Sect of *Galilæans*; and it was on this Principle, as St. *Jerom* obſerves, that the *Phariſees* laid a Snare for him, aſking, whether it was lawful to give Tribute to *Cæſar*; that in caſe he denied it, they might have an Occaſion of accuſing him. *Joſeph. Ant. Jud. L.* 18.

GALL, a yellow, bitter Juice, or Humor, call'd alſo *Bile*, ſecreted from the Blood, in the Glands of the Liver, and depoſited in a peculiar Reſervoir, call'd the *Gall-bladder*. See LIVER, and GALL-*Bladder*.

The Bile contain'd in the *Gall* Bladder, properly call'd *Gall*, is ſomewhat different from the Bile depoſited in the Porus Biliarius; being of a brighter Yellow, a greater Conſiſtence, and more bitter and acrimonious. For the reſt; the manner of Secretion with the Qualities, Uſe, &c. of the two Juices, are the ſame; which ſee under the Article BILE.

The *Gall* of divers Animals, is found of divers Uſes: That of a Hog is ſaid to make the Hair grow; deterges and heals Ulcers of the Ears: That of a Lamb is recommended for the Epilepſy: That of the Pike, for intermitting Fevers: That of the Carp, clears and ſtrengthens the Sight: That of a Kid, mix'd with the white of an Egg, Bread, and Oil of Laurel, and applied in form of Poultice on the Navel; is an approved Remedy for a quotidian Fever: That of a Cock, and a Bullock, reputed good in Diſeaſes of the Eyes, and to take away Freckles and other Diſfigurements of the Skin. See FRECKLE. That of a Roebuck, or Hare, deterges and carries off Clouds, Specks and Cataracts of the Eyes: That of the Boar, externally applied, is reſolutive, and good in ſcrophulous Tumors: Thoſe of the Sheep and Partridge, ſerve to deterge and cleanſe Ulcers of the Eyes. Fa. *Roger* adds, that the *Mahometans* of *Paleſtine* uſe no other Remedy againſt Poiſons, but ſeven, or eight Drops of the *Gall* of a Bear.

GALL *Bladder*, call'd alſo *Veſicula* and *folliculus fellis*, is a membranous Receptacle, in Figure ſomewhat like a Pear; ſituate at the lower Margin of the Liver, on the concave Side, and about the Bigneſs of a Pullet's Egg. See BLADDER.

The

The *Gall* Bladder adheres to the Liver, both by its Veſſels, which it receives from it; and likewiſe by its Membranes, whereof the external is common with that of the Liver. The lower Part, which hangs out of the Liver, reſts on the Pylorus of the Stomach, which it dies yellow with the *Gall* tranſuding thro' its Membranes.

Its Membranes are reckon'd five: An outer, or common one, from the Peritonæum; an inner one, from the Capſula of the Porta, and Porus Biliarius; and three proper ones: The firſt, *Vaſculous*, conſiſting of white Fibres, interwove with Veſſels; the ſecond, *Muſcular*, conſiſting of a double Row of fleſhy Fibres, the one longitudinal, the other annular; the third, or inner Coat, *Glandulous*, conſiſting of a great Number of Glands, like the Cruſta Villoſa of the Stomach, which ſeperate a Mucus that lines the Inſide of the *Gall* Bladder, and defends it from the Acrimony of the Bile.

The Bladder is uſually divided into two Parts, the *Fundus*, or Bottom; and the *Collum*, or Neck: At the Orifice of which latter is plac'd a Ring, or Circle of muſcular Fibres, which ſerve as a Sphincter to conſtringe the Orifice of the *Gall* Bladder, and hinder the too liberal Diſcharge of the Bile. See CYSTIC, HEPATIC, &c.

There are ſome Animals without *Gall* Bladders; as Deer, Horſes, Aſſes, Mules, Camels; and among Fiſhes, the Sea Calf, and Dolphin. The *Gall* of theſe Animals is inclos'd in Ducts, which terminate in the Inteſtines.

GALLANT, or GALANT, a *French* Term, ſignifying civil, polite, well bred; a Perſon of Wit, and Addreſs; that does every thing with a good Grace. A *galant* Man is a civil Man, ſomewhat brighter, gayer, and more agreeable than ordinary.

'Tis very difficult to define all the Qualities attach'd to the Idea of a *galant* Man: It frequently implies an Air of the World; a Diſpoſition to pleaſe, and particularly the Ladies; and a great Devotion to the Sex. The *French* Authors are very nice on the Point: They diſtinguiſh *galant Homme*, and *Homme galant*.——

Mercure GALANT, is the Title of a Book, which has appear'd Monthly at *Paris* for ſeveral Years. See JOURNAL.

It contains abundance of very pretty, curious Things; tho' ſeveral of the Wits have made it their Buſineſs to decry it. M. *de Vize* was the firſt Projector, and Author, or rather Collector: Since his Death, it has been continued by three other Perſons ſucceſſively.

GALLEATE *Flowers*; ſee FLOWERS.

GALLEON, ſee GALLION.

GALLERY, in Architecture, a cover'd Place in a Houſe, much longer than broad, and which is uſually on the Wings of the Building; ſerving to walk in.

The *Galleries* of the *Louvre* are magnificent: A *Gallery* of Painting: A compleat Apartment is to conſiſt of a Hall, Antichamber, Chamber, Cabinet, and *Gallery*. See APARTMENT.

Savot, in his Architecture, derives the Word *Gallery* from *Gaul*, as ſuppoſing the antient *Gauls* to have been the firſt who us'd them: *Nicod* fetches it from the *French aller*, to *go*, *q. d. Allerie*. Others bring it from *Galere*, Gally, by reaſon it bears ſome Reſemblance thereto in reſpect of Length. In the corrupt *Latin* we meet with *Galilæa*, for the *Gallery* of a Monaſtery.

GALLERY, is alſo a little Iſle, or Walk, ſerving as a common Paſſage to ſeveral Rooms, placed in a Line, or Row.

The *Gallery of a Church* is a kind of continued Tribune, with a Baluſtrade; built along the Sides or lower End of a Church, to hold the more People: And, in the *Greek* Churches, to ſeperate the Women from the Men.—*Gallery of a Theatre*, ſee CHURCH, THEATRE, &c.

GALLERY, in Fortification, is a cover'd Walk, made of Timber; ſerving for the ſafe Paſſage of a Ditch.

The Sides of the *Gallery* are to be Muſket proof, and conſiſt of a double Row of Planks, lined with Plates of Iron; and the Top is ſometimes cover'd with Earth, or Turf, to hinder the Effect of the Stones, artificial Fires, &c. of the Enemy.

Galleries are chiefly uſed to ſecure and facilitate the Miners Approach to the Face of the Baſtion, over the Moat, which is already ſuppoſed fill'd up with Faggots and Bavins, and the Artillery of the oppoſite Flank diſmounted. Sometimes it is called a *Traverſe*. See TRAVERSE.

GALLERY *of a Mine*, is the Paſſage, or Canal of a Mine; or any Branch thereof. See MINE.

The Beſiegers, and Beſieged do each of them carry *Galleries*, or Branches under Ground, in ſearch of each others Mines, which ſometimes meet and deſtroy each other.

GALLERY *in a Ship*, is a kind of Balcony, made upon the Stern, without Board, into which there is a Paſſage out of the Captain's Cabin, called the Great Cabin.

Theſe *Galleries* are indeed for Shew, and the Captain's Pleaſure, rather than any other Benefit; for in Ships of War, all open *Galleries* of this kind are to be avoided; in regard of the Facility of an Enemy's Entrance, and boarding of the Ship that way.

GALLEY, a low built Veſſel, going both with Oars and Sails; chiefly us'd by the States bordering on the Mediterranean. See VESSEL.

Galleys have uſually from 25 to 30 Benches of Oars, on each Side; and four or five *Galley* Slaves, to each Bench.

The *Galley* carries a large Gun, called the *Courſer*; two Baſtard Pieces; and two ſmall Pieces, with two Maſts and two Latin, or ſquare Sails. It it uſually from 20 to 22 Fathoms long; three broad; and one deep.

All the *Galleys*, both antient, and modern, are of a finer, and ſlenderer Make than Ships. Formerly they made divers kinds; at preſent the *Galleys* are all alike: All the Difference between them is as to Size, and nothing as to Figure. They uſually keep towards the Coaſts; tho' ſometimes they croſs the Sea.

The King of *France* keeps up forty *Galleys* for the Uſe of the Mediterranean, the Arſenal thereof being at *Marſeilles*: The General of the *Galleys* bears a double Anchor, placed in Pale, behind the Eſcutcheon of his Arms, as a Mark of his Authority.

Galleys, in *Latin* are called *Biremes*, *Triremes*, and *Quadriremes*; not on account of their having two, three, or four Ranges of Oars before one another, as many learned Men have imagin'd, and particularly *Scaliger* and *Snellius*, tho' this laſt has wrote excellently on the Subject of Navigation; for this were impracticable: Nor yet on account of their having but two, three, or four Oars; for then there would want Strength: But by reaſon there were two, three, or four Rowers faſten'd to each Oar, as in the *Galleys* uſed among us; as is very well ſhewn by the Jeſuite *Dechales*, in his Art of Sailing.

This Error was occaſioned by ſome antient *Galleys*, repreſented on Medals, or in Baſſo-Relievo's, wherein are ſeveral Ranges of Rowers placed over each other: But all the Mathematicians, Pilots, and Ship-builders look on this as a mere Viſion; inaſmuch as *Pliny* makes Mention of *Galleys* of 15, 20, 30, 40, 50 Rows of Rowers; ſo that if they were ranged over each other, tho' we were only to allow four Feet for each Deck, there would be a Diſtance of 160 Feet between the loweſt Rowers, and the higheſt: And yet we are aſſured, that the higheſt Ship ever built, was only 72 Feet high.—

Scaliger affirms, that the firſt *Triremis*, or *Galley* of three Stories, was built at *Corinth*; and is of opinion, that what *Pliny* calls *Long Ships*, were what we call *Galeaſſes*; the firſt whereof was that of the *Argonauts*. *Vegetius* mentions a *Galley* of five Decks; and *Memnon*, another with eight, and only one Man to each Oar.

The *Galley* is called by the *Greek* Authors under the Eaſtern Empire, Γαλαία, and Γαλέα; and by the *Latin* Authors of the ſame Time, *Galea*; whence the modern Denomination.

Some ſay, it was called *Galea*, on account of the Figure of a Caſk, or Helmet, which it bore on its Head, or Prow, as *Ovid.* atteſts, *De Triſtib.* The *French* call it *Galere*, by reaſon, they ſay, that the Top of the Maſts is uſually cut in manner of a Hat, which the *Italians* call *Galero*. Others derive both *Galea* and *Galere* from a Fiſh, by the *Greeks* call'd Γαλεώτης, or ξίφιας; and by us, the *Sword-fiſh*, whoſe Shape this Veſſel reſembles. Laſtly, others derive *Galley*, *Galea*, *Galere*, *Galeaſſe*, &c. from the *Syriac* and *Chaldee Gaul*, and *Gallin*, a Man expoſed on the Water, or in a Veſſel of Wood.

The *Captain*-GALLEY is the principal *Galley* of a State, commanded by the Captain General of the *Galleys*: In *France*, the *Royal Galley* is the firſt.

The *Patroon* GALLEY is the ſecond *Galley*, both of *France*, *Tuſcany*, and *Malta*. The General of the *Gallies* is on Board the Royal *Galley*; and the Lieutenant, on the Patroon.

The Terms peculiar to *Galleys*, are very numerous; and make a new Syſtem of Sea Language, quite different from that uſed in Ships. Monſ. *de Baras*, an antient Officer on Board the King of *France*'s *Galleys*, we hear, is engaged in writing a New Dictionary of the Dialect of the *Galleys*.

Condemnation to the GALLEYS, is a Penalty impoſed on Criminals and Delinquents, particularly in *France*; whereby they are adjudg'd to ſerve the King, or State, as Slaves, on Board the *Galleys*; either for ever; or for a limited Time. See PUNISHMENT, and SLAVE.

Condemnation to the *Galleys* for ever, imports Confiſcation of Lands, Goods, &c. For in *France*, he that confiſcates the Perſon, confiſcates the Goods. A Man *condemn'd to the Galleys* for Perpetuity, is dead in a Civil Senſe. He cannot diſpoſe of any of his Effects; cannot inherit; and if he be married, his Marriage is null: Nor can his Widow have any of her Dower out of his Goods. The Eccleſiaſtical Courts cannot ſentence to the *Galleys*: It is out of their Juriſdiction, and Reſſort. By an Ordinance of *Charles* IX. in 1564, the

Judges

Judges are enjoin'd, not to condemn a Criminal to the *Galleys* for leſs than ten Years: And *Henry* III. by another, of 1579, injoins the Captains, not to detain their *Galley* Slaves, after their Time is expired. But neither of theſe Laws are now obſerv'd.—

GALLEY, in Printing, a wooden Frame, or Inſtrument, into which the Compoſitor empties the Letters out of his Compoſing Stick, as often as it is filled. The *Galley*, when fill'd, contains the Matter of one Page; and when they have compoſed as many Pages, as are required for a Whole Sheet, Half Sheet, *&c.* they impoſe them, *i. e.* take the ſeveral Pages out the *Galleys*; put them into a Chaſe; lock them up with the Furniture; and ſo make Forms, ready for the Preſs. See PRINTING; ſee alſo COMPOSING-STICK, CHASE, and FORM.

GALLI, in Antiquity, a Name given in *Phrygia* to the Eunuch Prieſts of the Goddeſs *Cybele*.

The Principal of them was called *Archi-gallus*. The *Galli* were alſo call'd *Dactyli Idæi*, *Corybantes*, &c. See DACTYLI, CORYBANTES, CURETES, &c.

Authors are not agreed as to the Reaſon of this Denomination. St. *Jerom*, on the fourth Chapter of *Hoſea*, ſays, it was, becauſe they took *Gauls* for the Prieſt of this Goddeſs; and by way of Puniſhment and Deriſion for burning of *Rome*, caſtrated them. *Forcatulus* maintains the ſame Opinion, *L. V. de Gallor. Imp. & Philoſ.* But *Valla*, *Eleg. V. c. 6.* and *Voſſius de Idolol. L. I. c.* 20. reject it, with reaſon; as the *Phrygians* were no ways intereſted in the burning and ſacking of *Rome*.

Others derive the Name from the River *Gallus*; by reaſon they drank of its Waters, which inſpir'd them with, I know not what religious Fury and Enthuſiaſm, and deprived them of their Senſes to ſuch Degree, that they mutilated themſelves. Others hold, that the firſt Prieſt of *Cybele* having been nam'd *Gallus*; the Name became appropriated to all his Succeſſors. *Voſſius*, who propoſes theſe two Opinions, ſeems to incline moſt to the latter; tho' *Ovid*, in the fourth of his *Faſti*, and *Herodian*, *L. I.* favour the former.

Theſe Prieſts threw themſelves into a kind of Phrenzy, when they perform'd the Ceremonies of the Goddeſs; apparently, in imitation of the young *Atys*, her Favourite: whom they likewiſe imitated, by mutilating themſelves.

For Authors relate, that *Cybele* being deſperately in Love with that young *Phrygian*, ſhe gave him the Superintendance of her Sacrifices, on condition he would keep his Virginity; but that ſoon after, forgetting his Promiſe, he had an Affair with the Nymph *Sangaritis*: That *Cybele* provoked hereat, ſtruck him mad: That in a vehement Acceſs of his Phrenzy he was going to kill himſelf; and that the Goddeſs relenting, reſtored him to his Underſtanding: That out of his own Remorſe, he caſtrated himſelf; and that after his Example all the Prieſts of *Cybele* from that Time did the like.

Their Phrenzy, at the time of the Sacrifices, conſiſted in throwing round the Head with great Rapidity, and making violent Contorſions of the whole Body: They had alſo Drums and Flutes, wherewith they play'd, and danced to them; as already obſerv'd under the Articles CORYBANTES, and CURETES.

GALLIAMBIC, in the antient Poetry. A *Galliambic* Poem is a Compoſition in *Galliambic* Verſes.——A *Galliambic* Verſe conſiſts of ſix Feet; 1° An *Anapeſt*, or a Spondee; 2° An *Iambus*, or an Anapeſt, or Tribrach. 3° An *Iambus*. 4° A *Dactyl*. 5° A *Dactyl*; and 6° An *Anapeſt*.

Tho', one might meaſure the *Galliambic* Verſe in another manner; and make a different Arrangement and Combination of Syllables; which would give different Feet.——'Tis certain, the Antients regarded little more in the *Galliambic* Verſe, beſide the Number of Meaſures, or Intervals; without troubling themſelves about the Number of Syllables, or the Kinds of *Feet*, whereof it was compoſed.

GALLIAMBUS, in Poetry, a pleaſant kind of Verſe, us'd to be ſung by the Prieſts, in honour of the Goddeſs *Cybele*.——

Galliambus is alſo a Piece, or Compoſure in *Galliambic* Verſes. See GALLIAMBIC.

The Word is a Compound of *Gallus*, a Prieſt of *Cybele*; and *Jambus*, a Foot in the *Greek* and *Latin* Verſe.

GALLIARD, or GAILLARDE, in Muſic, and Dancing, a ſort of Dance, antiently in great Requeſt; conſiſting of very different Motions, and Actions, ſometimes proceeding *terra a terra*, or ſmoothly along; ſometimes capering; ſometimes along the Room, and ſometimes a-croſs.

It was alſo called *Romaneſque*, becauſe brought from *Rome*.

Thoinot Arbeau, in his Orcheſography, deſcribes it as conſiſting of five Steps, and five Poſitions of the Feet, which the Dancers perform'd before each other, and whereof he gives us the Score, or Tablature, which is of ſix Minims, and two triple Times.—

The Word is *French*, and literally ſignifies gay, merry, ſprightly.—

GALLICAN, a Term chiefly us'd in the Phraſe *Gallican Church*, *q. d.* the *French* Church; or the Aſſembly, or Convocation of the Prelates of *France*. M. *du Puy* has an expreſs Treatiſe of the Liberties of the *Gallican* Church.

The *Gallican* Breviary is the Breviary us'd by the Church of *Agrigentum*, in *Sicily*; which the modern Writers call *Breviarium Gallicanum*.

The Reaſon, no doubt, is its having been introduced by St. *Gerlan*, who was made Biſhop of *Agrigentum*, after Earl *Roger* had been driven out of *Sicily* by the *Sarazens*; and by the other *French* Biſhops, which the *Norman* Princes brought thither. See BREVIARY.

The *Gallican* Liturgy is the manner of performing the divine Offices antiently obſerved in the *Gauls*. Fa. *Mabillon* ſhews wherein it differ'd from the *Roman* Liturgy. *I. Liturg. Gall. c.* 5. &c.

GALLICISM, a Phraſe, or Conſtruction, peculiar to the *French* Language; or which has ſomething contrary to the ordinary Rules of Grammer of the other Languages. See PHRASE, and IDIOTISM.

Thus, *Cet homme eſt ſur ſa Bouche*, is a *Galliciſm*, having no regular Conſtruction: And the ſame may be ſaid of *Faire de la terre le foſſé*; which no Grammar could never find out. See ANGLICISM.

GALLIMATHIAS, a dark, perplex'd Diſcourſe, where Words, and Things are huddled together ſo as to make an inconcivable Jargon,

The Word is *French*, form'd, as ſome will have it, from *Polymathia*, which ſignifies Diverſity of Sciences; by reaſon ſuch as have their Memory charged with ſeveral kind of Sciences, are uſually confuſed, and expreſs themſelves ill.

M. *Huet* takes the Word *Gallimathias* to have had the ſame Origin with *Aliborum*; and to have firſt aroſe at the time when all the Pleadings at the Bar were in *Latin*. There was a Cauſe, it ſeems, upon the Carpet, about a Cock, belonging to the Plaintiff *Matthias*. The Council in the Heat of his Harangue, by often repeating the Words *Gallus*, and *Matthias*, happen'd to blunder; and inſtead of ſaying *Gallus Matthiæ*, ſaid *Galli Matthias*; which at length became a general Name for all confuſed, imbroil'd Diction, and Diſcourſe.

GALLIMAUFRY, a Ragout, Hache, or Hotch-potch, made of the Remains of ſeveral kinds of Meats. See RAGOUT.

Hence the Word is uſed in a figurative Senſe for a Piece, or Compoſition, of ſeveral different Parts, ill digeſted, and embaraſs'd.——

The Word is French, *Galimafree*.

GALLION, or GALLEON, a large Veſſel or Ship of War, of three, or four Decks. See VESSEL.

The Term is now only uſed in ſpeaking of the *Spaniſh* Fleet; the *Gallions* being a Part of the Ships employ'd in the Commerce of the Weſt Indies.

The *Spaniards* ſend every Year two Fleets; the one for *Mexico*, which they call the *Flota*; and the other for *Peru*, which they call the *Gallions*. The firſt, we have already given an Account of under the Article FLOTA.

The *Gallions* are eight in Number, the principal whereof are the *Capitane*, the *Amirante*, *il Governo*, the *Patach*, and *Marguarita*, of fifty Pieces of Braſs Canon: Beſide which there is a Patache of Advice. Theſe are all Ships of War, and go on the King's account; but are ſo loaden and embarraſs'd with Merchandices, that in caſe of an Attack, they would find it difficult to defend themſelves.

Beſide the King's *Gallions*, there are uſually twelve, or ſixteen Merchant Ships, call'd *Regiſter Ships*, belonging to private Perſons, who obtain leave for the ſame, or rather buy it; there being no Weſt India Company in *Spain*. See REGISTER.

The *Gallions* are loaded at *Cadix*, from whence they may put out at any time: They are about two Years in the whole Voyage. Their Departure is uſually ſome Months before that of the Flota; which cannot put out before *Auguſt*, by reaſon of the Winds. When they put out together, they ſeperate about the *Antilles* Iſlands; the *Gallions* for *Carthagena*, and *Porto Bello*; and the Flota for *Vera Crux*. At their Return, they rejoin at the *Havana*, in the Iſle of *Cuba*.

The Loading of the *Gallions* is always the richeſt: An Eſtimate of the yearly Returns or Cargo's, both of the Flota and *Gallions*, is as follows.

Of *Gold*, the *Gallions* bring yearly about two or three Millions of Crowns; and the *Flota* about one. Of *Silver*, the *Gallions* bring 18 or 20 thouſand Crowns; and the *Flota* 10 or 12. Of precious Stones, the *Gallions* bring as follow; two hundred thouſand Crowns worth of Pearls; two or three hundred thouſand Crowns of Emeralds; and twenty or thirty thouſand Crowns worth of Bezoards, Amethyſts, and other Stones of leſs Value: The *Flota* brings none at all. Of Wools, the *Gallions* bring forty or fifty thouſand Crowns: The *Flota*, none. Of Quinquina, the *Gallions* bring for twenty thouſand Crowns: The *Flota*, none. Of Skins and

Leathers, the *Gallions* bring for ſeventy thouſand Crowns: The *Flota* as much. Of Campeche Wood, the *Gallions* bring for ſixty thouſand Crowns: The *Flota* none. Of Skins and Leathers from *Buenos Ayres*, the Regiſter Ships may bring for about two hundred thouſand Crowns: Of Cochineel, about a Million of Crowns: And of Indigo, about ſix hundred thouſand Crowns. See COMMERCE.

GALLIOT, a ſmall Galley; or a ſort of Brigantine, built very ſlightly, and deſign'd for Chace. See BRIGANTINE.

She hath but one Maſt, and can both ſail, and row. She uſually carries two or three Pedrero's, and hath ſixteen or twenty Oars.

Some call the Bomb-ketches, *Galliots*.

GALLOGLASSES, a kind of Militia, or Soldiery in *Ireland*. *Cambden*, in his Annals of *Ireland*, p. 792. relates that the *Iriſh* Militia conſiſts of Cavalry, or Horſemen, call'd *Galloglaſſes*, or *Galloglaſſii*, who uſe a very ſharp ſort of Hatchet; and Infantry, call'd *Kernes*.

GALLON, an *Engliſh* Meaſure, for things both liquid and dry. See MEASURE.

The *Gallon* always contains eight *Pints*, or four *Quarts*; but thoſe Pints, and Quarts, and conſequently the *Gallon* it ſelf, are different, according to the Quality of the Things meaſur'd: The Wine *Gallon*, for inſtance, contains 231 Cubic Inches, and holds eight Pound, Averdupois, of pure Water: The Beer, and Ale *Gallon*, contain 282 ſolid Inches: And the *Gallon* for Grains, Meals, &c. 272 Inches, and hold nine Pound, 130 Ounces of pure Water.——See ALE *Meaſure*, WINE *Meaſure*, and DRY *Meaſure*.

GALLOON, in Commerce, a thick, narrow kind of Ferret, Ribband, or Lace, us'd to edge, or border Clothes.

The Term is ordinarily underſtood of that made of Woolen; ſometimes, that of Thread; or even Gold, or Silver.

GALLOP, in the Manage, is the ſwifteſt natural Pace of a Horſe, perform'd by Reaches, or Leaps; the two Forefeet being rais'd almoſt at the ſame time; and the Hindfeet, the like.——

In *Galloping*, the Horſe may lead with which Foreleg he pleaſes; the moſt uſual way is that with the Right: But which ſoever it be, the Hindleg of the ſame Side muſt follow it next; otherwiſe the Legs are ſaid to be *diſunited*. To remedy which Diſorder, the Rider muſt ſtay the Horſe a little on the Hand, and help him with the Spur on the contrary Side to that on which he is diſunited.

In a Circle, the Horſe is confined always to lead with his Foreleg, within the *Turn*; otherwiſe he is ſaid to *gallop falſe*. But here, too, the Hindleg of the ſame Side muſt follow.

We ſay, a *Hand Gallop*, a *Canterbury Gallop*, a *School Gallop*, &c. A ſmooth *Gallop* cloſe to the Ground, the *French* call, the *Engliſh Gallop*, *Gallop a l'Angloiſe*.

The Word is borrowed from the Barbarous Latin *calupare*, or *calpare*, to run. Some derive it from *caballicare*: Others from the *Greek* καλπάζειν, or καλπάν, to ſpur a Horſe.

GALLOWS, an Inſtrument of Puniſhment, whereon Perſons convicted capitally of Felony, &c. are executed by *Hanging*. See PUNISHMENT, FELONY, HANGING, &c.

Among our Anceſtors it was called *Furca*, Fork; a Name by which it is ſtill denominated abroad, particularly in *France* and *Italy*. In this latter Country, the Reaſon of the Name ſtill ſubſiſts; the *Gallows* being a real Fork drove into the Ground, a-croſs the Legs whereof is laid a Beam, to which the Rope is tied. See FURCA.

GALLS, or GALL *Nuts*, in Natural Hiſtory, &c. a kind of morbid Tumors or Excreſcencies, found on divers Vegetables; as the Oak, Willow, &c. in form of Balls, Cones, or little Apples.

The manner of the Production of *Galls*, is well deſcribed by *Malpighi*, in an expreſs Treatiſe, *de Gallis*.

The Proceſs, as obſerv'd, in the *Galls*, or Apples on the Gems of Oaks, is alſo given us by Mr. *Derham*.

Theſe Cones, ſays that Author, are in outward Appearance perfectly like the Gems, or Buds themſelves, only vaſtly bigger; and, in effect, they are no other than the Gems ſwell'd out in Bulk, which naturally ought to be puſh'd out in length. The Cauſe of which Obſtruction of Vegetation is this: Into the very Heart of the young, tender Bud, which begins to be turgid in *June*, and ſhoots out in a Month more, an Inſect of the Ichneumon Fly-kind, thruſts one, or more Eggs; and in all Probability, ſome venomous Ichor therewith. This Egg ſoon becomes a Maggot; which eats it ſelf a little Cell in the very Heart or Pith of the Gem; which ſhould be the Rudiment of the Branch, Leaves, and Fruit.

The Branch thus deſtroy'd, or at leaſt, its Vegetation obſtructed; the Sap that was to nouriſh it, is diverted into the remaining Parts of the Bud, which are only the Scaly Teguments; and which by this means grow large and flouriſhing, and become a Covering to the Inſect Caſe, as before they were to the tender Branch, &c. The Caſe lying within this Cone, is, at firſt, but ſmall; but, by degrees, as the included Maggot increaſes, ſo does the Caſe; till it comes to the Size of a large white Pea, ſhaped like an Acorn.

It may be added, that even Nettles, Ground-ivy, &c. have a kind of Balls or Caſes produced on their Leaves, by the Injection of the Eggs of a Fly of the ſame Kind. Theſe Caſes always grow in, or adjoining to ſome Rib of the Leaf; and their Production, *Malpighi*, and Mr. *Derham* deſcribe thus:

The parent Inſect, with its ſtiff ſetaceous Tail, terebrates the Rib of the Leaf, when tender, and makes way for its Eggs into the very Pith, or Heart thereof; emitting along with it a proper Juice to pervert the regular Vegetation.

From this Wound riſes a ſmall Excreſcence; which, when the Maggot is hatch'd, increaſes, and ſwells on each Side the Leaf, between the two Membranes; extending it ſelf into the parenchymous Parts thereof: till it be grown as big as two Grains of Wheat. In this Caſe lies a ſmall white, rough Maggot; which turns to an Aurelia, and afterwards to an Ichnemon Fly.

GALLS, or *Aleppo* GALLS, are a particular kind of vegetable Tumors, or Excreſcences; uſed in Dying, making Ink, &c.

Theſe *Galls* are produced on the hardeſt Species of Oak, called *Rouvre*, from the Latin *Robur*. Thoſe on other Oaks are leſs fit for the Purpoſes. They are hard as Shells; and yet are no other than the Caſes of Inſects, which are bred in them after the manner above deſcribed; and which, when come to Maturity, gnaw their Way out: Which is the Cauſe of thoſe little Holes obſervable in them.

Of the Inſects bred in them, we have a particular Account in *Philoſ. Tranſact.* N° 245.

There are three Sorts of theſe *Galls*: The firſt, Blackiſh; the ſecond, bordering on Green; the third, Whitiſh. The Dyers uſe them all, according to their reſpective Qualities: The Green and Black, ſerve to dye in Black; and the White, for Linnens. 'Tis the Black, and Green, that are uſed in the making of Ink. See INK.

The *Engliſh* and *Dutch* import yearly from *Aleppo*, ten thouſand Quintals of *Galls*. The *Turks* have likewiſe a kind of ruddy *Gall*, of the Size of a ſmall Nut; which they mix with Cochineel, and Tartar, to dye in Scarlet withal. See DYING.

GAMBEZON, GAMBESO, or GAMBA, in the antient Military Language, was a kind of Coat, or Doublet, wore under the Cuiraſs, to make it ſit eaſy, and prevent its hurting the Body. It was made of Wool, or Cotton, quilted between two Stuffs; and was likewiſe called *Counter-Point*.

Others define the *Gambeſon* a kind of ſoft, quilted Waſtcoat, wore under the Coat of Mail, and hanging down over the Thighs.

Pectora tot Coriis, tot Gambeſonibus *ornant.*

—*Ego Johannes Becondo Teſtamentum*——*Je done m'alme a Deo & mon Corps a enſeveli al Abby de Kirkſtede en le Chapel St. Maurice, oue mon meleur Chival pris de xl Marks, mon Haubert de Guerre, mes Chancons, mes Couvertures de Fer, mon* Gambeyſon, *ma Targe, et tout mon Harneys de Guerre q' a mon Corps appent*, &c.

The Word is form'd of the German *Wambon*, or *Saxon Wambes*, the Belly; *quaſi Wambaſium*, a Covering of the Belly and Breaſt.

GAME, PLAY, LUDUS, a regular Diverſion; or a Sport preſcribed, and limited by Rules. See GAMING.

Games may be diſtinguiſh'd into thoſe of *Exerciſe*, and *Addreſs*; and thoſe, of *Chance*, or *Hazard*. See EXERCISE, and HAZARD.

To the *firſt*, belong *Tennis*, *Billiards*, *Cheſs*, *Bowls*, *Cudgels*, *Wreſtling*, *Quoits*, *Shooting with Bows*, &c. See TENNIS, BILLIARDS, &c.

To this alſo belong'd the antient *Jouſts* and *Tournaments*. See JOUST, and TOURNAMENTS.

Under the *ſecond*, come *Cards*, and *Dice*, &c. See CARDS, DICE, &c.

Under Cards, again, come ſeveral ſubordinate *Games*; the principal whereof are, *Ombre*, *Picquet*, *Baſſet*, *Whiſt*, &c. See OMBRE, and PICQUET.

GAMES, *Ludi*, in the Plural, were Shews, or publick Repreſentations, uſed among the Antients, on Religious, Funerary, and other ſolemn Occaſions. See SPECTACLE.

Such, among the *Greeks*, were the *Olympic*, *Pythian*, *Iſthmæan*, and *Iſelaſtic Games*. See OLYMPIC, PYTHIAN, ISELASTIC, and ISTHMÆAN.

Among the *Romans*, there were three Sorts of *Games*; *Sacred*, *Honorary*, and *Ludicrous*: And *Auſonius* obſerves a Difference, ſomewhat of the ſame Kind, among thoſe of the *Greeks*; two of their celebrated *Games* being dedicated to *Gods*; and two to *Hero's*. See GOD, and HERO.

The Sacred *Games* were inſtituted immediately in honour of ſome Deity; of which kind were the *Cerealia*, or *Ludi Cereales*, *Florales*, *Martiales*, *Apollinares*, *Megalenſes*, *Romani*,

mani, or *Conſuales*, or *Circenſes*, *Capitolini*, *Sæculares*, *Plebeii*, *Compitalitii*, *Auguſtales*, *Palatini*, *Votivi*. See each deſcribed in its Place.

To this Claſs may alſo be refer'd thoſe, celebrated in Memory of ſome Illuſtrious Perſon, or Action; as the *Ludi Nerodiani* and *Actiaci*, &c. See ACTIACI, &c.

Authors mention a Decree of the *Roman* Senate, by which it was enacted, that the Publick *Games* ſhould be conſecrated, and united with the Worſhip of the Gods, as a Part thereof; and accordingly, Feaſts, Sacrifices, and *Games* appear to have made up the greateſt Part, or rather the whole, of the external Worſhip, or Service, offer'd to the Deities of the *Romans*. See FEAST, SACRIFICE, &c.

The Honorary *Games*, *Ludi Honorarii*, were thoſe exhibited by private Perſons, out of their own Purſe; in order to gratify the People, or ingratiate themſelves with them, to make way for their own Preferment. Such were the Combats of *Gladiators*, *Scenic Games*, *Tragedies*, *Comedies*, and other Theatrical and Amphitheatrical Sports. See GLADIATOR, SCENIC, TRAGEDY, COMEDY, &c.

The Ludicrous *Games* were of the ſame Kind with the *Games* of Exerciſe and Hazard among us. Such were the *Ludus Trojanus*, or *Pyrrhicus*; the *Teſſaræ*, and *Tali*, *Sortes*, or Dice; and the *Latrunculi*, or Cheſs; the *Diſcus*, or Quoit; the *Pila*, Ball; *Trochus*, Top; *Nuces*, odd, and even with Nuts; *Harpaſtum*, Foot-ball; *Capita vel Navim*, Croſs and Pile, &c. See TROJANUS, LATRUNCULI, &c.

Others, diſtinguiſh the antient *Games* into three Claſſes, viz. *Races*, *Combats*, and *Spectacles*.

The firſt were called *Equeſtrian*, or *Curule*, *Ludi Equeſtres*, or *Curules*; being Races of Horſes, and Chariots, perform'd in the Circus, in honour of the Sun and Neptune. See CIRCENSES.

The ſecond were called *Agonales*, or *Gymnici*; being Combats of Men, or Beaſts, in the Amphitheatre, dedicated to *Mars* and *Minerva*. See AMPHITHEATRE.

The laſt, called *Scenici*, *Poetici*, and *Muſici*, were Tragedies, Comedies, Balls, &c. repreſented on the Theatres, ſacred to *Venus*, *Bacchus*, *Apollo*, and *Minerva*. See THEATRE, &c.

Homer gives us a fine Deſcription of the *Games* which *Achilles* inſtituted at the Funeral of his Friend *Patroclus*, in his *Iliad*; and others of the different *Games* held among the *Pheaci*, *Ithacans*, and at the Court of *Alcinous*, in his *Odyſſee*. *Virgil*'s Deſcription of the *Games* celebrated by *Æneas*, at the Funeral of old *Anchiſes*, is nothing inferior to any of them. See FUNERAL.

GAME is alſo uſed for all kinds of wild Beaſts and Birds, fit for eating; and which are ſought after on that account. See BEAST.

Game includes Wild Beaſts of Venery, and Chaſe; and alſo Beaſts and Fowls of Warren. See VENERY, CHASE, and WARREN.

Some Authors divide *Game* into *Large*; which includes Red, and Fallow Deer: And *Small*; to which belong Hares, Rabbets, Pheaſants, and Partridges.

A Foreſt is a Place ſet apart for the preſerving, feeding, breeding, &c. of all ſorts of *Game*; and conſiſts of divers Things, *viz.* Soil, Covert, Laws, Courts, Judges, Officers, *Game*, Bounds. A Chaſe differs from a Foreſt, in this, among other Things, that it has not ſuch Variety of *Game*. See FOREST, &c.

Ways of catching *Game*, are by *Hunting*, *Hawking*, *Fowling*, &c. See HUNTING, CHASING, HAWKING, &c.

Laws for the Preſervation of the GAME.

There are abundance of Laws made for the Security and Preſervation of the *Game*: The Foreſt Laws of King *Canutus*, and the *Charta de Foreſta* of King *Henry* III. we have elſewhere mentioned. See FOREST *Law*, and CHARTA *de Foreſta*; ſee alſo PURLIEU, and POURALLEE.

By a Stat. in 33 *Hen.* 8. it is enacted, That no Perſon ſhoot with, or keep in his Houſe any Croſs-bow, or Stone-bow, Hand-gun, or Hagbut, under the Length of one Yard; unleſs he have Lands of the yearly Value of 100 *l.* on Pain of a Forfeiture of 10 *l.* for every Offence: Nor ſhall any Perſon travel with a Croſs-bow, bent; or Gun, charged; or ſhoot within a Quarter of a Mile of a Citty or Town, except at a dead Mark, or in defence of his Houſe; under the like Forfeiture; to be divided between the King and the Proſecutor.—None, under the Degree of a Baron, ſhall ſhoot with any Hand-gun, within a City, or Town; or ſhoot at any Fowl whatever with Hail-ſhot; on the ſame Forfeiture. *Id. Stat.*

Any Perſon ſhooting in the Night-time, or diſguiſed, ſhall be deem'd a Felon, if he deny; if he confeſs, he is fineable at the next General Seſſions. 1 *Hen.* 7.

None ſhall kill or take Pheaſants or Partridges, with any Net, or Engine, in the Night-time; on Forfeiture of 20 *s.* for every Pheaſant; and 10 *s.* for every Partridge. 33 *Eliz.*

None ſhall hawk or hunt with Spaniels in ſtanding Corn, or before it be ſhock'd, unleſs on his own Ground; on the Penalty of 40 *s.* half to the King; and the other Half to the Proprietor of the Ground.

He that is convicted of killing or taking a Pheaſant, Partridge, Duck, Heron, Hare, or other *Game*; or of taking and deſtroying the Eggs of Swans, Pheaſants, or Partridges, ſhall pay 20 *s.* for every ſuch Fowl, Hare, &c. to the uſe of the Poor. 1 *Jac.* 1.

Every Perſon convicted to have kept a Greyhound, Dog, or Net, to kill, or take Deer, Hare, Pheaſant, or Partridge, unleſs he have Inheritance of 10 *l. per Annum*; a Leaſe for Life of 31 *l. per Annum*; or be worth 200 *l.* in Goods; or be the Son of a Knight, or Heir apparent of an Eſquire, ſhall pay 40 *s.* for the Uſe aforeſaid.—Nor ſhall any ſell, or buy to ſell again any Deer, Hare, Pheaſant, or Partridge, on pain of 40 *s.* *Id. Stat.*

The Lord of a Manor, or one having Inheritance of 40 *l. per Annum* Freehold of 80 *l.* or Goods worth 400 *l.* or their Servants licens'd by them, may take Pheaſants, or Partridges within their own Lands or Precincts, in the Day-time, between *Michaelmas* and *Chriſtmas*. 7 *Jac.* 1.

No Lay-man, who hath not Lands of 40 *s. per Annum*; nor Clerk, who hath not 10 *l.* Revenue, ſhall keep any Greyhound, Hound, Ferret, Net, or Engine, to deſtroy Deer, Hares, Conies, or other Gentlemans *Game*; on pain of a Years Impriſonment. 13 *Jac.* 1.

They that kill and take away Red, or Fallow Deer, without Conſent of the Owner, ſhall forfeit 20 *l.* to be taken by Diſtreſs; one half to the Owner, and the other to the Informer; or for Want of ſuch Diſtreſs ſuffer a Years Impriſonment. 13 *Car.* 2.

Lords of Manors, or other Royalties, not under the Degree of Eſquire, may commiſſion one or more *Game-keepers*, who may ſeize all Guns, Dogs, Bows, &c. of Perſons not having Eſtates of 100 *l. per Ann.* Freehold; or 150 *l. per Ann.* Leaſehold; or are not Sons and Heirs of Eſquires; and deſtroy, or convert ſuch Guns, &c. to the Uſe of the Lord. 22 *Car.* 2.

If any enter a Coney-warren, tho' not incloſed, and chaſe or kill Conies, he ſhall forfeit treble Damages, and be impriſon'd three Months: And they that kill Conies in the Night-time upon the Borders of Warrens, or Grounds uſed for keeping Conies, ſhall be amerced at the Diſcretion of the Juſtice of Peace, in any Sum not exceeding 10 *s.* *Id. Stat.*

He who unlawfully hunts, takes in Toyles, kills, or takes away any Deer, in any Foreſt, Chaſe, Park, Purlieu, or other incloſed Ground; or ſhall be aiding and aſſiſting therein, ſhall forfeit 30 *l.* for every Deer killed, taken, or even wounded; and 20 *l.* tho' none ſhall be wounded or taken: To be levied by Diſtreſs. 3 *Will.* and *Mar.*——And if the Keeper of a Foreſt, &c. be an Offender herein, or be aiding thereto, he ſhall forfeit 50 *l.* 5 *Georg.* Levied as above.

In caſe any Hare, Partridge, Pheaſant, Fiſh, Fowl, or other *Game* ſhall be found in any Offender's Houſe, he ſhall forfeit a Sum not leſs than 5 *s.* nor more than 20. to be levied by Diſtreſs; or in Want thereof be committed to the Houſe of Correction for a ſpace of Time not greater than a Month; nor leſs than 10 Days. And if any Perſon, not qualified by Law, ſhall keep or uſe any Bows, Greyhounds, Setting Dogs, Ferrets, Tumblers, Snares, &c. he ſhall be ſubject to the ſame Penalties.

If any Higler, Chapman, Carrier, Innkeeper or Victualler ſhall have in his keeping any Hare, Pheaſant, Partridge, Heath *Game*, or Growſe, not put in his Hands by a Perſon qualified by Law, he ſhall forfeit 5 *l.* for every ſuch Hare, &c. half to the Informer, and half to the Poor, levied by Diſtreſs; or for want thereof be ſent to the Houſe of Correcſon for three Months. 5 *Annæ.*

Perſons not qualified keeping Greyhounds, Lurchers, Setting Dogs, or Engines to deſtroy *Game*; and *Game-keepers* who under colour of Office kill and ſell *Game*, without their Maſters Knowledge, are liable to the like Penalty. *Id. Stat.*

No Lord of a Manor to appoint more than one *Game-keeper*, and his Name to be enter'd with the Clerk of the Peace, who is to give a Certificate thereof; otherwiſe he is liable to the Penalties againſt Higlers. 5 *Annæ.*

If any Hare, Pheaſant, &c. be found in the Poſſeſſion of a Perſon not qualified; or be entitled to it by ſome Perſon that is qualified; the ſame ſhall be adjudg'd an Expoſing it to Sale. Perſons deſtroying a Hare in the Night, ſhall incur the Forfeiture of 5 *l.* 5 *Ann.*

No Lord of a Manor ſhall appoint a *Game-keeper*, with Power to kill or deſtroy *Game*, unleſs he be truly a Servant of ſuch Lord; or be immediately employ'd to kill *Game* for the ſole Uſe of ſuch Lord: Nor ſhall any Lord authorize a Perſon not qualified to keep or uſe Gun, Greyhounds, &c. And ſuch Perſons as ſhall be found offending in either of theſe Points, ſhall for every Offence forfeit 5 *l.* 3 *Geo.*

Laſtly, if any Perſon enter a Park, Paddock, or other incloſed Ground, where Deer are uſually kept, and wilfully wound or kill any Red, or Fallow Deer, he ſhall be tranſported to the Plantations for ſeven Years. 5 *Georg.*

GAMELIA, Nuptial Feasts, held among the Antient *Greeks*, in the Month *Gamelion*.

They were thus called from γάμος, Marriage; whence Γαμηλιος, an Epithet, or Surname, given to *Jupiter* and *Juno*, consider'd as presiding over Marriages.

GAMELION, or GAMELIUM, is a Poem, or Composition in Verse, on the Subject of a Marriage; more usually call'd *Epithalamium*. See EPITHALAMIUM.

GAMING, the Art, or Act of performing, or practising a *Game*; particularly a *Game* of Hazard. See GAME.

All publick *Gaming* is severily prohibited; and what Money is thus lost, is recoverable again by Law. See PLAY.

In *China*, *Gaming* is equally prohibited the common People, and the Mandarins; and yet this does not hinder their Playing, and frequently losing all they have; their Lands, Houses, Children, and even Wife, which are all sometimes, laid on a single Card. *F. le Comte.*

The Business of Chance, or Hazard, is of Mathematical Consideration; inasmuch as it admits more, and less. It is, or is suppos'd to be, an Equality of Chance; upon which the Gamesters set out: This Equality is to be broke in upon in the Course of the Game by the greater good Fortune, or Adress of one of the Parties; upon which he comes to have a better Chance; so that his Share in the Deposit, or Stakes, is now proportionably more, or better than at first: This more and less is continually varying, and runs thro' all the Ratio's between Equality, and infinite Difference; or from an infinitely little Difference till it arrives at an infinitely great one, upon which the Game is ended. The whole Game, therefore, with respect to the Event or Issue thereof, is only a Change of the Quantity of each Person's Share, or Chance; or of the Proportion their two Shares bear to each other; which Mathematicks alone can measure. See CHANCE.

Hence several Authors have computed the Variety of the Chance in several Cases and Circumstances that occur in *Gaming*; particularly M. *de Moivre*, in a Treatise, *De Mensura Sortis*: Which, as it may either be of service to the practical *Gamester*, or the *Better*, in teaching them on what Side the Advantage lies; and whether they may lay on the square; or to the speculative one, in letting him into the way of thinking and determining in such cases, we shall here give the Reader an Abstract thereof.

Laws of Chance applied to GAMING.

Suppose p the Number of Cases wherein an Event may happen, and q the Number of Cases wherein it may not happen; both Sides, the contingent and non-contingent, have their Degree of Probability: And if all the Cases wherein the Event may, and may not happen, be equally easy; the Probability of the happening, to that of the not-happening, will be as p to q.

If two *Gamesters*, A and B, engage on this footing, that if the Cases p, happen, A shall win; but if q happen, B shall win; and the Stake be a: The Chance, or Expectancy of A will be $\frac{pa}{p+q}$; and that of B $\frac{qa}{p+q}$; consequently if A or B sell their Expectancies, they should have for them $\frac{pa}{p+q}$ and $\frac{qa}{p+q}$ respectively.

If there be two independent Events; and p be the Number of Cases wherein the first may happen; and q the Number of those wherein it may not happen; and r the Number of Cases wherein the second Event may happen, and s the Number of those wherein it may not happen; multiply $p+q$ by $r+s$; the Product, *viz.* $pr+qr+ps+qs$ will be the Number of Cases wherein the Contingency or non-Contingency of the Events may be varied.

Hence, if A lay with B, that both Events shall happen, the Ratio of the Chances will be as pr to $qr+ps+qs$. Or if he lay that the first shall happen, but not the second; the Ratio of the Chances will be as ps to $pr+qr+qs$. And if there were three, or more Events; the Ratio of the Chances would be found by Multiplication alone.—

If all the Events have a given Number of Cases wherein they may happen, and also a given Number of Cases wherein they may not; and a be the Number of Cases wherein any one may happen, and b the Number of Cases wherein it may not; and n be the Number of all the Events: Raise $a+b$ to the Power of n.

If now A and B agree, that if one or more of the Events happen, A shall win; if none, B: The Ratio of the Chances will be as $\overline{a+b}^n - b^n$ to b^n; for the only Term where a is not found, is b^n.

Prob. I. *If A and B play with a single Die, on this condition, that if A throw two or more Aces at eight Throws, he shall win; otherwise B shall win: What is the Ratio of their Chances?*

Sol. Since there is but one Case wherein an Ace may turn up; and 5 wherein it may not; let $a=1$, and $b=5$. And again, since there are eight Throws of the Die, let $n=8$; and you will have $\overline{a+b}^n - b^n$ to b^n + $na b^{n-1}$ to $b^n + na b^{n-1}$. That is, *The Chance of A, will be to that of B, as* 663991, *to* 1015625; *or nearly as* 2, *to* 3.

Prob. II. *A and B are engaged at single Quoits, and after playing some Time, A wants* 4 *of being up, and B,* 6; *but B is so much the better Gamester, that his Chance against A upon a single Throw, would be as* 3 *to* 2: *What is the Ratio of their Chances?*

Sol. Since A wants 4, and B, 6, the Game will be ended in 9 Throws at the most; therefore raise $a+b$ to the ninth Power, and it will be $a^9 + 9a^8 b + 36 a b b + 84 a^6 b^3 + 126 a^5 b^4 + 126 a^4 b^5 + 84 a^3 b^6 + 36 a a b^7 + 9 a b^8 + b^9$: And take all the Terms wherein a has 4 or more Dimensions, for A; and all those wherein it has 6 or more, for B: And the Ratio of the Chances will be as $a^9 + 9a^8 b + 36 a^7 bb + 84 a^6 b^3 + 126 a^5 b^4 + 126 a^4 b^5$, to $84 a^3 b^6 + 36 aa b^7 + 9 a b^8 + b^9$. Call a, 3; and b, 2; and you will have *the Ratio of the Chances in Numbers* 1759077 *to* 194048.

Prob. III. *A and B are to play with single Quoits; and A is the best Gamester; so that he can give B,* 2 *in* 3: *What is the Ratio of their Chances, then, in a single Throw?*

Sol. Suppose the Chances as z to 1; and raise $z+1$ to its Cube; it will be $z^3 + 3zz + 3z + 1$. Now since A could give B 2 out of 3; A might undertake to win three Throws running; and consequently the Chances in this Case will be as z^3 to $3zz + 3z + 1$. Consequently, $z^3 = 3zz + 3z + 1$. Or, $2z^3 = z^3 + 3zz + 3z + 1$. And therefore $z\sqrt[3]{2} = z + 1$; and consequently $z = \frac{1}{\sqrt[3]{2}-1}$. *The Chances therefore are* $\frac{1}{\sqrt[3]{2}-1}$ and 1 respectively.

Prob. IV. *To find at how many Trials it is probable any Event will happen; so that A and B may lay a Wager upon even Terms.*

Sol. Let the Number of Cases, wherein the thing may happen at the first Trial, be a, those wherein it may not, b; and x the Number of Trials, wherein it is an even Chance, whether the Thing happen or not. By what is above shewn $\overline{a+b}^x - b^x = b^x$: Or, $\overline{a+b}^x = 2b^x$. Therefore, $x = \frac{Log.\ 2.}{Log.\ a+b - Log.\ b}$. Again, resume the Equation $\overline{a+b}^x = 2b^x$, and let $a : b :: 1 : q$, and the Equation will change into this $\overline{1+\frac{1}{q}}^x = 2$. Raise $1+\frac{1}{q}$ to the Power of x, by Sir *I. Newton*'s Theorem, and let $1 + \frac{x}{1}\cdot\frac{1}{q} + \frac{x}{1}\cdot\frac{x-1}{2}\cdot\frac{1}{qq} + \frac{x}{1}\cdot\frac{x-1}{2}\cdot\frac{x-2}{3}\cdot\frac{1}{q^3}$, &c. $= 2$.

In this Equation, therefore, if $q=1$, then $x=1$: If q be infinite, x will also be infinite. Supposing x, to be infinite, the Equation above will be $1 + \frac{x}{q} + \frac{xx}{2qq} + \frac{x^3}{6q^3}$, &c. $= 2$. Again, let $\frac{x}{q} = z$, and we shall have $1 + z + \frac{1}{2}zz + \frac{1}{6}z^3$ &c. $= 2$. But $1 + z + \frac{1}{2}zz + \frac{1}{6}z^3$, &c. &c. is a Number whose hyperbolical Logarith. is z; consequently $z = $ Log. 2. But the hyperbolical Logarithm of 2 is 7 very nearly; and therefore $z=7$ nearly.

Hence where q is 1, there $x=1\,q$; and where q is infinite, $x=7\,q$ nearly. Thus are the Limits of the Ratio of x to q fix'd; for that Ratio begins with Equality, and when rais'd to Infinity, ends at length in the Ratio of 7 to 1 nearly.

Examp. 1. *To find in how many Throws A may undertake to throw two Aces with two Dice?*

Sol. Since A has but one Case wherein he may throw two Aces with two Dice; and 35 wherein he may not, $q=35$: Therefore multiply 35 by .7; the Product 24. 5. shews that *the Number of Throws required is between* 24 *and* 25.

Lem. *To find the Number of Cases, wherein any given Number of Points may be thrown with a given Number of Dice?*

Sol. Let $p+1$ be the given Number of Points; n the Number of Dice; and f the Number of Sides or Faces of each Die: Let $p-f=q$, $q-f=r$, $r-f=s$, $s-f=t$, &c. The Number of Cases requir'd will be,

$$\frac{p}{1} + \frac{p-1}{1}\cdot\frac{p-2}{2} + \frac{p-1}{1}\cdot\frac{p-2}{2}\cdot\frac{p-3}{3}, \&c.$$

$$\frac{q}{1}\times\frac{q-1}{2}\times\frac{q-2}{3},\ \&c.\times\frac{n}{1}.$$

$$\frac{r}{1}\times\frac{r-1}{2}\times\frac{r-2}{3}\ \&c.\times\frac{n}{1}\times\frac{n-1}{2}$$

$$\frac{s}{1}\times\frac{s-1}{2}\times\frac{s-2}{3}\ \&c.\times\frac{n}{1}\times\frac{n-1}{2}\times\frac{n-2}{3}$$

Which Series is to be continued, till ſome of the Factors either become equal to nothing, or negative. And note, ſo many Factors of the ſeveral Products $\frac{q}{1}\times\frac{p-1}{2}\times\frac{p-2}{3}$ &c. $\frac{r}{1}\times\frac{r-1}{2}\times\frac{r-2}{3}$ &c. $\frac{s}{1}\times\frac{s-1}{2}$ &c. are to be taken as there are Units in $n-1$.

Prax. Suppoſe the *Number of Caſes required wherein 16 Points may be thrown with four Dice*?

$$+\frac{15}{1}\times\frac{14}{2}\times\frac{13}{3} = 455$$
$$-\frac{9}{1}\times\frac{8}{2}\times\frac{7}{3}\times\frac{4}{1} = -336$$
$$+\frac{3}{1}\times\frac{2}{2}\times\frac{1}{3}\times\frac{4}{1}\times\frac{3}{2} = +6$$

Now, $455-336+6=125$; ſo that 125 *is the Number required.*

Examp. 2. *To find at how many Caſts A may undertake to throw 15 Points with ſix Dice*?

Sol. Since A has 1666 Caſes, wherein he may turn up 15 Points, and 44990 againſt him; divide 44990 by 1666; and the Quotient 27 will be $=q$. Therefore, multiply 27 by 7; the Product 18, 9 *ſhews the Number of Throws required to be nearly* 19.

Prob. V. *To find the Number of Trials wherein it is probable any Event may happen twice; ſo that A and B may lay a Wager thereon with an equal Chance*?

Sol. Suppoſe the Number of Caſes wherein the Event may happen the firſt Trial, to be a; and thoſe wherein it may not, b; and call the Number of Trials required, x: It appears from what is above ſhewn, that $\overline{a+b}|^x = 2b^x + 2axb^x - 1$. Or, making $a:b::1:q$, $1+\frac{1}{q}\Big|^x = 2+\frac{2x}{q}$ 1° Let $q=1$, and then $x=3$. 2° Let q be infinite, and x will alſo be infinite: Suppoſe x infinite, and $\frac{x}{q}=z$, and then $1+z+\frac{1}{2}z^2+\frac{1}{2}z^3$, &c. $=2+2z$; and therefore $z=Log.\ 2+Log.\ \overline{1+z}$: If then *Log.* 2 be called y; the Equation will be transform'd into the following fluctional one $\frac{zz}{1+z}=y$. And inveſtigating the Value of z by the Powers of y, we ſhall find $z=1.678$, nearly; and therefore x will always be between the Limits $3q$ and $1.678q$; but x will ſoon converge to $1.678q$; and therefore if q have not a very ſmall Ratio to 1, we may take $x=1.678q$. Or if there be any Suſpicion of x being too ſmall, ſubſtitute its Value in the Equation $1+\frac{1}{q}\Big|^x = 2+\frac{2x}{q}$, and note the Error, if it be worth regarding: Thus will x be a little increaſed; ſubſtitute the thus increas'd Value for x in the foreſaid Equation, and note the new Error: Thus, from the two Errors, may the Value of x be corrected with ſufficient Accuracy.

Here we ſhall add a *Table of Limits*, that will carry the Intent of this Problem much further.—

If the Wager be upon happening once, the Number of Trials will be between

	1 q and 0.693 q
If upon twice, between	3 q and 1.678 q
If upon trice, between	5 q and 2.675 q
If upon four times, between	7 q and 3.671 q
If upon five times, between	9 q and 4.673 q
If upon ſix times, between	11 q and 5.668 q

Examp. *To find at how many Throws A may undertake to throw three Aces, twice, with three Dice*?

Sol. Since A has but one Caſe, wherein he may throw three Aces; and 215, wherein he may not; $q=215$. Therefore multiply 215 by 1.678. The Product 360, 7 will ſhew the Number of Throws required to be between 360 and 361.

Prob. VI. *A, and B depoſit each 12 pieces of Money, and play with three Dice, on this footing, that every time 11 Points are thrown, A ſhall give B one Piece; and every time 14 Points are thrown, B ſhall give A a Piece; and that he ſhall win the whole, that firſt gets all the Money in his Hands: We demand the Ratio of the Chances of A to that of B.*

Sol. Let p be the Number of Pieces each ſeverally takes; and a and b the Number of Caſes wherein A and B may reſpectively gain each a piece; the Ratio of their Chances will be as a^p to b^p: In this caſe, $p=12$, $a=27$, $b=15$; or if when $27:15::9:5$. you make $a=9$, $b=5$; and therefore the *Ratio of the Expectancies will be as* 9^{12} *to* 5^{12}, *or as* 24414062 5 *to* 282429536481.

NB. Great Care muſt be taken to avoid the confounding of different Problems together, from ſome Appearance of Affinity between them. The following one ſeems very like the former.

Prob. VII. *C having 24 Pieces, or Counters, throws three Dice; and every time 27 Points turn up, gives one Counter to A; and every time 14 turn up, gives one to B; and A and B engage on this footing, that he who firſt gets 12 Counters, ſhall win the Stake: We require the Ratio of their Expectancies*?

This Problem differs from the preceding one, in that the Game muſt neceſſarily end in 23 Throws; whereas, in the former, it might hold out to Eternity, by reaſon of the Reciprocations of Loſs and Gain, which deſtroy one another.

Sol. Raiſe $a+b$ to the 23d Power, and the 12 former Terms will be to the 12 latter as the Expectancy of A to that of B.

Prob. VIII. *Three Gameſters, A B and C, have each twelve Balls, 4 of them white, and 8 black; and being hoodwink'd, play on this condition, that the firſt who chuſes a white Ball, ſhall win the Stake; and that A ſhall have the firſt Choice, then B, then C; and ſo round again: What, then, is the Ratio of the Chances of A, B, C*?

Sol. Let n be the Number of Balls, a the Number of white ones, b of black ones, and n the Stake. Here

1° A, has the Caſes a, wherein he may chuſe a white Ball; and the Caſes b for a black one: Conſequently, his Expectancy, from the firſt Choice, is $\frac{a}{a+b}$, or $\frac{a}{n}$. Wherefore, ſubtracting $\frac{a}{a+b}$ from 1; the Value of the remaining Expectancies will be $1-\frac{a}{n}=\frac{n-a}{n}=\frac{b}{n}$.

2° B, has the Caſes a for a white, and the Caſes $b-1$ for a black one; but the firſt Election is in A; and 'tis uncertain, whether or no he may have won the Stake; and therefore the Stake, in reſpect of B, is not 1, but only $\frac{b}{n}$; ſo that his Expectancy from the firſt Choice is $\frac{a}{a+b-1}\times\frac{b}{n}=\frac{ab}{n\times n-1}$. Subtract $\frac{ab}{n\times n-1}$ from $\frac{b}{n}$ and the Value of remaining Expectancies will be $\frac{nb-b-ab}{n\times n-1}=\frac{b\times\overline{a+b-1}}{n\times n-1}$.

3° C, has the Caſes a for a white; f the Caſes $b-2$ for a black one; and therefore his Expectancy from the third Choice is $\frac{a\times b\times\overline{b-1}}{n\times n-1\times n-2}$.

4° After the like manner, A has the Caſes a for a white, and $b-3$ for a black; ſo that at the fourth Choice, the Expectancy will be $\frac{a\times b\times\overline{b-1}\times\overline{b-2}}{n\times n-1\times n-2\times n-3}$. And ſo of the reſt.

Write down, therefore, the Series $\frac{a}{n}+\frac{b}{n-1}P+\frac{b-1}{n-2}Q+\frac{b-2}{n-3}R+\frac{b-3}{n-4}S$, &c. Where P, Q, R, S, &c. denote the preceding Terms, with their Characters; and take as many Terms of this Series, as there are Units in $b+1$ (for there cannot be more Choices than there are Units in $b+1$) and the Sum of all the third Terms, ſkipping the two Intermediates, beginning from $\frac{a}{n}$, will be the whole Expectancy of A; the Sum likewiſe of all the third Terms, commencing from $\frac{b}{n-1}$ P, will be the whole Expectancy of B; and the Sum of the Thirds, commencing from $\frac{b-1}{n-2}$ Q, the whole Expectancy of C.

Laſtly, making $a=4$, $b=8$, $n=12$; and the General Series will change into the following one $\frac{4}{12}+\frac{8}{11}P+\frac{7}{10}Q+\frac{6}{9}R+\frac{5}{8}S+\frac{4}{7}T+\frac{3}{6}V+\frac{2}{5}X+\frac{1}{4}Y$.

Or into this other (by multiplying all the Terms by ſome common Number judg'd moſt expedient for the throwing out of Fractions, *viz.* in the preſent Caſe, by 495)

$$165+120+84+56+35+20+10+4+1$$

And therefore A will have $165+56+10=231$; B will have $120+35+4=159$; and C will have $84+20+1=105$. *So that their ſeveral Expectancies will be as* 231, 159, 105; or as 77, 53, 35.

Prob. IX. *A and B having* 12 *Counters, four of them white, and eight black; A wagers with B, that taking out ſeven Counters, blindfold, three of them ſhall be white: What is the Ratio of their Expectancies?*

Sol. 1° Seek how many Caſes there is for ſeven Counters, to be taken out of 12; they will be found from the Doctrine of Combinations, to be 792.

$$\frac{12}{1}\times\frac{11}{2}\times\frac{10}{3}\times\frac{9}{4}\times\frac{8}{5}\times\frac{7}{6}\times\frac{6}{7}=792.$$

2° Set aſide three white ones, and find all the Caſes wherein 4 of the eight black ones may be combined therewith; they will be found to be 70.

$$\frac{8}{1}\times\frac{7}{2}\times\frac{6}{3}\times\frac{5}{4}=70.$$

And ſince there are four Caſes, in which three white may be taken out of four; multiply 70 by 4: Thus, the Caſes, wherein 3 Whites may come out with 4 Blacks, are found to be 280.

3° By the common Laws of *Gaming*, he is reputed Conqueror, who produces an Effect oftener than he undertook to do, unleſs the Contrary be expreſly agreed on; and therefore, if A take out 4 Whites with 3 Blacks, he wins. Set aſide 4 Whites, then, and find all the Caſes wherein 3 of the 8 Blacks may be combined with four Whites: Theſe Caſes will appear to be 56.

$$\frac{8}{1}\times\frac{7}{2}\times\frac{6}{3}=56$$

4° A, therefore, has $280+56=336$ Caſes, wherein he may win; which ſubtracted from the whole Number of Caſes 792, leaves 456 the Number of Caſes wherein he may loſe. The *Ratio of the Chance of A, therefore, to that of B, is as* 336 *to* 456; *or as* 14 *to* 19.

To avoid too much Prolixity in this Article, we muſt deſiſt from further Inveſtigations, which in the following Problems grow very long, and more perplex'd. In the reſt, therefore, we ſhall content ourſelves to give the Anſwer, or Reſult, without the Proceſs of arriving at it; which may be of uſe, as it furniſhes ſo many Data, from whence, as Standards, we may be enabled occaſionally to judge of the Probability of Events of the like Kinds: Tho', without letting the Mind into the preciſe Manner, and Reaſon thereof.

Prob. X. *A and B play with two Dice on this Condition, that A ſhall win, if he throw ſix; and B, if he throw ſeven: A to have the firſt Throw, in lieu of which B to have two Throws; and both to continue with two Throws each turn, till one of them wins: What is the Ratio of the Chance of A to that of B?*

Anſ. As 10355 to 12276.

Prob. XI. *If any Number of Gameſters, A, B, C, D, E, &c. equal in point of Dexterity, depoſit each one piece of Money, and engage on theſe Conditions, that two of them, A and B, beginning the Game; which ever of them ſhall be overcome, ſhall give place to the third, C, who is to play with the Conqueror; and the Conqueror here, to be taken up by the fourth Man, D, and thus on; till ſome one, having conquer'd them all round, draws the Stake: What is the Ratio of their Expectancies?*

Sol. This Problem, M. *Bernoulli* ſolves analytically. Here, calling the Number of Gameſters $n+1$, he finds that the Probabilities of any two immediately following each other in the Courſe of playing, are in the Ratio $1+2^n$ to 2^n; and therefore the Expectancies of the ſeveral Gameſters A B C D E *&c.* are in a Geometrical Progreſſion $1+2^n : 2^n :: a : c :: c : d :: d : e$ &c.

Hence it is eaſy to determine the State of the Probabilities of any two Gameſters, either before the Game, or in the Courſe thereof. If *e. gr.* there be three Gameſters, A, B, C, then $n=2$ and $1+2^n : 2^n :: 5 : 4 :: a : c$: That is, *Their ſeveral Probabilities of winning, before A have overcome B, or B, C; are as the Numbers* 5, 5, 4; and therefore their Expectancies are $\frac{5}{14}, \frac{5}{14}, \frac{4}{14}$: For all of them taken together, muſt make 1, or abſolute Certainty. *After A has overcome B, the Probabilities of A, B and C will be* $\frac{5}{7}, \frac{2}{7}, \frac{4}{7}$, as in the Anſwer above. If there be four Gameſters, A B C D, their Probabilities from the Beginning will be as 81, 81, 72, 64. After A has beat B, the ſeveral Probabilities of B D C A, will be as 25, 32, 36, 56, reſpectively. After A has beat B and C, the Probabilities of C B D A will be as 16, 18, 28, 87.—

Prob. XII. *Three Gameſters, A, B and C, whoſe Dexterities are equal, depoſit each one Piece, and engage upon theſe Terms, That two of them ſhall begin to play, and that the vanquiſh'd Party ſhall give place to the third, who is to take up the Conqueror; and the ſame Condition to go round; each Perſon when vanquiſh'd, forfeiting a certain Sum to the main Stake; which ſhall be all ſwept by the Perſon who firſt beats the other two ſucceſſively. How much, now, is the Chance of A and B better or worſe, than that of C?*

Anſ. 1° If the Forfeiture be to the Sum each Perſon firſt depoſited, as 7 to 6, the Gameſters are upon an equal footing. 2° If the Forfeiture be in a leſs Ratio to the Depoſit, A and B are on a better footing than C: If in a greater Ratio, the Advantage is on the Side of C. 3° After A has overcome B once, the Probabilities are as $\frac{12}{7}, \frac{6}{7}, \frac{3}{7}$; or as 4, 2, 1; *viz.* that of A the greateſt, and of B the leaſt.

M. *Bernoulli* gives an analytical Solution of the ſame Problem, only made more general; as not being confined to three Gameſters, but extending to any Number at pleaſure.

Prob. XIII. *A and B, two Gameſters of equal Dexterity, play with a given Number of Balls; and after ſome time A wants* 1 *of being up, and B,* 3: *What is the Ratio of their Chances?*

Anſ. A's Expectancy is worth $\frac{7}{8}$ of the Stake, and B's only $\frac{1}{8}$; ſo that their Chances are as 7 to 1.

Prob. XIV. *Two Gameſters, A and B, of equal Dexterity, are engaged in play, on this Condition, that as often as A exceeds B, he ſhall give him one Piece of Money; and that B ſhall do the like, as oft as A exceeds him; and that they ſhall not leave off, till one has won all the other's Money: Each now having four Pieces; two Byſtanders, R and S, lay a wager on the Number of Turns, in which the Game ſhall be finiſh'd; viz. R, that it ſhall be over in* 10 *Turns: What is the Value of the Expectancy of S.*

Anſ. $\frac{560}{1024}$ or $\frac{35}{64}$ of the Wager; or it is to that of R as 560 to 464.—

If each Player had 5 Pieces, and the Wager were, that the Game ſhould end in ten Turns, and the Dexterity of A were double that of B; the Expectancy of S would be $\frac{3800}{6561}$.

If each Gameſter have 4 Pieces; and the Ratio of the Dexterities be required to make it an even Wager that the Game ſhall end in 4 Turns: It will be found that the one muſt be to the other as 5.274 to 1.

If each Gameſter have 4 Pieces, and the Ratio of their Dexterities be requir'd to make it an even Lay that the Game ſhall be ended in 6 Turns; the Anſwer will be found to be, as 2.576 to 1.

Prob. XV. *Two Gameſters, A and B, of equal Dexterity, being agreed not to leave off playing till ten Games are over; a Spectator, R, lays a Wager with another, S, that by that time, or before, A ſhall have beat B by three Games: What is the Value of the Expectancy of R?*

Anſ. $\frac{352}{1024}$ of the Wager; or it is to that of S as 352 to 672.

GAMM, GAMMUT, GAMUT, or GAM-*ut*, in Muſic, a Scale, whereon we learn to ſound the Muſical Notes, *Ut, re, mi, fa, ſol, la*, in their ſeveral Orders, and Diſpoſitions. See NOTE, and SCALE.

The Invention of this Scale is owing to *Guido Aretin*, a Monk of *Aretium*, in *Tuſcany*; tho' it is not properly an Invention, as an Improvement on the Diagramma or Scale of the Antients. See DIAGRAM.

The *Gammut* is alſo call'd the *Harmonical Hand*; by reaſon *Guido* firſt made uſe of the Figure of the Hand, to arrange his Notes on.

Finding the *Greek* Diagramma of too ſmall Extent, *Guido* added five more Chords, or Notes to it: One, below the Proſlambanomenos, or graveſt Note of the Antients; and four, above the Nete, or Acuteſt. The firſt, he call'd Hypo-proſlambanomenos; and denoted it by the Letter G, or rather the *Greek* Γ, *Gamma*: Which Note being at the head

of

of the Scale, occasion'd the whole Scale to be call'd by the barbarous Name *Gamm*, or *Gammut*.

Some say, *Guido*'s Intention in calling his first Note Γ, *Gamm*, was to shew, that the *Greeks* were the Inventors of Musick: Others, that he meant hereby to record himself; this being the first Letter of his own Name.—

Guido's Scale is divided into three Series, or Columns; the first call'd *Molle*, or flat; the second *Natural*; and the third *Durum*, or Sharp, as represented in the Scheme, *Tab. Musick, Fig.* 3. But since his Time, some Alterations have been made there.

The Use of this Scale, is to make the Passages, and Transitions from B Molle, to B Durum, by means of the Tones and Semitones. The Series of B Natural standing betwixt the other two, communicates with both; so that to name the Chords of the Scale by these Syllables, if we would have the Semitones in their natural Places, *viz. b c* and *e f*, then we apply *ut* to *g*; and after *la* we go into the Series of *b* natural at *fa*; and after *la* of this, we return to the former at *mi*, and so on: Or, we may begin at *ut* in *c*, and pass into the first Series at *mi*, and then back to the other at *fa:* By which means the one Transition is a Semitone, *viz. la, fa*; and the other a Tone, *la, mi*. To follow the Order of *b* Molle, we may begin with *ut* in *c*, or *f*, and make Transitions after the same manner. See TONE, and SEMITONE.

Hence came the barbarous Names of *Gammut, Are, Bmi*, &c. But what a perplex'd Work is here, with so many different Syllables applied to every Chord; and all to mark the Places of the Semitones, which the simple Letters *a b c* &c. do as well, and with more Ease?

Several Alterations have since been made in the *Gamut*. M. *le Maire*, particularly, has added a seventh Note, *viz. si*; and the *English* usually throw out both *ut* and *si*, and make the other five serve for all: As will be shewn under the Article SOL-FA-ING.

GAMM, GAMMA, or GAMMUT, is also the first, or gravest Note in the modern Scale of Music; the Reason whereof is shewn under the preceding Article.—

GANG, in the Sea Language: To man a Boat, is call'd to *put a Gang of Men* (which is a Company) into her: They are commonly called the *Coxswain*'s *Gang*, who has the Charge of her.

GANG-*way*, signifies all the several Entrances, Ways, or Passages, from one Part of the Ship to the other; and whatsoever is put in one of these Passages, is said to be laid, or put in the *Gang-way*.

GANGLION, or GANGLIUM, in Medicine, a small, hard, knotty Tumor, form'd on the nervous and tendinous Parts, without any discolouring of the Skin, or Sense of Pain. See TUMOR.

The Cause of the *Ganglion* is a too great Distention of the Pores of the Part; or the too great Compression, or a Laceration, thereof: Any of these occasion the nutritious Juice to be there stop'd and retain'd; and even to exsude, condense, and harden into a Tumor. The same Effect is sometimes produced by a Bruise, hard Labour, or the like. Most Authors fix the next Cause of the *Ganglion* to be a heavy, viscid Pituita.

The *Ganglion* is sometimes removed, and resolved by mere dry Friction, long continued; and sometimes by Friction with Saliva. Some chuse to apply a Plate of Lead, anointed with Mercury: Others use Gum Ammoniac; or Emplaster of Vigo, with Mercury. If these don't succeed, Recourse is had to Section.

The Word is *Greek*, γάγγλιον, signifying the same thing. The Tumor, when on the Nerves, Tendons, Articulations, or any of the membranous Parts, retains its Name, *Ganglion*; every where else, it is call'd *Nodus*. See NODE.

GANGRENE, GANGRÆNA, in Medicine, is a Mortification in its first, or beginning State; while yet the Part retains some Sense of Pain, and a Share of natural Heat: By which this Disease is distinguish'd from a *Sphacelus*, or thorough Mortification; where there is no Sense or Warmth left at all. See MORTIFICATION, and SPHACELUS.

The *Gangrene* is a Disease in the Flesh of the Part, which it corrupts, consumes, and turns black; spreading, and seizing itself of the adjoining Parts: And is rarely cured without Amputation.

It arises from a Stoppage, or Interception of the circulatory Motion of the Blood; which by this means, fails to furnish the Part with the nutritious and spirituous Juices, necessary to preserve its Warmth, and Life.

This Interception of Circulation, which is the next Cause of the *Gangrene*, is it self occasion'd divers ways; as, by large Tumors, Erisypela's, great Inflammations, violent Cold, tight Bandages or Compressions, sudden Fluxions of some malignant Humor, Bites of venomous Beasts, Fractures, Wounds, and Ulcers ill managed, &c.

It is distinguish'd by the Colour of the Flesh, which now turns pale, dusky, or sublivid; and by its growing loose, and flabby of vehemently Tense which it was before. In the Progress of the Disease, the Part distils a fetid, discolour'd Water; and emits a cadaverous Smell.

Upon the first Seizure, the Skin turns pale, afterwards livid; Vesications arise, and the Colour at length changes to black; the Flesh becomes fetid, sanious, and moist; then withers, and soon becomes insensible: The Heat and Pulsation of the Part being likewise diminish'd. *Shaw.*

If in a large Wound, the Tumor of the Lips do not suppurate, nor any Flux of Matter, or Inflammation arise; if the Lips do not swell, or after Swelling grow lank and flaccid again on a sudden: 'Tis reckon'd a sure Sign of an approaching *Gangrene*. See WOUND.

When a *Gangrene* proceeds from extreme Cold, the Part affected is first benumbed, or seiz'd with a pricking Pain, followed by a Redness, which gradually changes to a Black. See COLD.

When a tight Bandage is the Cause, a Flaccidity of the Part is join'd to the Insensibility thereof: When the Scurvy, it often begins in the great Toe, and appears in form of a blackish Spot, which turns to a dry Crust, succeeded by a Stupor of the Part, &c.—When the Bite of any venomous Creature is the Cause, a continual Fever attends, &c. Pain is felt in the Part; which usually brings on a Syncope, or Delirium: Pustles arise about the Bite, &c.

By the Microscope, the *Gangrene* has been discover'd to consist of an infinite Number of little Worms, ingender'd in the morbid Flesh; and which continually producing new Broods, they swarm, and over-run the adjacent Parts.

To stop the Progress of the *Gangrene*, the Physicians prescribe, internally, Sudorificks, and Alexipharmicks; externally, Decoctions of Quick-lime, either simple, or with the Addition of Sulphur, Mercurius dulcis, and Spirit of Wine camphorated.

In a severe Stage of the Distemper, they scarify deep, to the very Quick; and afterwards apply hot Liquors, Cataplasms, &c. Some recommend Horses Dung, boil'd in Wine, or Urine. The Unguent Ægyptiacum also comes into Use.

Belloste prescribes the following, as the most efficacious Remedy, known for *Gangrenes*; *viz.* Quicksilver dissolved in double the Quantity of Spirit of Nitre, or Aqua fortis; a linen Cloth dipt therein, and applied to the *gangrenous* Part. This alone, he assures us, is sufficient.—If the *Gangrene* be occasion'd by an intense Frost; Snow Water, or a linen Cloth dipt in cold Water, and applied to the Part affected, *Boerhave* directs as the best Cure.

If the *Gangrene* proceed to an utter Sphacelation, and be seated in any of the Limbs, or extreme Parts, recourse must be had to the Operation of *Amputation*. See AMPUTATION.

The Word *Gangræna, Gangrene*, is derived by some Authors from the *Paphlagonean Gangra*, a Goat; it being the Character of a Goat to brooze the Grass all around, without shifting its Place. It is juster, perhaps, to derive it from the *Greek* Verb γεύω, γεύνω, *manduco, absumo*, I eat, I consume: But 'tis yet safer, to bring it from the Word γάσγεύνα, which signifies the same thing.

GANTLET, or GAUNTLET, a large, stronge Glove, made to cover the Arm, or Hands of a Cavalier, when arm'd at all Points. The *Gauntlet* is of Iron; and the Fingers, plated.

The Cask, and *Gauntlets* were always bore in the antient Marches in Ceremony. *Gauntlets* were not introduc'd, till about the 13th Century.

The *Gauntlet* was frequently thrown, like the Glove, by way of Challenge. See GLOVE, CHALLENGE, CHAMPION, COMBAT, &c.

The Word is derived of the French *Gantelet*; and that of *Gand*, or *Gant*, Glove.—

GANTLET, in Chirurgery, is a kind of Bandage for the Hand.

'Tis a sort of Swathe, four or five Yards long; wherewith they wrap up the Hand, and all the Fingers, one after another.

GANYMEDE, a Term lately come into Use, to express a Catamite, or Bardachio. See CATAMITE, SODOMY, &c.

The Expression takes its rise from a young, beautiful *Trojan* Shepherd, thus called; whom *Jupiter* ravish'd, or carried off by his Eagle, or rather by himself under the Figure of an Eagle, as he was hunting on Mount *Ida*; and made him his Cup-bearer, in the place of *Hebe*; who, having made a false Step, and spilt her Liquor, was turn'd out of Office.

Some say, that the *Jupiter*, who ravish'd *Ganymede*, was *Tantalus*, King of *Phrygia:* The Eagle express'd the Swiftness, wherewith he was carried off. *Vossius, De Idolol. L. I. c.* 14, &c. And *Barthius*, on the *Thebaid. L. I. v.* 548.—

GARBE, in Heraldry, a Representation of a Sheaf of Corn, or other Grain; sometimes bore in Coat Armour, to signify Summer, or the Month of *August*; as the Bunch of Grapes does Autumn.

He bears Azure, a *Garbe*, or; the Arms of the *Grosvenors* of *Eaton*, in *Cheshire*.

GARBLER *of Spices*, is an Officer of great Antiquity, in the City of *London*, who is empower'd to enter any Shop, Ware-house, &c. to view, and search Drugs, &c. and to *garble* and cleanse them.

GARBLES, the Dust, Soil, or Uncleanness that is severed from good Spice, Drugs, &c.

GARBLING of Spice, Drugs, &c. is the purifying it from the Dross and Dust mix'd therewith; and severing the good from the bad.

GARBLING *of Bow Staves*, is the sorting, or culling out the good from the bad.

The Word may come from the *Italian Garbo*, Finery, or Neatness.

GARCON, or, as we pronounce it, GARSOON, a *French* Term, literally signifying *Boy*, or a Male Child, any time before his Marriage.—The *Italians* use *Garsone* in the same Sense.

Pontanus remarks, that they antiently wrote it *warçon*: But the Etymologists can't agree as to its Origin.—To say nothing of all the rest, *Martinius* alone proposes seven Derivations; without pitching upon any, *viz.* the Latin *garrire*, to prattle; the *Chaldee* גרס, Student, Learner; the French *Garder*, to guard; the German *warten*, to tarry, or wait; the Greek κεῖρος, Young-man; the Arabic גריה, Young-man; and the Hebrew גור, the young of any Brute.

GARÇON is also applied to divers inferior Officers: Thus, all the People in the King's Chamber, Wardrobe, &c. who do the lesser Offices thereof under the proper Officers, are called *Garçons de la Chambre*, *de la Garderobbe*, &c.

GARD, GARDS, GARDIAN, GARDEROBE, &c. } see { GUARD. GUARDS. GUARDIAN. WARD-ROBE.

GARDANT, in Heraldry. See GUARDANT.

GARDEN, an Inclosure, or Plot of Ground, curiously cultivated, and furnish'd with Variety of Plants, Flowers, Fruits, &c. See GARDENING; see also ORCHARD.

Gardens are distinguish'd into *Flower Gardens*, *Fruit Gardens*, and *Kitchen Gardens*: The first for Pleasure, and Ornament; and therefore placed in the most conspicuous Parts: The two latter, for Service; and therefore made in By-places. See FLOWER, FRUIT, &c.

In a *Garden*, the principal Things to be consider'd, are, the *Form*, *Soil*, *Situation*, and *Aspect* or *Exposure*.

For the *first* Point, the *Form*: A Square, or rather Oblong, is most eligible; leading from the Middle of the House, with a Gravel Walk in the Midst; narrow Grass-borders on each Side; and on either Side of these, Rows of Variety of Winter Greens. If the Ground be irregular, it may be made uniform so as to afford a Prospect nothing inferior to the most regular; strait Lines will reduce any Figure to Order. A Triangle has its Beauty, as well as a Square; and the most irregular Spots may be brought by Borders, and Walks to those two Figures.

Indeed, an Irregularity is easily hid in a large *Garden*, by long Walks, and tall Hedges, interrupting a distant View: And the little Corners, and Triangular Spaces, may be agreeably fill'd up with Borders of Flowers, Dwarf Trees, flowring Shrubs, or Ever-Greens. Nor is it prudent, to be solicitous to throw the whole *Garden* into a single View; as Irregularities, and Unevennesses, afford many uncommon, pretty Devices, &c. See WALKS, and BORDERS.

For the *second* Point, or the *Soil*: A deep, rich, black Mould is best for Plants; sandy Land is warm and forward, and good for Flowers; chalky Land is cold and backward. But both are easily corrected by Compost's, or Materials of opposite Kinds. See SOIL, and COMPOST.

For the *Situation*: If the *Garden* be too high, it will be expos'd to the Winds, which are highly prejudicial to Trees; if too low, the Dampness will be injurious, beside the breeding of Vermine: A Flat, therefore, or the Side of a Hill, are the happiest Situation; especially the latter, as it is usually well water'd, and shelter'd from the Extremes of Weather; beside that the Water descending from on high, will supply Fountains, Cascades, and other Ornaments of a *Garden*. See FOUNTAIN, &c.

For the *Aspect*, or *Exposure*, we have already consider'd what relates thereto, under the Article *Exposure*: See EXPOSURE.

Of all things, the Ground, or Soil of the Garden is the most important: Unless this be rich, and fertile, all the other Advantages will be vain. To judge of the Quality of the Soil, some direct us to look, whether there be any Heath, Thistles, or other Weeds growing spontaneously therein, as a certain Sign of a poor Ground: The Growth of the Trees, too, thereabout, is to be consider'd; if they grow cooked, ill shap'd, and grubby, of a faded Green, and full of Moss; the Place is to be immediately rejected. If the Contrary be found; you must proceed to examine the Depth of the Soil, by digging Holes under Ground. The Soil should be three Foot deep; but less than two, is not sufficient.

The chief Furniture of Pleasure Gardens are, *Parterres*, *Vista's*, *Glades*, *Groves*, *Compartiments*, *Quincunces*, *Verdant Halls*, *Arbour Work*, *Mazes*, *Labyrinths*, *Fountains*, *Cabinets*, *Cascades*, *Canals*, *Terrasses*, &c. See each under its proper Article, TERRASS, CASCADE, FOUNTAIN, &c.

In the *planting of a Fruit or Kitchen Garden*, if the Soil be a hungry Gravel, or Sand, Mr. *Switzer* directs the Holes where the Trees are to be planted, to be dug two Foot deep, and three or four over, and filled with rotten Horses or Cows Dung, mix'd with rich Mould: If it be Marle or stiff Clay, a Compost of Rubbish, Lime, Pieces of Brick, Ashes, Sand, &c. will be best to mix with Dung and Mould; tho' he is of opinion, that untried Earth, dug from a Waste or Common where Cattle has been fed, would prove the best Soil for young Trees. See FRUIT *Tree*.

The Trees being now taken out of the Nursery, the biggest Roots are to be shorten'd to about six Inches; all the small Fibres taken off; and the Head to be pruned, so as not to leave above two Branches; and those not above six Inches long. See PLANTING.

The *Wall Trees*, to be placed as far from the Wall, as possible; that there may be the more Room for the Roots to spread. Then, filling up the Hole with Mould, there remains nothing but to secure the Roots from the Winter's Frost, by covering the Spot with Straw, Fern, Dung, &c. And in Summer, from the Sun; by Sand, and Pebble Stone. See WALL *Fruit*.

For Trees planted in Borders, the common Practice is to make a Trench by the Wall-side, two Foot broad, and as many deep. This Trench they fill with old Dung, mix'd with Earth, lightly laid, near as high as the Borders are intended to be; and then trodden down to half the Height in the Places where the Trees are intended to be. 'Tis prudent, to plant the Trees shallow, and to raise the Earth about them; especially in a wet, clayey Soil.—See PLANTING, SEMINARY, &c.

'Tis an Observation of some Importance, that Wall Trees, and Fruit thrive best, when the Walks that run parallel to them, are Gravel; more of the Rays of the Sun being thereby reflected to them, than if they were Grass. Add, that no sort of tall Trees are to be suffer'd to grow in any of the opposite Borders, or intermediate Spaces, so, as their Shade might reach to the South East, or South West Walls. The Places near the Walls are most advantageously filled with Dwarfs.—See DWARF, ESPALIER, &c.

GARDENING, HORTICULTURE, the Art of cultivating a *Garden*. See GARDEN.

Gardening has in all Ages been esteem'd an Employment, worthy the greatest Hero's, and Philosophers: The Emperor *Diocletian*, at *Salona*; and *Epicurus*, and *Metrodorus*, at *Athens*, have ennobled the Art beyond all Encomium.

Goetzius, Superintendant of *Lubeck*, printed a Dissertation in 1706, entitled Κηποφιλία, *seu De Eruditis Hortorum Cultoribus*, Of the Learned Men who have loved, and cultivated Gardens; among which Number he ranks *Adam*, *Gregory Nazianzen*, St. *Augustin*, *Pliny*, and *Cicero*: Nor should he have forgot the elder *Cato*, *Democritus*, *Plato*, and his Academy.

The Sieur *le Nostre* first carried *Gardening* to any thing of Perfection: M. *la Quintinie* has gone yet further; nor have our own Countrymen of late been wanting to its Improvement; as *London*, and *Wise*, *Bradley*, *Laurence*, *Fairchild*, &c.

M. *Fatio* has lately applied Mathematical Reasoning to *Gardening*, and shewn how to make the best use of the Sun's Rays in Gardens. See WALL.

The principal Operations in *Gardening*, are *Planting*, *Transplanting*, *Engrafting*, *Inoculating*, *Pruning*, *Sowing*, &c. Which see under their proper Articles, PLANTING, TRANSPLANTING, ENGRAFTING, PRUNING, &c.

Other Particulars, relating to the Art of *Gardening*, see under PINCHING, VARIEGATING, NURSERY, SEED, GREEN-HOUSE, HOT-BED, &c. See also PLANT, TREE, FRUIT-TREE, WALL-TREE, DWARF, &c. See also SALLADE, &c.

GARDENING, in Falconry. To *garden a Hawk*, is to put her on a Turf of Grass to chear her.—Some also use the same Phrase for the giving her an Airing, or letting her fly at large.

GARDEVISURE, in Heraldry; see VIZOR.

GARGARISM, GARGLE, in Medicine, a liquid Form of Remedy, for Disorders of the Mouth, Gums, Throat, &c.

Gargarisms are composed of Honey, Salts, Syrups, Spirits, Vinegar, Waters, and Decoctions; and produce their Effect by cleansing, lubricating, &c, the Parts.

An Astringent *Gargarism*, Detergent *Gargarism*, Refrigerent *Gargarism*, &c.

The Word is form'd of the *Greek* γαργαλίζειν, *colluere*, to wash.—Or of the Hebrew *Garghera*, the Throat.—

GARLAND, an Ornament for the Head, in manner of a Crown. See CROWN.

Garlands are a ſort of Chaplets, made of Flowers, Feathers, or even of pretious Stones; but eſpecially Flowers: To which the Word in our Language is more immediately affected.

Janus paſſes, in Antiquity, for the Inventor of *Garlands*. *Athen. Dipnoſ. L. XV.*

The Word is form'd of the Barbarous Latin *Ghirlanda*; which is ſtill retain'd in the *Italian*. *Menage* traces its Origin from *Girus*, thro' *girulus*, to *girulare*, *girlare*, *ghirlandus*, *ghirlanda*, and at length *guirlande*, and *Garland*; ſo that *Guirland*, or *Garland* are deſcended in the eighth Degree from *Gyrus*.—

Hicks rejects this Derivation, and brings the Word from *Gardel handa*, which in the Northern Languages ſignify, a *Noſegay artfully wrought with the Hand*.—

GARLAND, in a Ship, a Collar of Rope, which is wound about the Head of the Main-maſt, to keep the Shrouds from galling.

GARNISH. In ſome antient Writings and Statutes, to *garniſh the Heir*, ſignifies to warn the Heir.

GARNISHEE, in Law, the Party, in whoſe Hands Money is attach'd within the Liberties of the City of *London*; ſo call'd in the Sheriff of *London*'s Court, becauſe he has had *Garniſhment*, or Warning, not to pay the Money, but to appear and anſwer to the Plaintiff-Creditor's Sute. See ATTACHMENT.

GARNISHING, or GARNISHMENT, is popularly uſed for the Furniture of any thing; or an Aſſemblage, or Sortment neceſſary for the uſing, or adorning of any thing. See FURNITURE.

The GARNISHING *of a Diſh*, conſiſts of certain Things which accompany it; either as a Part, and Ingredient thereof; In which Senſe Pickles, Muſhrooms, Oyſters, &c. are *Garniſhing*: Or as a Circumſtance, or Ornament; as when Leaves, Flowers, Roots, &c. are laid about a Service, to amuſe the Eye.

The ſame Word is us'd for the finer Herbs, Fruits, &c. laid about a Sallad: *Garniſhing* of Lemon, Piſtacho's, Pomgranate, Yolks of hard Eggs, Artichoak Bottoms, Capers, Truffles, Sweat-bread, &c.

The Word is *French*, form'd of the Verb *Garnir*, to furniſh, or fit out.

GARNISHMENT, in Law, a *Warning* given any one to appear; and that for the better furniſhing the Cauſe, and Court. Suppoſe, *e. gr.* one is ſued for the Detinue of certain Charters, and ſays, they were deliver'd to him, not only by the Plaintiff, but *J. S.* alſo; and therefore prays, that *J. S.* may be warn'd to plead with the Plaintiff, whether the Conditions are perform'd, or no.

In this Petition he is ſaid to pray *Garniſhment*; which may be interpreted, a Warning to *J. S.* to provide himſelf of a Defence; or elſe a furniſhing the Court with all Parties to the Action, whereby it may throughly determine the Cauſe.—

GARRISON, a Body of Forces, diſpoſed in a Fortreſs, to defend it againſt the Enemy; or to keep the Inhabitants in Subjection; or even to be ſubſiſted during the Winter Seaſon. See FORTRESS,

The Words *Garriſon*, and *Winter Quarters*, are ſometimes uſed indifferently for the ſame thing; and ſometimes they denote different Things.

In the latter Caſe, a *Garriſon* is a Place wherein Forces are maintain'd, to ſecure it; where they keep regular Guard: As, a *Frontier Town*, a *Cittadel*, *Caſtle*, *Tower*, &c. The *Garriſon* ſhould always be ſtronger than the Towns-men.

Winter Quarters, ſignify a Place where a Number of Forces are laid up in the Winter Seaſon, without keeping the regular Guard. The Soldiers like better to be in Winter Quarters, than in *Garriſon*. See FORTIFIED *Place*, *Winter* QUARTERS, &c.

Du Cange derives the Word from the corrupt Latin *garnicio*, which the later Writers uſe to ſignify all manner of Munition, Arms, Victuals, &c. neceſſary for the Defence of a Place, and the ſuſtaining of a Siege.

GARTER, literally ſignifies the ſame with the *Greek* Περίσκελις, Periſcelis, a Ligature, to keep up the Stockings; and is particularly uſed for the Badge, or Cognizance of a Noble Order of Knights, hence denominated the *Order of the Garter*. See the following Article.

GARTER, or *Order of the* GARTER, is a Military Order, inſtituted by King *Edward* III. in 1350; under the Title of the *Sovereign*, and *Knights-Companions of the moſt Noble Order of the Garter*. See ORDER.

This Order conſiſts of 26 Knights, or Companions; generally, all Peers, or Princes; whereof the King of *England* is the Sovereign, or Chief.

They wear a blue *Garter* on the left Leg, with this Motto, or Device, *Honi ſoit qui mal y penſe*; *q. d.* Shame to him, that thinks evil hereof. See MOTTO.

They are a College, or Corporation; having a Great, and Little Seal: Their Officers are, a *Prelate*, *Chancellor*, *Regiſter*, *Dean*, *King at Arms*, and *Uſher*. See PRELATE, CHANCELLOR, &c.

Beſide which, they have a *Dean*, and twelve *Canons*, with *Petty Canons*, *Vergers*, and 26 *Penſioners*, or *poor Knights*. See CANON, &c.

The Order is under the Patronage, or Protection of St. *George*, the Tutelary Saint of this Kingdom. See PATRON.

Their College is held in the Caſtle of *Windſor*, within the Chapel of St. *George*, and the Chapter-houſe, erected by the Founder for that Purpoſe. Their Robes, &c. are the *Garter*, deck'd with Gold, Pearl, and precious Stones; and a Buckle of Gold, to be worn daily on the left Leg; and, at Feaſts and Solemnities, a *Sur-coat*, *Mantle*, *high Velvet Cap*, *Collar of SS's*, compoſed of Roſes enamel'd, &c. See SURCOAT, COLLAR, &c.

When they wear not their Robes, they are to have a ſilver Star on the left Side; and they commonly bear the Picture of St. *George*, enamel'd on Gold, and beſet with Diamonds, at the End of a blue Ribbon, croſſing the Body from the left Shoulder. They are not to appear abroad without the *Garter*, on Penalty of 6 *s.* 8 *d.* paid to the Regiſter.

The Order of the *Garter* appears the moſt antient and noble Lay Order in the World. 'Tis prior to the *French* Order of St. *Michael*, by 50 Years: To that of the *Golden Fleece*, by 80 Years: To that of St. *Andrew*, by 190 Years; and to that of the *Elephant*, by 209 Years. See *Order of* St. MICHAEL, GOLDEN *Fleece*, St. ANDREW, ELEPHANT, &c.

Since its Inſtitution, there have been eight Emperors; and 27 or 28 foreign Kings; beſide numerous Sovereign Princes enroll'd as Companions thereof.

Its Origin is ſomewhat differently related: The common Account is, that it was erected in Honour of a *Garter* of the Counteſs of *Salisbury*, which ſhe dropt in Dancing, and the King pick'd up: But our beſt Antiquaries ſet this aſide as fabulous.

Cambden, *Fern*, &c. take it to have been inſtituted on occaſion of the Victory obtain'd over the *French*, at the Battle of *Creſſy*: That Prince, ſay ſome Hiſtorians, order'd his *Garter* to be diſplay'd, as a Signal of Battle; in commemoration whereof, he made a *Garter* the Principal Ornament of the Order, erected in memory of this Signal Victory; and a Symbol of the indiſſoluble Union of the Knights.—

Fa. *Papebroch*, in his *Analecta* on St. *George*, in the third Tome of the *Acta Sanctorum*, publiſh'd by the *Bollandiſts*, has a Diſſertation on the *Order of the Garter*. This Order, he obſerves, is not leſs known under the Name *of St. George*; than under that *of Garter*; and that, tho' it was only inſtituted by K. *Edward* III; yet it had been projected before him, by K. *Richard* I. in his Expedition to the Holy Land; if we may credit an Author, who wrote under *Henry* VIII. *Papebroch* adds, however, that he does not ſee what that Author grounds his Opinion on; and that tho' the Generality of Writers fix the Epocha of this Inſtitution to the Year 1350, he chuſes, with *Froiſſard*, to refer it to the Year 1344; which agrees better with the Hiſtory of that Prince; where we read, that he call'd an Extraordinary Aſſembly of Knights that Year.

In 1551 *Edward* VI. made ſome Alterations in the Ritual of this Order: That Prince compos'd it in Latin; the Original whereof is ſtill extant in his own Hand Writing. He there ordain'd, that the Order ſhould no longer be call'd the Order of St. *George*; but that of the *Garter*; and inſtead of the *George*, hung at the Collar, he ſubſtituted a Cavalier, bearing a Book on the Point of his Sword, with the Word *Protectio* graven on the Sword; and *Verbum Dei* on the Book; with a Buckle in the left Hand, and the Word *Fides* thereon.— *Larrey*.

Authors on this Order are, *Cambden*, *Aſhmole*, *Leland*, *Polydore Virgil*, *Heylin*, *Legar*, *Glover*, and *Favyn*.

Erhard, *Cellius*, and the Prince of *Orange*, adds *Papebroch*, have given Deſcriptions of the Ceremonies uſed at the Inſtallment of Knights; and a *Ciſtercian* Monk, named *Mendocius Bealetus*, has a Treatiſe, intitled *la Garretiere*, or *Speculum Anglicanum*, ſince printed under the Title of the *Catechiſm of the Order of the Garter*: Wherein he explains all the Allegories, real, or pretended of thoſe Ceremonies, with the Moral Significations thereof.

GARTER, *Principal King at Arms*; ſee KING *at Arms*.

Garter, and *Principal King at Arms*, are two diſtinct Offices, united in one Perſon: *Garter's* Employment is to attend the Service of the *Garter*; for which he is allowed a Mantle and Badge, a Houſe in *Windſor* Caſtle, and Penſions both from the Sovereign, and Knights, and laſtly, Fees. He alſo carries the Rod and Sceptre at every Feaſt of St. *George*, when the Sovereign is preſent: Notifies the Election of ſuch as are new choſen: Attends the Solemnity of their Inſtallations, and takes care of placing their Arms over their Seats: Carries the *Garter* to foreign Kings and Princes;

for which Service, it has been uſual to join him in Commiſſion with ſome Peer of the Realm.

Garter's Oath relates only to Services to be perform'd within the Order; and is taken in Chapter before the Sovereign and Knights. His Oath, as King at Arms, is taken before the Earl Marſhal.

GARTER is alſo a Term in Heraldry, ſignifying the Moiety, or half of a *Bend*. See BEND.

GAS, in Chemiſtry, a Term us'd by *Van Helmont*, to expreſs the Seeds, or Fermentations, or firſt Principles of Things: But he applies it ſo obſcurely, and precariouſly, that 'tis hard reducing it to any one Senſe.

Thus, he calls the vital Principle in Man, *Gas Vitale*; and the ſame Denomination *Gas* he gives to the ſulphurous Steams, which occaſion Damps: Add, that he calls the Air, *Gas Ventoſum*; and Water, the *Gas of Salts*.

Some would fix his Meaning to the Spirit, or ſubtle and moſt volatile Part of a Body: And thus, *Gas Cereviſiæ*, is the ſpirituous Steam, which flies off from Ale, while in working; but this does not take in the whole Idea of *Gas*.

GASCOIN, or GASKOIN, the hinder Thigh of a Horſe; commencing from the Stifle, and reaching to the Ply, or bending of the Ham.

GASCONADE, a boaſting or vaunting of ſomething very improbable. He pretended he had fought ſingly againſt three Men; a downright *Gaſconade*.

The Term has its Riſe from the *Gaſcoons*, or People in *Gaſcony*, in *France*, who are diſtinguiſh'd for Bragging, and Rhodomontado.—

GASTALDUS, or CASTALDUS, an Officer, antiently entertain'd in the Courts of divers Princes; wrote alſo *Gaſtaldius*, *Gaſtaldio*, *Gaſtaldatus*, *Guaſtaldus*, &c.

The *Gaſtaldus* was what in *Italy* and *Spain* is now call'd *Majordomo*, *viz.* the Maſter, or Steward of a Houſhold. The *Gaſtaldus* was a *Comes*, or Count, which ſhews his Office to have been very conſiderable.—

In the Laws of *Italy* we ſometimes meet with *Gaſtaldus*, in the Senſe of a Courier; and ſometimes as an Eccleſiaſtical Officer, ſo that it is ſomewhere expreſs'd to be Simony, to buy the Function of *Gaſtaldus*.

Macri derives the Word from the Arabic *Chaſendar*, Purveyor of a Houſe: Others, from the German *Gaſt*, and *halten*, to retain Travellers.—

GASTEREPIPLOICA, in Anatomy, a Vein, which opens into the Trunk of the Vena Porta; form'd of ſeveral Branches; derived from the Stomach, and Epiploon; whence its Name, γαστὴρ, and ἐπίπλοον. See VEIN.

GASTEROCNEMIUS, in Anatomy, a Name common to two Muſcles, conſtituting the Sura, or Calf of the Leg; the one called *Externus*, the other *Internus*.

GASTEROCNEMIUS *Externus*, call'd alſo *Suralis Externus*, and *Gemellus*, has two diſtinct, fleſhy Originations, from the ſuperior, and hindermoſt Part of each Tubercle of the lower Appendage of the Thigh-bone; which in their Deſcent are each dilated into two ſmall fleſhy Bellies, the innermoſt of which is thickeſt and largeſt; having each a different Series of fleſhy Fibres, which at length uniting, make a broad, ſtrong Tendon; which narrowing itſelf, joins the great Tendon of the Solæus, four Fingers breadth above its Inſertion into the Os Calcis.

When this Muſcle acts, the Foot is ſaid to be extended or pulled backwards; which Motion is very neceſſary in walking, running, leaping, or ſtanding on tip-toe, &c. whence it is, that thoſe who walk much, or carry heavy Burdens; and who wear low-heel'd Shoes, have theſe Muſcles larger than others.

GASTEROCNEMIUS, or *Suralis Internus*, call'd alſo *Solæus*, from its Figure, reſembling a Sole-Fiſh, is placed under the external. Its external fleſhy Part is cover'd with a tranſparent tendinous Expanſion, which makes it appear of a livid Colour.

It begins partly tendinous, chiefly from the hindermoſt Part of the upper Appendix of the Fibula, and back-part of the Tibia, that is, below the Inſertion of the Subpoplitæus; and increaſing to a large fleſhy Belly, compoſed of various Orders of fleſhy Fibres, ſome of them underneath aptly expreſſing the Figure of the Top of a Feather, whoſe Stamina, being here tendinous, join with the great Tendon, which is about a Finger's Breadth long; and inſerted into the ſuperior and hindermoſt Part of the Os Calcis.

The Foot, together with the Toes, being, as it were, a Lever to the whole Body, ought therefore to be attended with Muſcles of great Strength to extend it; which is the Reaſon that theſe Muſcles ſo much exceed their Antagoniſts.

GASTRIC, GASTRICUS, in Anatomy, is applied to divers Veins, on account of their proceeding from the Stomach, or Ventricle, which the *Greeks* call γαστὴρ. See STOMACH.

The *Gaſtricus major*, or greater *Gaſtric* Vein is inſerted into the Splenic Vein; and the *minor*, or leſſer *Gaſtric*, into the Trunk of the Vena Porta.

GASTRILOQUUS, or GASTRILOQOUS, a Perſon who ſpeaks inwardly, or within his Stomach; and whoſe Voice ſeems to come a-far off; more uſually called *Ventriloquus*. See VENTRILOQUUS.

The Word is form'd of the Greek γαστὴρ, Belly; and the Latin *loqui*, to ſpeak.

GASTROLATER, a Glutton, or Belly-god: *Cujus Deus venter eſt*. See IDOLATER.

GASTROMANCY, or GASTROMANTIA, a kind of Divination, practiced among the Antients, by means of Words, coming, or ſeeming to come, out of the Belly. See DIVINATION.

The Word is form'd of γαστρομαντεία, compoſed of γαστὴρ, Belly, and μαντεία, Divination.

There is another kind of Divination, call'd by the ſame Name, *Gaſtromancy*, which is perform'd by means of Glaſſes, or other round, tranſparent Veſſels; at the Bottom whereof certain Figures appear, by Magic Art. 'Tis thus called, by reaſon the Figures appear as in the Belly of the Veſſels.—

GASTROTOMY, the Operation of cutting open the Belly; the ſame with what is otherwiſe called the *Cæſarian Section*. See CÆSARIAN *Section*.

GATE, a large Door, leading, or giving Entrance, into a City, Town, Caſtle, Palace, or other conſiderable Building. See DOOR.

Thebes, in *Egypt*, was antiently known by the Appellation, *With an hundred Gates*. *Fez*, in *Africa*, has 31 *Gates*. In Antient *Rome* there was a *Triumphal Gate*, *Porta Triumphalis*. See TRIUMPH. In the Modern *Rome* there is the *Jubilee Gate*, which is only open'd the Year of a Grand Jubilee. See JUBILEE.

The *Gates* of *London* are many of them converted into Goals, or Priſons; as *Ludgate*, *Newgate*, &c. See PRISON. The leſſer, or By-gates, are call'd *Poſterns*. See POSTERN.

Gates thro' which Coaches, &c. are to paſs, ſhould not be leſs than ſeven Foot broad; nor more than twelve: The Height to be 1½ the Breadth.

GAVEL, in Law, ſignifies Tribute, Toll, Cuſtom, yearly Rent, Payment, or Revenue; of which there are ſeveral Kinds, as *Gavel-Corn*, *Gavel-Malt*, *Out-Gavel*, *Gavel-Fodder*, &c.

GAVEL, is ſometimes us'd for what we more uſually call the *Gable*. See GABLE.

GAVEL-KIND, a Tenure, or Cuſtom, whereby the Lands of the Father are equally divided, at his Death, among all his Sons; or the Land of the Brother among all the Brethren, if he have no Iſſue of his own. See CUSTOM, and TENURE, DESCENT, &c.

Teutonicis priſcis patrios ſuccedit in agros
Maſcula ſtirps omnis, ne foret ulla potens.

This Cuſtom, which antiently obtain'd throughout *England*, is ſtill of Force in the greateſt Part of *Kent*, *Urchenfeild* in *Herefordſhire*, and elſewhere; tho' with ſome Difference: But by the Stat. 34 and 35 *Hen.* 8. all *Gavelkind* Lands in *Wales* are made deſcendible to the Heir, according to the Courſe of common Law. See HEIR, &c.

Cambden in his *Britan.* gives the Origin and Nature of *Gavelkind* thus: 'The People of *Kent*, upon the *Norman* 'Invaſion, could not be reduced to ſurrender to the Con- 'queror, but on theſe Conditions, that they ſhould retain 'their antient Country-cuſtoms without any Infringement 'or Diminution; and eſpecially that call'd *Gavelkind*. The 'Lands held under this Denomination, deſcend equally, and 'are divided, ſhare and ſhare alike, among all the Male 'Children; and in defect of theſe, among the Females.' He adds, 'That they are of Age, or qualified to take the 'Lands upon them, at Fifteen; and may then give, vend, 'or alienate the ſame to any Perſon, without the Conſent of 'any Lord: And Children here inherit their Fathers Land, 'tho' convicted of Felony, Murther, &c. The Tenants in '*Gavelkind* are to do Fealty; and to be in the Tuition of 'the next a-kin, who is not next Heir after them, till 15 'Years of Age; to pay Acknowledgment to the Lord for 'the Lands', &c.

In an antient Book of Records in *Chriſt-Church*, *Canterbury*, of the time of *Henry* VIII. our *Saxon* Anceſtors are ſaid to have either held their Lands by Writing, or without: The firſt were called *Bockland*; whoſe Owners were Men, whom we now call *Freeholders*: The ſecond was called *Folkland*; the Owners whereof were of ſervile Condition, and poſſeſs'd *ad voluntatem Domini*. See BOCKLAND, FREEHOLD, FOLKLAND, &c.

Now, the Inheritance, or Freehold, did not, in thoſe Days, deſcend to the eldeſt Son, but to all alike; which in *Saxon* was called Lande Scyptan, and in *Kent*, *To ſhift Land*; whence came the Cuſtom *Gavelkind*. And the Reaſon why it was retained in *Kent* more than other Places, was that the *Kentiſhmen* were not conquer'd by the *Normans*: For, ſay our Hiſtorians, *Stigand*, the Arch-Biſhop of *Canterbury*;

terbury, and one *Egelsine*, an Abbot, who commanded the Forces in that County; ordering every Man, fit to bear Arms, to march and cover themselves, with green Boughs in their Hands: In this Disguise they met the Conqueror unaware at *Swainscomb*; where, discovering themselves, the Archbishop and Abbot acquainted him with their Resolution of standing and falling in defence of the Law of their Country. Upon this the Conqueror, imagining himself encompass'd in a Wood, granted, that they, and their Posterity, should enjoy their Rights, Liberties, and Laws: Some of which, as particularly that of *Gavelkind*, continues to their Descendents to this Day.

GAVELMAN, a Tenant, who is liable to Tribute.— *Villani de Terring, qui vocantur* Gavelmanni. *Somner*, Gavelkind.

GAVELET, in Law, a special, and antient kind of *Cessavit*, us'd in *Kent*, where the Custom of Gavel-kind continues; whereby the Tenant shall forfeit his Lands and Tenements to the Lord, if he withdraw from him his due Rents and Services. See FEE, SERVICE, and GAVELKIND.

The Process of the *Gavelet* is thus: The Lord is first to seek by the Steward of his Court, from three Weeks to three Weeks, to find some Distress upon the Tenement; till the fourth Court; and if in that time he find none, at this fourth Court, it is awarded, that he take the Tenement into his hand in name of a Distress, and keep it a Year and a Day without manuring; within which time, if the Tenant pay his Arrears, and make reasonable Amends for the Withholding, he shall have and enjoy his Tenement as before: If he come not before the Year and Day be past, the Lord is to go to the next County Court, with Witnesses of what pass'd at his own Court, and pronounce there his Process, to have further Witnesses; and then by the Award of his own Court, he shall enter and manure the Tenement as his own: So that if the Tenant desire afterwards to have and hold it as before, he must agree with the Lord, according to this old Saying:

Has he not since any thing given, or any thing paid,
Then let him pay five Pound for his Were, e're he become Healder again.

Other Copies have the first Part with some Variation;

Let him nine times pay, and nine times repay.

GAUGE-*Point, of a solid Measure*, is the Diameter of a Circle, whose Area is equal to the solid Content of the same Measure. See MEASURE, and CONTENT.

Thus, the Solidity of a Wine Gallon being 231 Cubic Inches; if you conceive a Circle to contain so many Inches, the Diameter of it will be 17. 15; and that will be the *Gauge* Point of Wine Measure.

And an Ale Gallon containing 288 Cubic Inches; by the same Rule, the *Gauge* Point for Ale-measure will be found to be 19. 15: And after the same manner may the *Gauge*-Point of any other Measure be determined.

Hence we deduce, that when the Diameter of a Cylinder in Inches is equal to the *Gauge*-Point in any Measure, (given likewise in Inches) every Inch in length thereof will contain an Integer of the same Measure. In a Cylinder, whose Diameter is 17. 15 Inches, every Inch in Height contains one intire Gallon in Wine-measure; and in another, whose Diameter is 19. 15, every Inch in length contains one Ale Gallon.

GAUGE *Line*, a Line on the common Gauging Rod, whose Description and Use see under the Article GAUGING.

GAUGER, an Officer of the King's Excise, whose Business it is to *gauge*, *i. e.* to examine, survey, or measure all Casks of Beer, Wine, Oil, *&c.* and to give them a Mark of Allowance (which is a Circle burnt with an Iron, before they be sold in any Place within the Extent of this Office. See EXCISE, and GAUGING.

GAUGING, the Art, or Act of measuring the Capacities, or Contents of all kinds of Vessels; and determining the Quantity of Fluids, or other Matters, contain'd therein. See MEASURING, CONTENT, *&c.*

Or, *Gauging* is the Art of reducing the unknown Capacity of Vessels of divers Forms; cubical, parallelipipedal, cylindrical, spheroidal, conical, *&c.* to some known cubic Measure; and of computing, for instance, how many Gallons, Quarts, Pints, or the like, of any Liquor, *e. gr.* Ale, Beer, Wine, Brandy, *&c.* are contain'd therein. See CUBE, PARALLELIPIPED, &c.

Gauging is a Branch of *Stereometry*. See STEREOMETRY.

The principal Vessels that come under its Operation, are *Pipes*, *Barrels*, *Rundlets*, and other *Casks*; *Backs*, *Coolers*, *Fats*, &c. See BARREL, &c.

The solid Content of cubical, parallelipipedal and prismatical Vessels, we have already observ'd, is easily found in Cubic Inches, or the like, by multiplying the Area of the Base by the perpendicular Altitude. See SOLID, PRISM, *&c.*

And for cylindrical Vessels, the same is found by multiplying the Area of the circular Base, by the perpendicular Altitude, as before. See CYLINDER.

Casks of the usual Form of Hogsheads, Kilderkins, *&c.* may be consider'd as Segments of a Spheroid cut off by two Planes, perpendicular to the Axis; which brings them to *Oughtred*'s Theorem, for measuring Ale and Wine Casks; which is thus: Add twice the Area of the Circle at the Bung, to the Area of the Circle of the Head. Multiply the Sum by one third of the Length of the Cask: The Product is the Content of the Vessel in Cubic Inches.

But, for Accuracy, Dr. *Wallis*, Mr. *Caswel*, &c. think, that most of our Casks had better be consider'd as Frusta of parabolic Spindles; which are less than the Frusta of Spheroids of the same Base, and Height; and give the Capacity of Vessels nearer the Truth, than either *Oughtred*'s Method, which supposes them Spheroids; or than that of multiplying the Circles at the Bung and Head, into half the Length of the Cask, which supposes them parabolic Conoids; or than that of *Clavius*, &c. who takes them for two truncated Cones; which is furthest off of all.

The common Rule for all Wine or Ale Casks, is to take the Diameters at the Bung, and at the Head; by which you may find the Areas of the Circle there: Then taking two Thirds of the Area of the Circle at the Bung, and one Third of the Area of the Circle at the Head; and adding them together into one Sum; this Sum multiplied by the internal Length of the Cask, gives the Content in solid Inches: Which are converted into Gallons, by dividing by 282 for Ale, and by 231 for Wine Gallons.

But *Gauging*, as now practised, is chiefly done by means of Instruments, call'd *Gauging Rods*, or *Rules*, which do the Business at once, and answer the Question without so much Calculation; which is no inconsiderable Addition, both to the Ease and Dispatch of the Work. This Instrumental way of *Gauging*, therefore, we shall here chiefly insist upon.—

Construction of a Gauging Rod, *whereby the Content of any Cylindrical, or other common Vessel is easily had.*

Take the Diameter A B of a Cylindrical Vessel, A B D A, *Tab. Surveying, Fig.* 26. that holds one of the Measures wherein the Fluid is estimated, *e. gr.* Gallons; and at the Extremity A, erect an indefinite Perpendicular, A 7. From A to 1, set off a Right Line, equal to A B; then will B 1 be the Diameter of a Vessel, that holds two Measures, or Gallons, of the same Height as the former.

Again, let A 2=B 2; then, B 3 will be the Diameter of a Vessel that holds three Measures, but of the same Height as that which only holds one: And, after the same manner, find the Diameters of other larger Vessels, A 4, A 5, A 6, A 7, &c.

Lastly, set off the several Divisions thus found, A 1, A 2, A 3, &c. upon one Side of a Rod, or Rule; and on the other the Height, or Depth of a Cylinder, that holds one Measure or Gallon, repeated, as oft as it will go. *Thus is the* Gauging Rod *compleat.*

Demonstration. For Cylinders, that have the same Altitude, are to each other as the Squares of their Diameters; consequently the Square of the Diameter that holds 2, 3, or 4 Gallons, must be double, triple, or quadruple of that which only holds one. And since in the first, A B= A 1, the Square of B 1 is double, that of B 2 triple, that of B 3 quadruple, *&c*; it is evident, that the Right Lines A 2, A 3, A 4, &c. are the Diameters of the Vessels required.

These Divisions, therefore, being applied to the Side of a cylindrical Vessel, it will immediately appear how many Measures, *e. gr.* Gallons, a cylindrical Vessel of that Base and of the Height of that which holds one Gallon, will contain.

Wherefore, finding by the Divisions on the other Side of the Rod, how often the Height of one Gallon is contained in the Height of the given Vessel; and multiplying the Diameter before found by this Number: The Product will be the Number of Gallons the Vessel contains.

Thus, *v. gr.* if the Diameter of the cylindrical Vessel be 8, and its Height 12, its Content will be 96 Gallons.

Note, 1° The less you take the Height of the Cylinder, containing one Gallon, the greater will the Diameter of the Base be: Whence both that, and the Diameters of the Cylinders, containing several Gallons, will be the more easily divisible into lesser Parts. *Bayer* directs such Height to be only one Digit, or Tenth of an Inch.

2° The Diameters of Vessels holding one or more decimal Parts of a Gallon, will be had by dividing one or more decimal Parts of the Vessel holding a whole Gallon, by its Height; which gives us the Area of the circular Base; from whence the Diameter is easily found by the Rules deliver'd

livered under DIAMETER, CIRCLE, &c. And after the same manner the Diameters are found for the Divisions of Vessels that hold two or more Gallons.

Use of the *Gauging Rod.*

To find the Content of a Cask; that is, to determine the Number of Measures *e. gr.* Gallons, it will hold: Apply the *Gauging Rod* to the Vessels, as directed in the preceding Article; and find both the Length of the Cask A C, *Fig.* 27. and both Diameters G H, and A B. Now, as we find by Experiment, how far soever it may be from Geometrical Exactness, that a common Cask of this Form, may safely enough be reputed as a Cylinder, whose Base is a Medium between the Head and the Belly; find such Medium, which call the *equated Diameter.*

Then, multiplying the Number thus found by the Length of the Cask A C; the Product will be the Number of Measures the Vessel contains.

Suppose *e. gr.* A B=8, and G H=12, and A C=15; the equi-different Mean will be 10; which multiplied by 15, gives the Capacity of the Cask, 150 Measures.

If it happen that the Diameters of the two Ends be not equal; measure them both, and take half their Sum for the Diameter to work by.

There is another Method, whereby the Content of a Vessel is had even without any Calculation at all, which obtains in divers Parts of *Germany* and the Low Countries: But as this supposes all Vessels to be similar to each other; and their Length double of the equated Diameter, that is, of half the Sum of the Diameters A B, and G H; it is not safe to use it in all places. *Kepler*, however, prefers it so much before all others, as including all the Precautions possible; that he recommends it to the Publick, to enact it by Law, that all Casks be made in this Proportion.

The Methods of *Gauging*, which chiefly obtain among us, are by the *Four Foot Gauging Rod*, and *Everard's Sliding Rule.*

Description and Use of the Four Foot *Gauging Rod.*

The Four Foot *Gauging* Rod, represented in *Tab. Surveying*, *Fig.* 28. is usually made of Box, and consists of four Rules, each a Foot long, and about three Eighths of an Inch square, join'd together by three brass Joints; by which means the Rod is render'd four Foot long, when the four Rules are quite open'd; and but one Foot, when they are folded together.

On the first Face of this Rod, mark'd 4. are plac'd two Diagonal Lines; one for Beer, and the other for Wine: By means of which the Content of any common Vessel in Beer or Wine Gallons may be readily found, by putting the Rod in at the Bung-hole of the Vessel, till it meets the Intersection of the Head of the Vessel with the Staves opposite to the Bung-hole. For distinction of this Line, there is writ thereon, *Beer and Wine Gallons.*

On the second Face, 5, are, a Line of Inches, and the *Gauge Line*; which is a Line expressing the Areas of Circles, whose Diameters are the correspondent Inches in Ale Gallons. At the Beginning is writ, *Ale Area.*

On the third Face, 6, are three Scales of Lines; the first, at the End of which is write *Hogshead*, is for finding how many Gallons there is in a Hogshead, when it is not full, lying with its Axis parallel to the Horizon. The second Line, at the End of which is wrote B. L, signifying a *Butt lying*, is for the same Use as that for the Hogshead. The third Line is to find how much Liquor is wanting to fill up a Butt when it is standing: At the Ends of it is wrote B. S. signifying a *Butt standing.* Half way the fourth Face of the *Gauging* Rod, 7, are three Scales of Lines, to find the Wants in a Firkin, Kilderkin, and Barrel, lying with their Areas parallel to the Horizon. They are distinguish'd by Letters F. K. B. signifying a *Firkin*, *Kilderkin*, and *Barrel.*

Use of the Diagonal Lines on the *Gauging Rod.*

To find the Content of a Vessel in Beer or Wine Gallons. Put the Brass End of the *Gauging Rod* into the Bung-hole of the Cask, with the Diagonal Lines upwards; and thrust the Brass End to the Meeting of the Head and Staves: Then, with Chalk, make a Mark on the Middle of the Bung-hole of the Vessel; and also on the Diagonal Lines of the Rod, right against, or over one another, when the brased End is thrust home to the Head and Staves. Then turn the *Gauging* Rod to the other End of the Vessel, and thrust the brased End home to the End as before.

Lastly, see if the Mark made on the *Gauging* Rod come even with the Mark made on the Bung-hole, when the Rod was thrust to the other End; which if it be, the Mark made on the Diagonal Lines, will, on the same Lines, shew the whole Content of the Cask in Beer or Wine Gallons.—

If the Mark made on the Bung-hole, be not right against that made on the Rod, when you put it the other way; then, right against the Mark made on the Bung-hole, make another on the Diagonal Lines: And the Division on the Diagonal Line, between the two Chalks, will shew the Vessel's whole Content in Beer or Wine Gallons.

Thus, *e. gr.* if the Diagonal Line of a Vessel be 28 Inches four Tenths, its Content in Beer Gallons will be near 51, and in Wine Gallons 62.

If a Vessel be open, as a Half-barrel, Tun, or Copper, and the Measure from the Middle on one Side, to the Head and Staves, be 38 Inches; the Diagonal Line gives 122 Beer Gallons; half of which, *viz.* 61, is the Content of the open half Tub.

If you have a large Vessel, as a Tun, or Copper, and the Diagonal Line taken by a long Rule, prove 70 Inches: The Content of that Vessel may be found thus:

Every Inch at the Beginning-end of the Diagonal Line, call ten Inches. Thus, ten Inches become 100 Inches; and every Tenth of a Gallon call 100 Gallons; and every whole Gallon, call 100 Gallons.

Exam. at 44. 8 Inches, on the Diagonal Beer-Line, is 200 Gallons; so also 4 Inches 48 Parts, now called 44 Inches 8 Tenths, is just two Tenths of a Gallon, now called 200 Gallons: So also, if the Diagonal Line be 76 Inches and 7 Tenths, a close Cask, of such Diagonal, will hold 1000 Beer Gallons: But an open Cask, but half so much, *viz.* 500 Beer Gallons.

Use of the *Gauge Line.*

To find the Content of any Cylindrical Vessel in Ale-Gallons: Seek the Diameter of the Vessel in the Inches, and just against it, on the *Gauge Line*, is the Quantity of Ale Gallons contained in one Inch deep: This multiplied by the Length of the Cylinder, will give its Content in Ale Gallons.

For Example: *Suppose the Length of the Vessel* 32. 06, *and the Diameter of its Base* 25 *Inches*; *what is the Content in Ale Gallons?*

Right against 25 Inches, on the *Gauge Line*, is one Gallon, and .745 of a Gallon; which multiplied by 32. 06, the Length, gives 55 .9447 Gallons for the Content of the Vessel.

The Bung *Diameter of a Hogshead being* 25 *Inches, the Head Diameter* 22 *Inches, and the Length* 32. 06 *Inches; to find the Quantity of Ale Gallons contain'd in it.*

Seek 25, the Bung Diameter, on the Line of Inches; and right against it on the Gauge Line you will find 1.745: Take one Third of it, which is .580, and set it down twice: Seek 22 Inches the Head Diameter, and against it you will find on the Gauge Line, 1.356; one Third of which added to twice .580, gives 1.6096; which multiplied by the Length 32.06, the Product will be 51.603776, the Content in Ale Gallons.

Note, This Operation supposes, that the aforesaid Hogshead is in the Figure of the middle Frustum of a Spheroid.

The Use of the Lines on the two other Faces of the Rod, is very easy; you need only put it down right into the Bung-hole (if the Vessel you desire to know the Quantity of Ale Gallons contained therein be lying) to the opposite Staves; and then, where the Surface of the Liquor cuts any one of the Lines appropriated for that Vessel, will be the Number of Gallons contained in that Vessel.

The Description and Use of Everard's *Sliding Rule for* GAUGING, *see under the Article* SLIDING *Rule.*

GAUGING *Rod*; see GAUGING.

GAULISH *Language*; see ROMAN, and FRENCH.

GAUNT, an old Word for *lean*, or lank: Thus we say, a *gaunt*-belly'd or light-belly'd Horse, when his Belly shrinks up towards his Flanks.

GAURES, GAVRES, a religious Sect in *Turkey*, *Persia*, &c. The Turks call the Christians, *Gaures*; *q. d.* Infidels, or People of a false Religion; or rather, as *Leunclavius* observes, *Heathens*, or *Gentiles:* The Word *Gaure* among the *Turks* having the same Signification, as *Pagan*, or *Infidel*, among the Christians; and denoting any thing not *Mahometan.*

In *Persia*, the Word has a like general Signification; and beside a more peculiar one, wherein it is applied to a Sect dispersed thro' the Country, and said to be Remains of the antient *Persians*, Worshipers of Fire: Tho', upon the whole, they rather appear to have been *Persians* converted; who being afterwards left to themselves, mingled their antient Superstitions with the Truths and Practices of Christianity; and so form'd themselves a Religion a-part.

The *Gaures* pretend they derive their Religion from one *Azer*, a *Frank* by Nation, and by Profession a Sculptor: This Man coming to *Babylon*, where they then dwelt, married a Maid of the Country, named *Dogdon*; who, after a Visit which she received from an Angel, was fill'd with a Divine Light;

Light; and ſoon afterwards found herſelf with Child. The Aſtrologers, at the ſame time, perceiving that the Child wou'd be a great Prophet, and the Founder of a new Religion; *Neubrout*, the Prince then reigning, was advertis'd hereof; who gave immediate Orders for all the Women with Child to be put to death, throughout his Empire.

The Order was executed accordingly; but the Mother of the future Prophet, ſhewing no Tokens of Pregnancy, eſcaped; and was at length happily deliver'd of a Son, call'd *Ebrahim Zer-Ateucht*.

After his Birth, new Dangers aroſe: The King, being inform'd thereof, had him brought before him; and drawing his Sabre, would have ſlain him with his own Hand; but his Arm grew motion-leſs upon the Spot: Upon this, a huge Fire was lighted, and the Child caſt into the ſame; but he reſted therein, as on a Bed of Roſes. He was afterwards deliver'd from other kinds of Death, by a ſort of Flies, which infeſted the Kingdom; one whereof, entring the King's Ear, render'd him frantic, and at length killed him.

Cha Glochtes, his Succeſſor, made the like Attempts on the Child; but was ſo ſtruck with the Miracles which he ſaw him work, that he began to adore him, as all the reſt of the People already did.

At length, after a great Number of Miracles, the Prophet diſappear'd.—Some held he was tranſlated into Heaven, Body, and Soul: Others, that he found an iron Coffin near *Bagdat*, where ſhutting himſelf up, he was carried away by the Angels.

After he was in Poſſeſſion of Paradiſe, God ſent them, thro' his means, ſeven Books; which contain'd all the Matters of Religion; and afterwards, ſeven more, of the Explication of Dreams; and laſtly, ſeven of Medicine. *Alexander* the Great burnt the firſt ſeven, by reaſon no body underſtood the Language, and kept the other fourteen for his own Uſe.

After his Death, ſome of the Prieſts and Doctors among the *Gaures*, retriev'd as much as their Memory would allow them, of the loſt Books; and compoſed a large Volume, ſtill extant among the modern *Gaures*; tho' they underſtand nothing, either of the Words, or the Character.

Throughout the whole, we ſee the Marks, and Traces of Chriſtianity; tho' grivouſly defaced: The *Annunciation*; the *Magi*; the *Maſſacre of the Infants*; Our Saviour's *Miracles*; his *Perſecutions*, *Aſcenſion*, &c.

GAWZE, in Commerce; a very thin, ſlight, tranſparent kind of Stuff, wove ſometimes of Silk, and ſometimes only of Thread. See STUFF.

To warp the Silk for making of *Gawze*, they uſe a kind of Mill, upon which the Silk is wound: This Mill is a wooden Machine, about ſix Feet high; having an Axis perpendicularly placed in the Middle thereof, with ſix large Wings, on which the Silk is wound from off the Bobbins, by the Axis turning round.

When all the Silk is on the Mill, they uſe another Inſtrument, to wind it off again on to two Beams: This done, the Silk is paſs'd thro' as many little Beads as there are Threads of Silk; and thus rolled on another Beam, to ſupply the Loom.

The *Gawze Loom* is much like that of the common Weavers, tho' it has ſeveral Appendages peculiar thereto. See LOOM.

There are *Figur'd Gawze's*; ſome with Flowers of Gold and Silver, on a Silk Ground: Theſe laſt are chiefly brought from *China*.

GAYAC, GAYACUM, or GAYACAN, a Medicinal Wood, brought from the *Indies*; much uſed in Venereal Diſorders; called alſo *Lignum Sanctum*; and by the *Spaniards*, *Ligno Santo*. See WOOD.

Gayac grows equally in the Eaſt and Weſt *Indies*: That of the latter is brought in large Pieces, ſome of them weighing four or five hundred Pound; by which it is diſtinguiſh'd from the former.

The *Gayac* Tree, is the Heigth of our Walnut Tree; and is diſtinguiſh'd into two Kinds, Male and Female; only differing, as their Leaves are more or leſs round; being all equally green, the Flowers blue, and of a ſtarry Form; having a little Orange-colour'd Fruit, about the Size of a ſmall Nut, at the Tip thereof.

The Wood *Gayac* is extreamly hard and heavy, and on that account uſed as Ebony, in Moſaic Work, &c. as alſo for the making of Button Moulds. See EBONY.

But its principal Uſe is in Medicine, being found to warm, rarify, attenuate, attract and promote Sweats and Urine. The uſual way of applying it, is in Decoction.

The beſt is that in large Pieces, of a duſky Colour, freſh, gummy, heavy, of an agreeable Smell, and a briſk pungent Taſte; the Bark ſticking cloſe to the Wood.

The Bark of *Gayac* is held of as much Virtue, as the Wood it ſelf: The Rind is of no Efficacy; ſo that to make a Sudorific Decoction or Ptiſan of the Wood, they firſt pare off all the white Part, which in Reality is the Rind; and only chip or raſp the hard, ſolid Part, which is black, heavy and reſinous.

The Chirurgeons frequently ſubſtitute Box-wood, inſtead of *Gayac*, and, 'tis ſaid, with equal Succeſs.

The Reſin drawn from *Gayac*, is held much more effectual in Venereal Caſes, than either the Wood, or Bark. 'Tis brought us in large Pieces, not unlike common Rozin; but very different in reſpect of Smell: The former, when caſt on the Coals, yielding a very agreeable balſamick Fume.

GAZETTE, a *News Paper*, or printed Account of the Tranſactions of divers Countries, in a looſe Sheet.

Thus we ſay, the *London Gazette*, *Paris Gazette*, *Gazette a la main*, &c.

Gazettes, which moſt People look on as Triffles, are really the moſt difficult kind of Compoſitions that have appear'd. They require a very extenſive Acquaintance with the Languages, and all the Terms thereof; a great Eaſineſs and Command of writing, and relating, Things cleanly, and in a few Words.

To write a *Gazette*, a Man ſhould be able to ſpeak of War both by Land and Sea; be thoroughly acquainted with every thing relating to Geography, the Hiſtory of the Time, and that of the Noble Families; with the ſeveral Intereſts of Princes, the Secrets of Courts, and the Manners and Cuſtoms of all Nations.

Vigneul de Marville recommends a Set of *Gazettes* well wrote, as the fitteſt Books for the Inſtruction of young Perſons, coming into the World.

The Word is form'd of *Gazetta*, a kind of Coin, formerly currant at *Venice*; which was the ordinary Price of the firſt News Papers printed there: Tho' others derive it by corruption from the Hebrew *Izgad*, which ſignifies *Nuntius*, a Meſſenger; but this Etymology is too much forced, and the former ought to be preferred.

The firſt *Gazette* publiſh'd in theſe Parts, is ſaid to be that of *Paris*, begun in the Year 1631 by *Theophraſt Renaudot*, a Phyſician of *Montpelier*, in his Office of Intelligence. See INTELLIGENCE.

GAZONS, in Fortification, Pieces of freſh Earth cover'd with Graſs, cut in form of a Wedge, about a Foot long, and half a Foot thick; to line Parapets, and the Traverſes of Galleries. See PARAPET, GALLERY, &c.

GEERS, a general Term for Trappings, Harneſs, and all other Things, that belong to Draught-horſes or Oxen.

GEHENNA, a Scripture Term, which has given ſome pain to the Criticks. It occurs in St. *Matthew* v. 22, 29, 30. x. 28. xviii. 9. xxiii. 14. 33. *Mark* ix. 42. 44. 46. *Luke* xii 5. *James* iii. 6.

The Authors of the *Lovain*, and *Geneva* Verſions, retain the Word *Gehenna*, as it ſtands in the *Greek*; the like does Monſ. *Simon*: The *Engliſh* Tranſlators render it by *Hell*, and *Hell-Fire*; and the like do the Tranſlators of *Mons*, and Father *Bouhours*.

The Word is form'd from the Hebrew *Gehinnom*, *i. e.* Valley of *Hinnom*. In that Valley, which was near *Jeruſalem*, there was a Place named *Topheth*, where ſome Jews ſacrificed their Children to *Moloch*, by making them paſs through the Fire. King *Joſias*, to render this Place for ever abominable, made a Cloaca, or common Shore thereof, where all the Filth, and Carcaſſes in the City were caſt. The *Jews* obſerve further, that there was a continual Fire kept up, to burn and conſume thoſe Carcaſſes; for which reaſon, as they had no proper Term in their Language, to ſignify *Hell*, they made uſe of that of *Gehenna*, or *Gehinnom*, to denote a Fire unextinguiſhable.—

GELATINOUS, among Phyſicians, is applied to any thing approaching the glutinous Conſiſtence of a Jelly.

GELD, in our antient Cuſtoms, a Mulct, or Compenſation for a Crime, or Delinquency. See MULCT.

Hence, *Wergild* was antiently uſed for the Value or Price of a Man ſlain; and *Ortgild* of a Beaſt.

Et ſint quieti de Geldis, & *Danegeldis*, *Horngeldis*, & *Fortgeldis*, & *de Blodwita* & *Flitwita*, & *Leirwita*, & *Heingwita*, & *Fremineſeuda*, & *Werdpeni*, & *Averpeni*, & *Hundredpeni*, & *Tolingpeni*. Charta Ric. 2. Priorat. de Hatland in Devon.

GELDABLE, ſee GILDABLE.

GELDING, the Operation of Caſtrating, and particularly Horſes. See CASTRATION.

The ſame Term is alſo applied to a Horſe thus caſtrated; or whoſe Teſticles are cut out; to diſable him from being a Stallion.

In *gelding* of Horſes, regard is had to their Age, the Seaſon of the Year, and the State of the Moon.

For the Firſt, If it be a Colt, the Operation may be perform'd at nine, or fifteen Days old, if the Teſticles be come down; in regard the ſooner he is *gelt*, the better it will be for his Growth, Shape, and Courage; tho' a Horſe may be *gelded* at any Age, if care be taken in the Cure.

As for the Second, The beſt Time is about *April*, or *May*; or elſe about the latter End of *September*.

For the Third, The Wane of the Moon is prefer'd as the fitteſt Time.

The manner of gelding is thus: The Beaſt being caſt on ſome ſoft Place, the Operator takes the Teſticles between his fore and great Finger; ſlits the Cod, and preſſes out the Stones; then with a pair of Nippers made very ſmooth, either of Steel, Box, or Brazil, claps the Strings of the Stones between them, very near to where the Stones are ſet on; and preſſes them ſo hard, that there may be no Flux of the Blood; then ſears away the Stone with a thin drawing cauterizing Iron, made red hot.

This done, he takes a hard Plaſter, made of Wax, Roſin, and waſh'd Turpentine melted together, and melts it on the Head of the Strings with the hot Iron; and afterwards ſears the Strings, and melts more of the Salve, till there is a good Thickneſs of the Salve laid on the Strings.

This being done to one Stone, the Nippers are looſen'd, and the like done to the other; and the two Slits of the Cod fill'd with white Salt; and the Out-ſide of the Cod anointed with Hogs Greaſe: And thus they let him riſe, and keep him in a warm Stable, without tying him up.

If he ſwells much in his Cod, or Sheath, they chafe him up and down, and make him trot an Hour in a Day; and he ſoon recovers.

GELOSCOPY, Geloscopia, a kind of Divination, perform'd by the means of Laughter: Or, a Knowledge of any Perſon's Character and Qualities, acquired from the Conſideration of his Laughter. See Physiognomy.

Metapoſcopy, Chiromancy, *Galoſcopy*, Ophthalmoſcopy, Idemgraphy; *Maſcurat.* p. 607.

GEM, Gemma, a common Name for all precious Stones, or Jewels. See Precious *Stones*.

Among *Gems*, the principal are the *Diamond*, *Ruby*, *Saphir*, *Emerald*, *Turcoiſe*, *Opal*, *Agat*, *Cryſtal*, &c. See each under its proper Article, Diamond, Ruby, Saphir, Emerald, &c.

Pearls are alſo ranked among *Gems*; tho' not Stones. See Pearl.

Several Authors, both Antient and Modern, relate Wonders of the Virtues and Medicinal Properties of *Gems*: But their Reputation, in this reſpect, is now not a little fallen; and many even deny them any Virtue at all. Yet are the Fragments of ſuch Stones ſtill preſerv'd by the Phyſicians, in ſome of the moſt celebrated Compoſitions; and there are ſeveral Chemical Preparations made of them.

In effect, as ſeveral Perſons of the greateſt Candour and Experience, have related ſome conſiderable Effects of certain *Gems*, on their own particular Obſervations; and, as it is no ways improbable that ſome of the ſofter Stones may have conſiderable Operations on the human Body; it might be imprudent indiſcriminately to exclude them from any Medicinal Vertue at all.

When much the greateſt Part of their traditionary Qualities are ſet aſide as fabulous; there will ſtill remain ſome, on as real, and well warranted a footing, as many of our other Medicines.

On ſuch Conſiderations, Mr. *Boyle* was induced to give us a Treatiſe of the *Origin and Virtue of Gems*; the Purport whereof is to make appear, that ſuch Stones were originally in a fluid State; or made up of ſuch Subſtances as were formerly fluid; and that many of their general Virtues are probably derived from the Mixture of Metalline, and other Mineral Subſtances uſually incorporated with them; while the great Variety, and the particular Efficacy of their Virtues ariſe from ſome happy concurrent Circumſtances of that Commixture; *e. gr.* the peculiar Nature of the impregnating Liquor, the Proportion wherein it is mix'd, with the petreſcent Juice, and the like.

To ſupport this Hypotheſis of the Virtues of *Gems*, he ſhews that ſeveral of them are not ſimple Concretions of any petreſcent Liquors, but conſiſt alſo of other mineral adventitious Parts; which he argues from the Separableneſs of ſuch Subſtances in ſome Stones; the ſpecific Gravity in others; and the different Waters or Tinctures to be met with in *Gems* of the ſame Species, as Rubies, Saphires, Granates, and even Diamonds; of which ſome are yellow; ſome of other Colours; and ſome green, almoſt like Emeralds.

There may therefore be in ſome *Gems* numberleſs adventitious Corpuſcles: But there is great reaſon to think that ſome of theſe Corpuſcles may be endued with ſeveral Properties and Medicinal Virtues: There is a great Difference among theſe impregnating Particles; and probably a greater Variety than is known by us: And laſtly, many *Gems* are very richly impregnated with theſe Particles; why, then, may not they exert ſome Power? This is the Subſtance of what is directly alledg'd, in behalf of *Gems*.

The Streſs of what is objected againſt them, is, that the Mineral Subſtances they contain, are ſo cloſely locked up, that they can communicate nothing to the Body, and ſo can have no medicinal Operation, being unconquerable by ſo ſmall a Heat, as that of the Stomach, and other Parts of the Body. See Digestion.

Which Objection might be plauſible enough to prevent one's aſcribing any Medicinal Virtues to them *a priori*; but can conclude nothing againſt what is warranted by ſo many Facts, and Obſervations; eſpecially, when there are ſeveral Particulars, that obviate this Objection.

For, a vigorous Loadſtone, tho' frequently harder than many *Gems*, is known to emit copious Effluvia: And there are many which have been found to have a manifeſt and inconvenient Operation on the human Body, by being wore in the Pocket, or long held in the Hand. Mr. *Boyle* has found many tranſparent Pebbles, which, when cut, would reſemble Diamonds, that might be immediately brought to emit copious, and ſtrong-ſcented Steams. And if electrical Attractions be owing to the Effluvia of Bodies excited by rubbing; very ſlight Alterations may ſuffice to procure Expirations from tranſparent *Gems*, many of which are electrical, and even the hardeſt of all, *viz.* Diamonds; one of which Mr. *Boyle* kept by him, which upon a little Friction would attract very vigorouſly. See Magnet, Effluvia, Electricity, Diamond, &c.

To that Part of the Objection, which pretends *Gems* not to be digeſtable by the Heat of the Stomach, it may be replied, that we do not know how far the Digeſtion of Things in the Stomach is owing to Heat: Nor is it proved, that ſuch Materials can have no Operation on the Body, without being digeſted, *i. e.* in paſſing thro' it, without undergoing any ſenſible Change of Bulk, Figure, &c. as *Gems*, when ſwallow'd, are ſuppoſed to do.

For ſome Chemiſts make a kind of Bullets of Regulus of Antimony, which they call *Pillulæ perpetuæ*, becauſe when they have perform'd their Operation in the Body, and are caſt forth with the Excrements, they may be applied again and again to the ſame purpoſe. Nor do we know, what Analogy there may be between ſome Juices in the Body, and thoſe mineral Parts which impregnate *Gems*: For tho' *Oculus Mundi* be reckon'd among the rare *Gems*; yet if one of the beſt ſort, be, for a while, kept in common Water, it will receive an Alteration, obvious to the Eye.

Add that Mr. *Boyle* has, without Heat, obtain'd a manifeſt Tincture from ſeveral hard Bodies, and even from a tranſparent ſort of *Gems*, by means of a faint Liquor, diſtilled from a Vegetable Subſtance; as harmleſs, and as plentifully eaten as Bread. And whether ſome Juices of the Body, aſſiſted by the natural Heat thereof, may not ſerve for Menſtrua to ſome *Gems*, we will not ſay; but even the natural Heat of a human Stomach, nay perhaps of the external Parts of the Body, may be able, tho' not to digeſt pretious Stones, yet to fetch out ſome of their Virtues: For 'tis certain, it makes a ſenſible Alteration in the hardeſt Sort of them: Witneſs a Diamond of Mr. *Boyle*'s; which might have its electrick Faculty excited without rubbing, only by a languid Degree of adventitious Heat: And another, which, by means of Water, made a little more than luke warm, might be brought to ſhine in the dark. See Phosphorus.

Laſtly, if it be yet objected, that 'tis not likely *Gems* ſhould part with any Effluvia, or Portions of themſelves, inaſmuch as they loſe none of their Weight: It may be anſwer'd, that the Antimonial Glaſs and Cup imbue Wine and other Liquors, with a ſtrong emetic Quality, without undergoing any ſenſible Diminution of Weight. Add, that though common Water be not allow'd a Menſtruum fit to draw any thing from Mercury; yet, both *Helmont*, and others inform us, that a large Quantity of it being kept a Day or two upon a ſmall Proportion of that Drug, will acquire a Virtue of killing Worms; tho' the Mercury retains its former Weight. See Mercury.

Gem, or Germen, in Botany, a Shoot, or Bud of a Plant. See Plant, Germen, Bud, Germination, &c.

GEMARA, or Ghemara, the ſecond Part of the *Talmud* of *Babylon*. See Talmud.

The Word גמרה *Gemara*, is commonly ſuppos'd to denote a *Supplement*; but, in Strictneſs, it rather ſignifies *Complement*, Perfection; as being form'd of the *Chaldee* גמר *Gemar*, or *Ghemar*, to finiſh, perfect, or compleat any thing: In which Senſe it is that the Rabbins uſe the Word.

For, the Pentateuch, they call ſimply the *Law*; the firſt Part of the *Talmud*, which is only an Explication of that Law, or an Application thereof to particular Caſes, with the Deciſions of the antient Rabbins thereon, they call the *Miſchna*, *i. e.* Second Law; and the ſecond Part, which is a more extenſive and ample Explication of the ſame Law, and a Collection of Deciſions of the Rabbins, poſterior to the Miſchna, they call *Gemara*, *i. e.* Perfection, Completion, Finiſhing; by reaſon they eſteem it the Finiſhing of the Law, or an Explication, beyond which there is nothing further to be deſired. See Mischna.

The *Gemara* is uſually call'd *Talmud*, the common Name of the whole Work. In this Senſe we ſay, there are two

Gama-

Gemara's, or Talmuds; that of *Jeruſalem*, and that of *Babylon*: Tho' in Strictneſs, the *Gemara* is no more than an Explication of the Miſchna, made by the Jewiſh Doctors in their Schools: Much as the Commentaries of our School Divines on St. *Thomas*, or the Maſter of the Sentences, are an Explication of the Writings of thoſe Authors.

A Commentary, Monſ. *Tillemont* obſerves, was wrote on the *Miſchna*, by one *Johanan*, whom the *Jews* place about the End of the ſecond Century: But Fa. *Morin* proves from the Work it ſelf, wherein mention is made of the *Turks*, that it was not wrote till the time of *Heraclius*, about the Year 620: And this is what is called the *Gemara*, or *Talmud of Jeruſalem*, which the *Jews* do not uſe or eſteem much, by reaſon of its Obſcurity.

They ſet a much greater Value of the *Gemara*, or *Talmud of Babylon*, begun by one *Aſa*; diſcontinued for 73 Years, on occaſion of the Wars with the *Saracens* and *Perſians*; and finiſh'd by one *Joſa*, about the Cloſe of the ſeventh Century.

Tho' the Name *Talmud*, in its Latitude, include both the *Miſchna*, and the two *Gemara's*; yet is it properly that of *Aſa* and *Joſa* alone which is meant under that Name.

This the *Jews* priſe above all their other Writings; and even ſet it on a Level with Scripture itſelf: In effect, they conceive it as the Word of God, derived by Tradition from *Moſes*, and preſerved without Interruption to their time. See TRADITION.

Ra. *Jehuda*, and afterwards R. *Jehanan*, R. *Aſa*, and R. *Joſa*, fearing the Traditions ſhould be loſt in the Diſperſion of the *Jews*, collected them into the *Miſchna* and *Gemara*.

GEMATRIA, or GAMETRIA, the firſt kind of arithmetical Cabbala, uſed by the Cabbaliſtick *Jews*. See CABBALA.

Gematria is a Geometrical, or Arithmetical manner of explaining Words; whereof there are two Kinds: The firſt bearing a more immediate Relation to *Arithmetick*; and the latter, to *Geometry*.

The *firſt* conſiſts, in taking the Numerical Value of each Letter in a Word, or Phraſe; and giving it the Senſe of ſome other Word, whoſe numerical Letters, taken after the ſame manner, make the ſame Sum.

For it is to be obſerv'd, that neither the *Hebrews*, nor *Greeks*, have any other Numeral Figures, beſide the Letters of the Alphabet. See LETTER, and CHARACTER.

Thus, a Cabbaliſt, taking the two firſt Words in *Geneſis*, בראשית ברא, and by Addition getting the Sum total of all the Numbers, ſignify'd by thoſe Letters; finds that theſe two Words ſignify the ſame as thoſe other three, נראש השנה נברא: For, as to the firſt; ב, is 2; ר, 200; א, 1; ש, 300; י, 10; ת, 400; ב, 2; ר, 200; and א, 1: Which, together make 1116. And as to the latter; ב, ſignifies 2; ר, 200; א, 1; ש, 300; ה, 5; נ, 50; ש, 300; ה, 5; נ, 50; ב, 2; ר, 200; and א, 1: Which, ſumm'd up, yield the ſame ber 1116.

Whence the Cabbaliſt concludes, בראשית ברא, *in the Beginning he created*; ſignifies the ſame thing as נראש השנה נברא, *it was created at the beginning of the Year*; and accordingly, the received Opinion of the Cabbaliſts, is, that the World was created at the beginning of the Month *Thiſri*, which was antiently the firſt Month in the Year, and anſwers to our firſt Month in Autumn, *viz. September*.

So, again, in the Prophecy of *Jacob*, *Gen.* xl. 9, the Words יבא שילה are underſtood of the *Meſſiah*; by reaſon they make the ſame Number with משיה, which ſignifies the Meſſiah.—

The *ſecond* kind of *Gematria* is much more obſcure, and difficult; and accordingly leſs uſed: 'Tis employ'd in ſeeking for abſtruſe, and hidden Interpretations in the Dimenſions and Parts of the Buildings mention'd in Scripture, by dividing, multiplying, &c. thoſe Magnitudes by each other. Of this we ſhall give an Example from ſome Chriſtian Cabbaliſts.

The Scripture ſays, that *Noah*'s Arch was 300 Cubits long, 50 wide, and 30 high: Now, the Cabbaliſt takes the Length for the Baſis of his Operations: 300, in the *Hebrew*, is expreſs'd by the Letter ש; which Length, divided by the Height 30, gives the Quotient 10: The *Hebrew* Character whereof is י, to be placed on the right Side of ש. He then divides the ſame Length by the Width, 50; the Quotient whereof, 6, is expreſs'd by a ו; which being placed on the left Side of ש, makes, together with the other two Letters, the Name JESUS, ישו. Thus, by the Rules of Cabbala, it appears, that there is no Salvation, but in Jeſus Chriſt; as, at the Deluge, no Perſon was ſaved but thoſe in the Ark.

After the ſame manner, is the ſame Name ישו found in the Dimenſions of *Solomon*'s Temple. But it is rather an Injury, than an Advantage to the chriſtian Religion, to ſupport it by ſuch frivolous Evidences.

The Word *Gematria* is derived from the Rabbinical *Hebrew* גימטריא, form'd by Corruption of the *Greek* Γεωμετρία *Geometry*.

GEMELLES, in Heraldry, a bearing of Bars by Pairs, or Couples, in a Coat of Arms: As, he beareth Gules on a Chevron Argent, three Bars *Gemelles* Sable, by the Name of *Throgmorton*.

GEMELLUS, in Anatomy, a Muſcle of the Arm, call'd alſo *Biceps externus*, as having two Heads. See BICEPS.

One of the Heads of this Muſcle riſes tendinous from the upper Part of the inferior Coſta of the Scapula, whence paſſing between the Muſcles to the back Part of the Humerus, it joins the other Head; and both run together to their Inſertion at the Anco or Tip of the Elbow.

The *Gemellus* is the firſt Extenſor of the Cubit; and is by many reckon'd two diſtinct Muſcles; the firſt called *Longus*; the latter, *Brevis*.

GEMINI, in Aſtronomy, *the Twins*; a Conſtellation, or Sign of the Zodiac: The third in Order; repreſenting *Caſtor* and *Pollux*. See SIGN, and CONSTELLATION.

The Stars in the Sign *Gemini*, in *Ptolomy*'s Catalogue are 24; in *Tycho*'s 29; in the *Britannic Catalogue* 79. The Order, Names, Longitudes, Latitudes, Magnitudes, &c. whereof, are as follow.

Stars in the Conſtellation GEMINI.

Names and Situations of the Stars.	Signs.	Longitude ° ′ ″	Latitude. ° ′ ″		Magn.
That preced. *Caſtor*'s Foot	♊	26 37 24	0 12 19	A	4
		27 13 25	0 9 50	P	8
		27 54 29	0 21 05	A	8
		28 5 24	0 28 05	A	7
		28 18 11	0 57 59	B	7
5					
		28 30 25	0 32 35	A	7
In preced. Foot of *Caſtor*		29 6 43	0 56 00	A	4
		29 23 55	0 32 20	B	7 8
		29 33 5	0 18 48	B	7
		00 0 9	0 11 25	B	8
10					
	♋	0 5 39	0 3 40	B	8
		0 6 35	0 8 05	A	8
Subſeq. in the ſame Foot		0 58 10	0 51 22	A	3
		1 38 30	1 42 18	A	7 8
		1 54 12	0 32 25	A	7
15					
		2 9 43	2 32 13	A	7
		2 13 30	2 50 09	A	7
In Extrem. of *Caſtor*'s hind Foot		2 28 20	3 06 03	A	4
		3 19 16	7 22 33	A	7
		3 23 4	5 29 15	A	7 8
20					
		3 38 19	5 28 26	A	7
		3 27 46	4 46 30	B	6
		3 50 57	3 48 39	A	7
		4 20 7	6 14 57	A	7
		4 6 16	5 47 05	B	6
25					
Lucid Foot of *Pollux*		4 46 18	6 47 19	A	2 3
		4 24 39	5 4 50	B	6
		4 48 34	5 2 43	B	7
In *Caſtor*'s upper Knee		5 48 02	5 27 34	A	5
		5 36 37	2 1 30	B	3
30					
		5 30 22	5 52 00	B	6
		5 35 25	5 51 40	B	6 7
		6 31 48	9 50 24	A	7
In Extrem. of *Pollux*'s hind foot		6 52 53	10 07 57	A	5 4
		7 2 57	10 20 13	A	7
35					
		7 41 5	6 45 50	A	6 7
In *Caſtor*'s Fore-arm		6 47 30	10 58 25	B	4 3
		8 5 48	9 31 38	A	7
That preced. *Pollux*'s Knee		7 37 39	1 11 15	A	6
		8 9 46	2 29 09	B	6
40					
In the Heel of *Pollux*'s hind-foot		9 8 19	9 40 15	A	6
		8 53 7	3 15 36	B	6 7
		9 2 13	3 7 12	B	6
In *Caſtor*'s Thigh		9 52 20	1 30 14	B	6
In Hind-knee of *Pollux*		10 39 40	2 5 27	A	3
45					
In *Caſtor*'s Groin		10 42 25	0 0 11	B	6 7
		12 11 13	6 34 25	A	6 5
In Fore-arm of *Caſtor*		11 9 53	7 43 03	B	5
		11 34 30	4 21 25	B	6
Loweſt in *Caſtor's* Loins		12 9 12	1 41 05	B	6
50					
		12 3 8	3 17 36	B	7
		13 13 35	7 13 25	A	7
		13 21 51	6 13 13	A	6 7
Upper in *Caſtor*'s Loins		12 33 46	2 29 56	B	5
That againſt *Pollux*'s Leg.	♊	14 27 14	5 40 37	A	5

Names

Names and Situations of the Stars.	Signs.	Longitude. ° ′ ″	Latitude. ° ′ ″		Magn.
	♊	14 11 20	0 13 07	A	3
In *Pollux*'s Belly		14 49 39	1 40 58	A	6 7
That againſt *Pollux*'s Side		14 32 05	2 55 41	B	5 6
		14 49 33	0 50 57	B	7 8
		14 23 25	5 31 06	B	7
50					
In hind Shoulder of *Caſtor*		14 38 10	5 43 35	B	4 5
South againſt *Pollux*'s Side		16 00 45	1 41 55	A	6
Againſt *Caſtor*'s Ear		14 44 46	9 45 10	B	5
North againſt *Pollux*'s Side		16 01 29	0 29 28	A	6
Againſt *Caſtor*'s hind Shoulder		15 22 58	6 09 23	B	6
55					
Contiguous thereto, but more S.		15 30 51	5 58 20	B	7
In the preced. Head of *Caſtor*		15 55 20	10 03 48	B	1 2
		18 13 58	6 02 17	A	7 8
Preced. of 4 under *Pollux*'s Side		18 15 24	5 50 21	A	6
Subſeq. in *Caſtor*'s Shoulder		17 01 34	5 11 01	B	5
60					
		16 10 28	13 18 13	B	6
Over *Caſtor*'s Head		16 23 22	12 52 49	B	5
		17 35 36	6 26 15	B	6
		17 43 29	6 14 26	B	7
Second under *Pollux*'s Side		19 20 32	3 47 19	A	6
65					
Between the two Heads		18 17 56	7 25 46	B	5
Over *Pollux*'s hind Shoulder		19 01 13	4 24 00	B	6
In the hind Shoulder of *Pollux*		19 20 18	3 02 23	B	4 5
In the Head of the 2d of *Pollux*		18 56 09	6 39 27	B	2
		20 12 59	0 57 03	A	7
70					
Over *Pollux*'s Head		18 20 47	12 01 41	B	6
Third under *Pollux*'s Side		20 45 53	2 40 59	A	6
(lux		20 29 59	1 57 19	B	6
Preced. of thoſe that follow *Pol*-		20 55 12	5 44 38	B	6
		21 40 57	1 21 33	B	5
75					
Laſt of 4 under *Pollux*'s Side		22 43 34	0 54 41	A	7
Middle of thoſe yt follow *Pollux*		22 54 28	7 11 26	B	5
		24 07 46	7 08 01	B	6
North of thoſe yt follow *Pollux*		24 35 27	9 27 22	B	6

GEMINI, in Anatomy, two Muſcles of the Thigh, which ariſe from the Protuberance of the Iſchium, and are inſerted with the Pyriformis into the Dent at the Root of the great Trochanter.

GEMMA, or *Sal* GEMMÆ, is peculiarly uſed for Rock Salt, or Salt dug out of Mines.—See SALT.

The Name *Gemma* is applied hereto, on occaſion of its Luſtre, and Brillant; which is not unlike that of Cryſtal.

The principal Mines of this Salt are thoſe of *Wiliſca*, in *Poland*; of *Eperie*, in *Upper Hungary*; and of *Cardonna*, in *Catalonia*.——The principal Uſe of this Salt is for the powdering, or pickling of Meats, in Places deſtitute of Salt-Springs, &c.

GEMMA, among Botaniſts, the turgid Bud of any Tree, when it is beginning to bear; call'd alſo *Oculus*, or Eye. See BUD, EYE, &c.

GEMONIÆ, call'd alſo *Scalæ* GEMONIÆ, and *Gradus* GEMONII, among the *Romans*, were much the ſame as *Gallows*, or *Gibbets* in *England*. See GALLOWS, and GIBBET.

The *Gradus Gemonii*, according to *Publius Victor*, or *Sextus Rufus*, was a Place rais'd on ſeveral Steps, from whence they precipitated their Criminals. Others repreſent it as the Place whereon they were executed, and afterwards expoſed to publick View.

The *Gemoniæ* were in the tenth Region of the City, near the Temple of *Juno*. *Camillus* firſt appropriated the Place to this Uſe, in the Year of *Rome* 358.

Some ſay, they were thus denominated from the Perſon who rais'd them: Others, from the firſt Criminals, that ſuffer'd on them: Others, from the Verb *gemo*, I ſigh, or groan.

GEMOTE, *Conventus*, a *Saxon* Word, denoting a *Meeting*. *Omnis homo pacem habeat eundo ad* Gemotum *& rediens de* Gemoto, *niſi probatus fur fuerit*. LL. Ed. Conf.

GENDARMES, or GENS D'ARMES, *q. d. Men of Arms*, a Term uſed among the *French*, for the King's Horſe Guards; by reaſon they ſucceeded the antient *Men of Arms*, who were arm'd at all Points, and thence call'd *Gendarmes*. See GUARDS.

At preſent, the Companies of the King's *Gard de Corps*, the Muſqueteers, and Light Horſe, are reputed to belong to the *Gendarmerie*. See GENDARMERIE.

The *Grand Gendarmes*, ſometimes call'd ſimply the *Gendarmes*, are a Company of Gentlemen, to the Number of about 250, who guard the King's Perſon. The King himſelf is their Captain; and one of the prime Peers, the Lieutenant Captain. When the King marches with all his Houſhold Troops, the *Gens d'Armes* cloſe the March.

Their Device is, a Thunderbolt, falling from Heaven, with the Motto, *Quo jubet iratus Jupiter*. There are alſo *Gens d'Arms* of the Queen, the Dauphin, &c.

GENDARMERIE, or GENS D'ARMERIE, the *French* Cavalry, and particularly that of the King's Houſhold. See GENDARMES.

The *Gendarmerie*, at preſent, is a Body of Horſe, conſiſting of 16 Companies, *viz.* the *Scotch* Gendarmes; the *Engliſh* Gendarmes; the *Burgundy* Gendarmes; and the *Flemiſh Gend'Armes*: Which four Companies compoſe the King's *Gens d'Armes*, or Life Guard.

The other Companies take their Names from the Princes who command them, as Captains; *viz.* the Queen's *Gens d'Armes*; the Queen's Light Horſe: The Dauphins *Gens d'Armes*; the Dauphins Light Horſe: The Duke of *Burgundy*'s *Gens d'Armes*; the Duke of *Burgundy*'s Light Horſe: The Duke of *Orlean*'s *Gens d'Armes*, &c. Each Company, at a Medium, conſiſts of 76 *Gens d'Armes*, or Light Horſe.

GENDER, GENUS, in Metaphyſicks; ſee GENUS, and KIND.

GENDER, in Grammar, a Diviſion, or Diſtinction of Nouns or Names, according to the different Sexes of the Things they denote. See NOUN.

It has been thought proper, in order to render Diſcourſe more expreſs, and diſtinct, as alſo to embelliſh it by a Variety of Terminations; to contrive certain Diverſities in Adjectives, accommodated to the Subſtantives they are applied to: Whence, from a Regard to that notable Difference there is between the two Sexes, all Nouns Subſtantives have been diſtinguiſh'd into Maſculine, and Feminine; and the Nouns Adjectives alſo varied to correſpende therewith. See ADJECTIVE.

But as there was an Infinity of Words, which had no proper Relation, either to the one Sex, or the other; they had *Genders* aſſigned them, rather out of Caprice, than Reaſon: And hence it is that the *Gender* of a Noun is frequently dubious and fluctuating. See MASCULINE, and FEMININE.

It ſhould here however be obſerved, that this Inſtitution of *Genders* was not made with Deſign and Deliberation, by the Maſters of Language; but was introduced by Cuſtom and Uſage. At firſt, there was only a Difference between the Names of Animals, when ſpoke of Males, and Females; by degrees, the ſame Regulation was extended to other Things: The Grammarians have only obſerved and followed, what Uſage had eſtabliſh'd.

The Oriental Languages frequently neglect the Uſe of *Genders*; and the *Perſian* Language has none at all, which is no Diſadvantage; the Diſtinction of *Genders* being intirely uſeleſs.

The *Latins*, *Greeks*, &c. generally content themſelves to expreſs the different *Genders* by different Terminations, as *Bonus equus*, a good Horſe; *bona equa*, a good Mare, &c. But in *Engliſh*, we frequently go further, and expreſs the Difference of Sex by different Words; as Boar, Sow; Boy, Girl; Buck, Doe; Bull, Cow; Cock, Hen; Dog, Bitch, &c.

We have only about 24 Feminines, diſtinguiſh'd from the Males, by the Variation of the Termination of the Male into *eſs*; of which Number are Abbot, Abbeſs; Count, Counteſs; Actor, Actreſs; Heir, Heireſs; Prince, Princeſs, &c. which is all that our Language knows of any thing like *Genders*.

The Eaſtern Languages, as well as the vulgar Languages of the Weſt, have only two *Genders*; the *Maſculine Gender*, and *Feminine Gender*. The *Greek* and *Latin* have likewiſe the *Neuter*, *Common*, and the *Doubtful Gender*; and beſide theſe, they have the *Epicene*, or Promiſcuous, which under one ſingle *Gender* and Termination includes both the Kinds. See MASCULINE, FEMININE, NEUTER, EPICENE, &c.

GENDER, in Geometry. Geometrical Lines are diſtinguiſh'd into *Genders*, Claſſes, or Orders, according to the Number of the Dimenſions of an Equation, expreſſing the Relation between the Ordinates, and the Abſciſſæ. See GEOMETRICAL *Line*.

GENDER, in Botany, GENDER, in Muſick, &c. } ſee } GENUS.

GENEALOGY, a Series, or Succeſſion of Anceſtors, or Progenitors: Or, a ſummary Account of the Relations and Alliances of a Perſon, or Family, both in the Direct, and Collateral Lines. See LINE, COLLATERAL, DIRECT, DEGREE, &c.

In divers Chapters, and Military Orders, 'tis required that the Candidates produce their *Genealogy*; to ſhew that they are Noble by ſo many Deſcents. See DESCENT.

The Word is *Greek*, γενεαλογία, which is form'd of γενὸς, *Genus*, *Proſapia*, Race, Lineage; and λόγ☉, *Sermo*, Diſcourſe.

Genealogical Tables, *Genealogical Tree*, *Genealogical Column*: The *Genealogical* Degrees are repreſented in Circles, ranged over, under, and aſide of each other. The Antients had the like; which they called *Stemmata*, from a *Greek* Word, ſignifying *Crown*.—

GENERAL,